www.workinprogress-symposium.design

CONFERENCE PROCEEDINGS

13th May 2025

Bangkok, Thailand

BANI WORLD

THE 13TH INTERNATIONAL ARTS AND DESIGN SYMPOSIUM 2025

RANGSIT UNIVERSITY
Digital Art
College of Design

BANI
THE 13TH INTERNATIONAL ARTS AND DESIGN SYMPOSIUM 2025
WORLD

The 13 th International Art and Design Symposium; "Work in Progress 2025"

สภาคณบดีทางศิลปะแห่งประเทศไทย

Operated by

RANGSIT UNIVERSITY

Digital Art
RANGSIT UNIVERSITY

College of Design

The symposium is hosted by Council of Arts and Design Deans of Thailand (CADDT), The Association of Siamese Architects under the Royal Patronage (ASA), The Royal Photographic Society of Thailand and Thai Graphic Designers Association (ThaiGa); operated by the College of Design, Faculty of Digital Arts, and the Faculty of Architecture Rangsit University. International Arts and Design Symposium "Work in Progress" (Founded in 2012) is an international forum for scholars, designers, and artists from various fields to share their works in progress.

www.workinprogress-symposium.design

EXECUTVE COMMITEES / REVIEWERS

DESIGN

Professor Eakahat Joneurairatana, Ph.D.
(Silpakorn University, Thailand)

Mr. Somchai Jongsaeng
(Deca Atelier Co., Ltd, Silpathon Award in Design, Thailand)

Associate Professor Siek Hwee Ling, Perline, Ph.D.
(UCSI University, Malaysia)

Mr. Franyo Aatoth
(Artist Creator of Exceptional Graphic Works, France)

Associate Professor Dr.Sant Suwatcharapinun
(Chiangmai University, Thailand)

Assistant Professor Permsak Suwannatat, Ph.D.
(Chulalongkorn University, Thailand)

Assistant Professor Dr. Dynaya Bhutipunthu
(Mahidol University International College, Thailand)

Assistant Professor Pailin Phokthavi
(Rangsit University, Thailand)

FINE ART

Professor Kamol Phaosavasdi
(Chulalongkorn University, Thailand)

Mr. Chookiat Likitpunyarut
(Artist, Thailand)

Mr. Jitsing Somboon
(Artist and Creative Consultant, Thailand)

Associate Professor Siek Hwee Ling, Perline, Ph.D.
(UCSI University, Malaysia)

Ms. Geri Forkner
(Textile Artist, U.S.A.)

Mr. Franyo Aatoth
(Artist Creator of Exceptional Graphic Works, France)

Associate Professor Sone Srimatrang
(Silpakorn University, Thailand)

ARCHITECTURE

Associate Professor Chaiyasit Dankittikul, D.E.D.
(Silpakorn University, Thailand)

Assistant Professor Walaiporn Nakapan, Ph.D.
(Faculty of Architecture, Chulalongkorn University, Thailand)

Assistant Professor Narupol Chaiyot, Ph.D.
(Faculty of Architecture, Rangsit University, Thailand)

Mr. Edward Samuel Vincent
(Foreign Lecturer of Faculty of Architecture, Chiang Mai University, Thailand)

Associate Professor Asrul Mahjuddin Ressang Aminuddin, Ph.D.
(Lead Researcher/Principal Investigator International Liaison Officer, Faculty of Built Environment, Universiti Malaya, Malaysia)

Associate Professor Chaweewan Denpaiboon, Ph.D.
(Department of Housing, Faculty of Architecture, Chulalongkorn University, Thailand)

Assistant Professor Chaowalid Saicharoen, Ph.D.
(Faculty of Architecture, Chiang Mai University, Thailand)

Associate Professor Wiroj Sheewasukthaworn, Ph.D.
(Faculty of Architecture, Urban Design and Creative Arts, Mahasarakham University, Thailand)

Assistant Professor Chiranthanin Kitika, Ph.D.
(Faculty of Architecture, Chiang Mai University, Thailand)

Professor Chatri Prakitnonthakan, Ph.D.
(Faculty of Architecture, Silpakorn University, Thailand)

Ms. Julie Nichols, Ph.D.
(School of Art, Architecture and Design, University of South Australia, Australia)

Mr. Tommy CheeMou Yang
(Faculty of Architecture, Carnegie Mellon University, USA)

Associate Professor Antonello Alici, Ph.D.
(Dipartimento di Ingegneria Civile, Edile e Architettura, Universita Politecnica della March, Italy)

PROJECT DESCRIPTION

In today's complex and chaotic world, rapid changes in the modern global landscape highlight the fragility of once-stable systems. The anxiety arising from predictions of a difficult future manifests in a formless manner, with scattered and complex changes that are hard to comprehend. These profoundly impact people's lifestyles and daily routines. Reflecting on and questioning these changes is a crucial opportunity to understand our rapidly evolving world.

To describe the unpredictable nature of the current world, its volatility, structural fragility, anxiety about the future, the irrationality of events, and the overwhelming influx of incomprehensible information, American futurist Jamais Cascio introduced the concept of BANI as a framework for understanding the characteristics of our present-day fragile world. BANI is derived from Brittle, Anxious, Nonlinear, and Incomprehensible, reflecting the various challenges humans face in a world filled with anxiety and unpredictability.

The 13th International Arts & Design Symposium 2025: BANI WORLD invites viewers to contemplate the current state of society, the fragility humans face, the uncertainty-filled world, and the consequences of decisions with unpredictable outcomes. This is to understand new possibilities that may lead to change and to prepare for adapting to the inevitable new environment."

OPENING REMARKS

The 13th International Arts and Design Symposium “Work in Progress 2025”
By The Chairman of the council of arts and design deans of Thailand

Dear Honorable Guests, Esteemed Speakers, Academics, and All Participants, On behalf of the President of the Council of Deans of Arts and Design of Thailand. I would like to express my gratitude to the Faculty of Digital Arts, College of Design, and the Faculty of Architecture, Rangsit University,for their commitment to disseminating knowledge and concepts in art and design to a wider public.

This has been achieved through the organization of an international exhibition that creates opportunities to learn from one another and build new skills. With diversity and quality, the International Arts & Design Symposium 2025—now in its 13th edition is supported by the Council of Deans of Arts and Design of Thailand.

The shared objective is to provide a platform for presenting creative works to networks of organizations, academics, and artists. It also facilitates knowledge exchange in art and design, which will concretely support the development of art and culture. This initiative promotes the continuation of a strong cultural heritage and fosters future academic collaborations. With such significant shared objectives, I am confident that the International Arts & Design Symposium 2025 will promote the development of creative works and sustainably strengthen the academic network of creative artists.

Finally, I sincerely hope that this International Arts & Design Symposium 2025 will achieve all of its objectives. Thank you to all members of the organizing committee who have contributed to the organization of this exhibition.

Thank you,

Asst. Prof. Dr. Kittikorn Nopudomphan
(The Chairman of the council of arts and design deans of Thailand)

WELCOMING REMARKS

The 13th International Arts and Design Symposium "Work in Progress 2025"
By The President of the Association of Siamese Architects under Royal Patronage

Ladies and gentlemen, distinguished guests, scholars, designers, and artists from around the world.

I'm Mr. Asae Sukhyanga, President of the Association of Siamese Architects under Royal Patronage, and I am deeply honored and immensely proud to have the opportunity to deliver this speech on the significant occasion of the 13th International Art and Design Symposium, the "Work in Progress," under the theme "BANI WORLD," a concept introduced by American futurist Jamais Cascio as a framework for understanding the characteristics of today's world, which is marked by structural fragility. The BANI framework consists of four key elements: Brittle, Anxious, Nonlinear, and Incomprehensible. BANI represents the numerous challenges humanity encounters in the modern world, defined by uncertainty and unpredictable outcomes. The rapid changes significantly impact people's lifestyles and daily lives worldwide.

In the future, architectural design must consider flexibility in terms of space utilization, structure, and materials to adapt to unpredictable changing situations, to enable buildings to effectively meet the diverse needs of users while being environmentally friendly. Moreover, such designs must allow for adaptations to accommodate unforeseen circumstances and respond efficiently to change.

Change continues to progress rapidly. Education systems, learning methods, and communication formats will no longer remain static. We invite everyone to join the 13th International Art & Design Symposium: "Work in Progress – BANI WORLD," to explore and understand the dynamics of this new era together.

Thank you,

Mr. Ace Sooyoung
The President of the Association of Siamese Architects under the Royal Patronage

WELCOMING REMARKS

The 13th International Arts and Design Symposium “Work in Progress 2025”
By Vice President and Secretary of The Royal Photographic Society of Thailand

Dear Honorable Guests, Distinguished Speakers, Academics, and Fellow Creatives, It is a great honor, on behalf of the Royal Photographic Society of Thailand, to participate as a co-organizer of the 13th International Arts and Design Symposium; Work in Progress – BANI World.

This symposium brings together diverse voices from around the world to explore creativity in the context of a rapidly changing world — what we now define as the BANI world: Brittle, Anxious, Nonlinear, and Incomprehensible. In such conditions, art and design play a vital role in helping us reflect, connect, and adapt.

The theme “Work in Progress” beautifully captures the evolving nature of creative work — always in motion, always searching. It invites us to embrace experimentation, uncertainty, and collaboration across cultures and disciplines.

I would like to express my sincere gratitude to the organizers and all contributors. I am confident this symposium will spark meaningful dialogue and foster new creative connections.

Thank you,

Mr. Naphat Ratanasakdi
Vice President and Secretary of The Royal Photographic Society of Thailand

WELCOMING REMARKS

The 13th International Arts and Design Symposium "Work in Progress 2025"
By The President of the Thai Graphic Designers Association (ThaiGa)

Dear distinguished guests, respected colleagues, fellow creatives, and all participants,

On behalf of the Thai Graphic Designers Association – or ThaiGa – I'm truly honored to stand before you at the 13th International Arts and Design Symposium, under the timely and thought-provoking theme: "Work in Progress - BANI WORLD."

We are living in a time defined by complexity. The world we design for is brittle, anxious, nonlinear, and often incomprehensible – a true BANI world. In this reality, traditional logic and linear thinking often fall short. The challenges we face – socially, environmentally, technologically – are not black and white, but layered, shifting, and filled with contradictions.

As designers, we are no longer simply problem-solvers. We are sense-makers, connectors, and cultural interpreters. And in this age of uncertainty, I believe that we must learn not only to adapt – but to enjoy the messiness. To embrace complexity as a creative playground, not as a barrier. Great design today is not born out of control, but from curiosity, openness, and the willingness to engage with difficult questions.

At ThaiGa, we believe that design is a living process – a continuous exploration of values, visions, and voices. And in a world that often demands instant solutions, we see deep value in slowing down, asking better questions, and working together in progress – not toward perfection, but toward possibility.

Let this symposium be a space for dialogue, not just display. A space for connecting across cultures, disciplines, and generations. And most of all, a space that inspires all of us to remain open, experimental, and courageous – even in the most uncertain times.

Thank you for being here, and I wish you all an enriching and meaningful experience ahead.

Asst. Prof. Akarapon Kritruenonwong
The President of the Thai Graphic Designers Association (ThaiGa)

WELCOMING REMARKS

The 13th International Arts and Design Symposium “Work in Progress 2025”
Chairman of Working Committees. Dean of Faculty of Digital Art, Rangsit University

Distinguished guests, esteemed artists, designers and architects

Welcome to the 13th International Arts & Design Symposium “Work in Progress”—a space where creativity, technology, and vision converge. This year’s theme, “BANI World” challenges us to rethink our approaches to digital art, design, and architecture in an era that is Brittle, Anxious, Nonlinear, and Incomprehensible (BANI).

We are living in a time of rapid technological shifts, environmental crises, and societal transformation. The tools and methods we once relied on are no longer enough. Instead of designing for stability, we must design for adaptability. Instead of seeking permanence, we must embrace fluidity.

This symposium is not just a conference—it is a collaborative laboratory of ideas, experiments, and bold visions. Our work is not finished; it is always a work in progress, just like the world we shape.

Let’s embrace the uncertainty, push boundaries, and design a future that is not just functional but transformative.

Welcome to the 13th International Arts & Design Symposium “Work in Progress: BANI World”—where creativity is evolving, and the future is ours to shape.

Thank you,

Mr. Nuttavut Seemontara
Chairman of Working Committees. Dean of Faculty of Digital Art, Rangsit University

KEYNOTE SPEAKER

YIYANG SUN / CHINA VISUAL ARTIST

KEYNOTE SPEAKER

BIOGRAPHY:
Yiyang Sun 2000 Born in Shanghai, China. A craft woman gives birth to handmade films, unplaying games and puppets with digital puppetry. Sun focuses her practice on imagery of idolls through animating elephants in Liminal Spaces, creating giant puppets and ritual experiences under matryoshka structure.

Her films have been screened worldwide in 30 countries, such as Animafest Zagreb, PÖFF Shorts, Kaboom Animation Festival, and Animateka Animated Film Festival. She got an award in Best Experimental Film-PIAFF Paris International Animation Film Festival and Best Audience award in Rise and Shine CEE Animation lab in 2024. She was the Jury in the International Short Film Festival Nijmegen in the Netherlands.

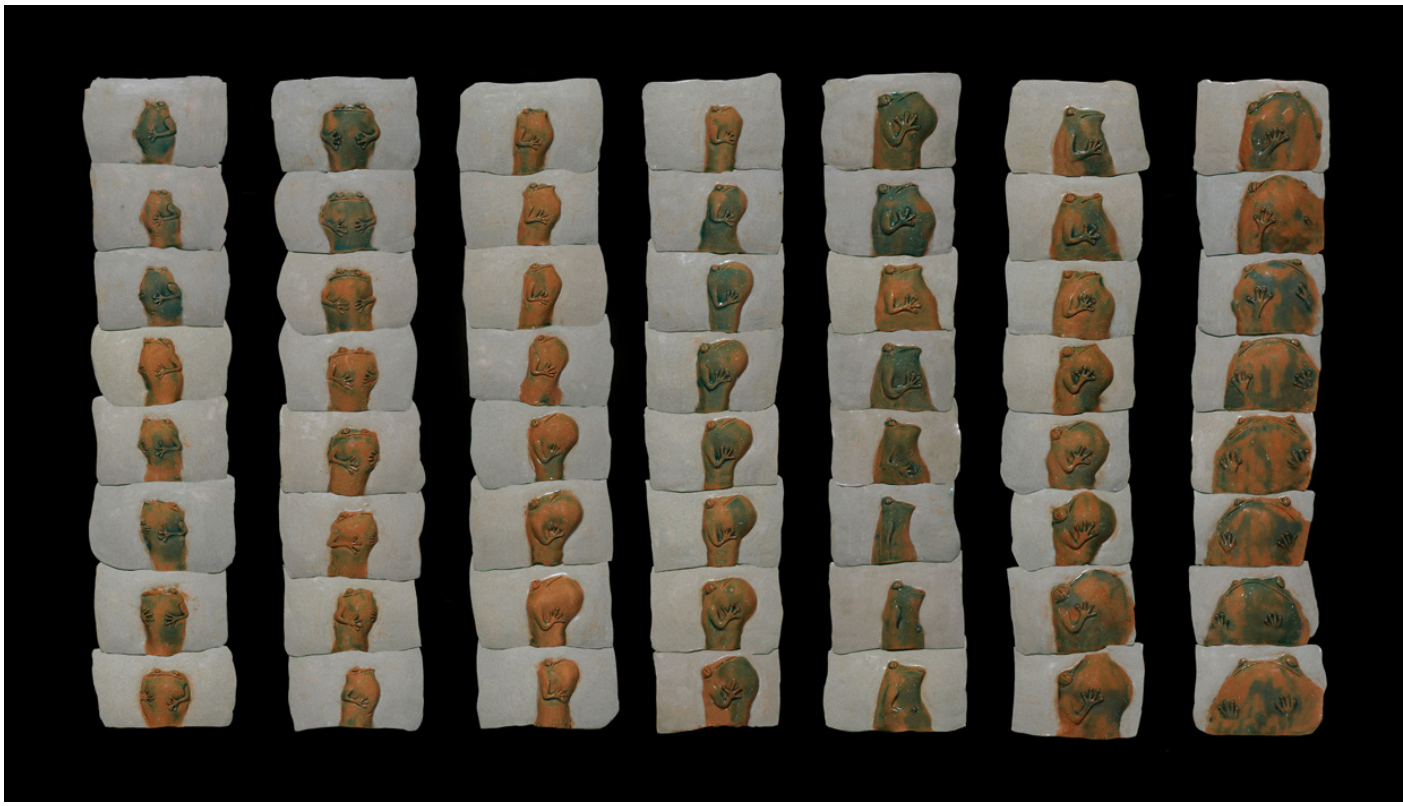
By practising proRegress actions, she starts to create refiguration of surrealism folk tales through concrete animated film during the craft of framing time. Her exploration opens up a new approach through The engagement of dematerialize, rematerialize for animating toys and "childish thing".In the End, Sun breaks the moving images in an unexpected way and gets rebirth. Sun regards herself as the "Bunny mimic Nüwa" in both game and labor. www.yiyangsun.com

KEYNOTE SPEAKER

YIYANG SUN / CHINA
VISUAL ARTIST

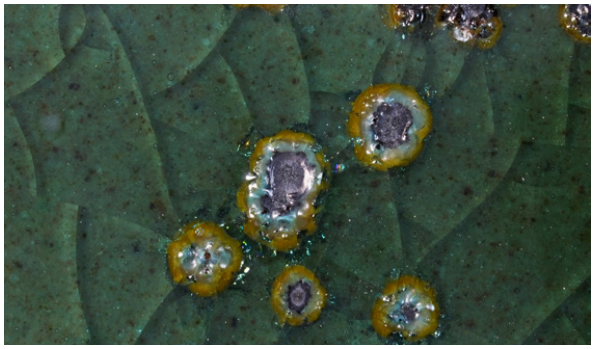
The Imagery of Idoll under the Liminal Space– BANI

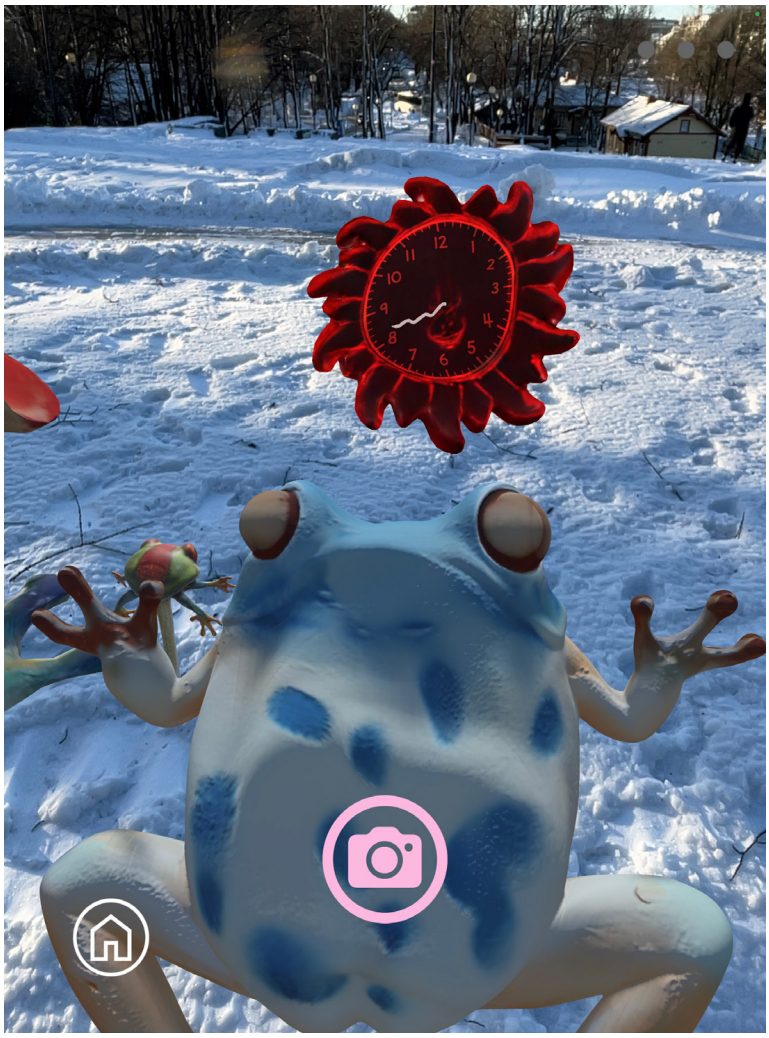
KEYNOTE SPEAKER



Frozen Frog
2023 / 3mins 21secs / Experimental Animation

YIYANG SUN / CHINA
VISUAL ARTIST





TickTacK
Augmented / Reality Game color / Estonia

KEYNOTE SPEAKER

BREED
2024 / 8mins 39secs / Structural- materialist Animation

TickTack × Liminal Space × Interconnectedness, Non - Linear Complexity, Adaptability

TABLE OF CONTENTS

1. Reinterpreting Shanxi Museum's Bronze Artifacts: Reviving Cultural Heritage through Iconic Design for Cultural Products 1
Ma Gaoyuan[1], Sammiti Sukbunjhong[2]*

2. Designing a Visual Card Game for Stress Relief Among Young Women in China's Construction Industry 11
Jianyu Guan[1], Sirada Vaiyavatjamai[2]*

3. Shared Living, Shared Design: Creating intelligent Integrated Cooking Bench For Humans and Pets 20
Zou Yuyang[1], Pakorn Prohmvitak[2]*

4. Enhancing Self-Awareness Through Photography: Evidence from a Five-Day Therapeutic Workshop 30
Haoting Ge[1] and Sammiti Sukbunjhong[2]*

5. Thai Cultural Identity and Character IP Design into Pet-Friendly Urban Spaces in Bangkok 39
Yannan Wu[1] and Sirada Vaiyavatjamai[1]*

6. The Healing Illustrations in Food Packaging Design for Young Generation 49
Ji Yu1[1], Sirada Vaiyavujamai[1] and Minjade Paklapas[1]*

7. The Development of Burmese Local Materials for Meditation Seat Design 55
Ya Min Shwe Sin[1], Sammiti Sukbunjhong[1] and Patipat Chaiwitesh[1]*

8. Innovative Application of Dongba Script in Cultural and Creative Product Design 63
Qiongyan He[1], Danu Phumalee[1] and Sopanut Somrattanakul[1]*

9. Chinese Bai Tie-Dye Design: Yunnan Dali Tie-Dye Case Study 73
Liao Qianling[1], Danu Phumalee1 and New[1]*

10. Incorporating Jing Tailan Craftsmanship into Contemporary Jewelry Design 83
Zhong Chunxian[1] and Sammiti Sukbunjhong[1]*

11. Preserving Cultural Heritage: Dian Cui Craft with Alternative Materials for clarity and proper formatting **91**
Ziwen Gao[1], Sammiti Sukbunjhong[1] and Sopanut Somrattanakul[1]*

12. Exploring Character Design in Buddhist Culture for Chinese Generation Z **97**
Hai Quan[1], Danu Phumalee[1] and Sammiti Sukbunjhong[1]*

13. Designing RPG Games to Promote Teenagers' Empathy Toward Children with Autism **107**
Qingyu Yang[1], Sirada Vaiyavatjamai[1] and Supat Kittawornrat[1]*

14. Generative AI Empowers Sci-Fi Short Videos: An Innovative Way to Awaken Anti-war Awareness **117**
Xiaoyong Li[1], Sammiti Sukbunjhong[1] and Minjade Paklapas[1]*

15. Creating an Immersive Isaan Dining Experience Through Culturally-Inspired Design for Foreign Users **127**
Shadonvirulpatch Plutoteerak[1], Sammiti Sukbunjhong[1] and Rewat Chumnam[1]*

16. Cultural Fusion in Design: Exploring Chinese Ethnic Patterns for Creative Products **137**
Mi Guo[1] and Sammiti Sukbunjhong[1]*

17. Using Visual Design on Social Media to Promote Gender Equality Awareness **145**
Lin JingWen[1], Sammiti Sukbunjhong[1], and Minjade Paklapas[1]*

18. The Application of Dongyang Woodcarving in Furniture During the Ming and Qing Dynasties and Its Influence on New Chinese-Style Furniture **154**
Tianle Cheng[1] and Sammiti Sukbunjhong[1]*

19. Refabricated Tong-Tung roof: local materials for sustainable architecture **160**
Sungwiset Natthaphum

20. Digital Age:The Study Of Communication Model As A Methodology To Create An E-Advertising **171**
Feiran Wang[1] and Sammiti Sukbunjhong[1]*

21. Designing a Modern Tea Table: Integrating Aesthetic Concepts of the Tang Dynasty **177**
Hengxi Ge[1] and Sammiti Sukbunjhong[1]*

22. Voice of the Unheard: A Documentary on Workplace Harassment Face by Women in Thailand's Tourism Industry **184**
Murad Hossain[1], Sammiti Sukbunjhong[2] and Minjade Paklapas[3]*

23. The Comic Design Aims To Enhance Teenagers Awareness And Prevention Of Depression **195**
Peihan Wu[1], Danu Phumalee[1]and Sammiti Sukbunjhong[1]*

Reinterpreting Shanxi Museum's Bronze Artifacts: Reviving Cultural Heritage through Iconic Design for Cultural Products

Ma Gaoyuan[1*], Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: gaoyuan.m@rsu.ac.th

Abstract

This study explores the innovative transformation of Shanxi Museum's bronze artifacts into contemporary cultural products through a design-based research methodology. Focusing on the Jin Hou Niao Zun as a case study, we employ semiotic analysis and morphological reduction techniques to deconstruct and reinterpret traditional bronze ritual motifs. The research demonstrates how integrating ritual symbolism with modern functionality can effectively bridge cultural heritage and contemporary design. Key findings include: (1) a systematic design framework for cultural product development, (2) successful application of parametric pattern simplification techniques, and (3) positive market feedback from young consumers (aged 18-35) on prototype products. The study contributes to cultural heritage preservation by providing practical design strategies that maintain historical authenticity while meeting modern aesthetic and functional demands.

Keywords**:** *Reinterpret, bronze artifacts, cultural heritage, iconic design, cultural products*

1. Introduction

Bronze Artifacts are a vital testament to ancient Chinese civilization, not only showcasing the sophisticated craftsmanship of early societies but also embodying rich layers of cultural meaning—religious rites, social hierarchy, and aesthetic values. As a national first-class museum, the Shanxi Museum houses over a thousand exquisite bronzes dating from the Shang and Zhou to the Spring and Autumn and Warring States periods, providing unique perspectives and invaluable materials for archaeology, history, and art history research. By systematically studying these artifacts, we can trace the development of Chinese civilization and explore the evolution of ancient metallurgical techniques and the social structures behind them.

However, with the forces of globalization and the accelerating pace of modern life, the connection between traditional cultural symbols and everyday experience has gradually weakened. This is especially true among young people aged 18–35, whose awareness of and interest in museum bronzes are declining. Research shows that the complexity of traditional patterns often clashes with modern preferences for simplicity, making these culturally rich symbols hard to integrate into contemporary life.

At the same time, the global cultural and creative industries are booming. In the UK, France, and elsewhere, museums have deeply integrated their collections with creative design, producing cultural and creative products in home décor, fashion, and digital interaction. In China, the "14th Five-Year Plan for Cultural Relics Protection and Technological Innovation" calls for combining museum collections with modern technology and design innovation to revitalize cultural heritage.(The State Council of China, 2021).Although the Shanxi Museum has launched initiatives like the "Bronze Memories" series, these efforts have often remained limited to single media or technical displays, lacking a systematic design translation framework.

Therefore, this study focuses on the modern reinterpretation and redesign of Shanxi Museum's bronze patterns. It aims to develop a design paradigm that balances cultural depth with market demand by applying semiotic analysis, vector simplification, and multi-scenario applications to bring traditional patterns into contemporary life.

2. Objectives

The objectives of this research are as follows:

1) To reinterpret Shanxi Museum's bronze ritual motifs as a means to preserve their historical significance while aligning them with contemporary aesthetic values.

2) To develop the "Copper Imprint" series products for the Shanxi Bronze Museum, transforming historical ritual motifs into practical and innovative cultural items that resonate with younger audiences and integrate seamlessly into modern life.

3) To design everyday items as cultural product carriers by skillfully incorporating the art of bronze ware into creative products, promoting cultural heritage in daily life.

3. Research Details

This research adopts a three-phase iterative framework integrating field research, case study analysis, and design practice. The study begins with on-site investigations at five major museums in Shanxi and Shaanxi to observe exhibition strategies and gather user insights through visitor interviews. This is followed by a comparative analysis of over 30 cultural-creative products related to bronze culture, identifying key design limitations and opportunities. Based on these findings, the final design practice phase involves the extraction, abstraction, and application of ritual motifs—primarily from the Jin Hou Bird Zun, Jin Gong Basin, and Owl-Shaped You—into an interactive puzzle prototype. This phased approach allows for a systematic translation of symbolic content into contemporary design language, emphasizing user engagement and cultural continuity.

3.1 Historical Significance of Bronze Culture

The evolution of ancient Chinese Bronze Artifacts mirrors the development of Chinese civilization. From the height of bronze production in the Xia, Shang, and Zhou dynasties to its gradual decline after the Qin and Han, and then the rise of epigraphy in the Tang and Song periods, changes in bronze use closely track shifts in politics, economy, and culture. The creation, use, craftsmanship, style, and symbolism of Bronze Artifacts all reflect the defining features of Chinese civilization. By studying these artifacts, we gain deeper insight into China's historical trajectory, ancient social structures, cultural values, and national spirit—offering valuable lessons for today's cultural preservation and innovation.

3.2 Museum-Based Investigation of Bronze Cultural Artifacts

Shanxi sits at the heart of early Chinese civilization. Finds such as the red-copper objects at the Taosi site and the Xia–Shang mining and smelting remains in the Zhongtiao Mountains demonstrate the region's rich copper deposits, which laid the foundation for bronze production. Archaeological excavations across Shanxi have revealed bronzes of the Jin tradition that trace the cultural lineage of the Shang and Zhou courts and chart the evolution of China's ritual-music civilization, creating a unique regional cultural identity. From the mid-Spring and Autumn period onward, Jin bronze working techniques saw continuous innovation, reaching a technical and artistic peak and marking a key milestone in Eastern Zhou's social and economic development.

The Jin Hou Niao Zun (shown in Figure 1) is a star exhibit at the Shanxi Museum, recognized as a "treasure of the collection" and a quintessential representation of Western Zhou bronze artistry. Unearthed in 2000 from Tomb No. 114 in the cemetery of the Jin Marquis at Beizhao Village, Quwo County, the vessel measures 39 cm in height, 30.5 cm in length, and 17.5 cm in width. As a principal ritual implement enshrined in the early Western Zhou ancestral temple of Jin, it reflects both exceptional metallurgical technique and deep cultural symbolism.

Figure 1 Jin Hou Niao Zun, a Western Zhou bronze ritual vessel shaped like a phoenix with an elephant trunk tail.
Source: Shanxi Museum, photographed by researcher, 2025

The vessel's lid (shown in Figure 2) features a backward-looking phoenix, whose tail transitions into a curling elephant trunk, and its body is adorned with intricate cloud-and-thunder motifs. The phoenix, long regarded as an auspicious Zhou symbol frequently appearing on elite bronzes, jades, and silks, signifies heavenly mandate and ancestral authority. The artifact's wine-pouring mouth is located on the phoenix's back, embodying the belief that offerings rise to the heavens. Cast inside the lid and on the base is the identical nine-character inscription: "晋侯作向太室宝尊彝" ("The Jin Marquis made this precious zun for the Grand Ancestral Temple"), indicating its intended function as a permanent sacred object in the state's ancestral rites.

Figure 2 The phoenix-decorated lid of Jin Hou Niao Zun with ritual inscription.
Source: Shanxi Museum, 2025

The vessel also carries a remarkable modern history. It was damaged during a tomb robbery in 1892, during which the elephant-trunk-shaped fragment was smuggled overseas. In 2018, the lost component was rediscovered and repatriated, and by 2020, nano-scale 3D printing technology enabled its precise restoration. Thus, the Jin Hou Niao Zun not only embodies historical ritual meaning and state identity, but also serves as a symbol of cultural resilience and contemporary technological intervention.

3.3 Evidence-Based Case Analysis of Bronze-Inspired Products

To further explore museum creative-product design strategies and market reactions, this study examined five representative museums in Shanxi and Shaanxi: Shanxi Museum, Linfen Museum, Shanxi Bronze Museum, Jin State Museum, and Shaanxi History Museum. Each institution has launched innovative creative products based on bronze or other traditional cultural elements, combining visual creativity with practical function.

Edible & Portable Souvenirs

In my survey, most respondents said they were most interested in "edible creative products" (e.g., themed ice cream) and "portable creative products" (e.g., keychains and fridge magnets) when visiting museums. Shanxi Museum's bird-shaped ice cream (shown in Figure 3) drew especially high attention for its unique colors and form. Offered in mango and matcha flavors, it symbolizes the bronze's original hue and its oxidized patina, marrying visual appeal with cultural meaning. This product has proven popular with post-'90s and post-'00s visitors and is ideal for social-media sharing.

Figure 3 Artifact-Shaped Ice cream
Source: Shanxi Museum, photographed by researcher, 2025

Functional Tableware

Linfen Museum transformed bronze patterns into everyday tableware (shown in Figure 4) , such as plates embossed with classic motifs. This line both conveys local heritage and meets daily use needs. According to the survey, 45% of respondents felt that integrating traditional patterns into home products was the best way to "bring culture home."

Figure 4 Tableware
Source: Jin State Museum, photographed by researcher, 2025

Replica Fridge Magnets

Shanxi Bronze Museum's replica-artifact fridge magnets (shown in Figure 5) are finely crafted and rich in historical texture. However, 32% of survey participants noted that without interactive features (e.g., puzzle-style pieces), such items risk visual homogenization.

Figure 5 Artifact-Shaped Fridge Magnets
Source: Shanxi Bronze Museum, photographed by researcher, 2025

Artifact-Shaped Keychains

Jin State Museum developed keychains modeled (shown in Figure 6) on artifacts like the Jin Hou Niao Zun. Lightweight and practical, they subtly promote Jin culture in daily life. Over 60% of young users prefer "light and useful" creative products, making keychains a fitting choice. Yet some respondents suggested that using only one material reduces tactile quality and recommended adding metal or enamel details to boost collectability.

Figure 6 Artifact-Shaped Keychains
Source: Jin State Museum, photographed by researcher, 2025

IP-Driven Digital Experiences

Shaanxi History Museum's "Tang Niu" series (shown in Figure 7) combines IP branding with digital interaction, offering immersive virtual experiences that attract many Gen Z consumers. However, some visitors worry that over-reliance on the "Tang Niu" character overlooks other artifacts.

Figure 7 Tang Niu Bookmark
Source: Shaanxi History Museum, photographed by researcher, 2025

Overall, while each museum successfully achieves "cultural visualization" by leveraging artifact IP, common challenges remain product lines often homogenize, interactivity is limited, and IP strategies lack systematic development.

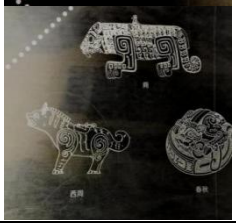
4. Results

4.1 Artistic Characteristics and Cultural Connotations of Bronze Vessel Patterns

The decorative motifs on Bronze Artifacts reflect the ideas, culture, and spiritual beliefs of ancient people. They are patterns that abstractly and transform everyday objects seen in daily life and work. These motifs radiate a primitive, unadorned yet mysteriously captivating beauty. By understanding their deeper meanings, we can more fully appreciate Bronze Artifacts and immerse ourselves in the world of the ancients.

Bronze-vessel patterns (shown in Table 1) are decorative motifs cast onto the surfaces of ritual bronzes. They are rich in symbolism and reflect the aesthetic tastes and values of ancient society. Common pattern types and their cultural meanings include:

Table 1 Bronze-vessel patterns

Pattern	Meaning	Image
Taotie patterns	A stylized beast-face motif with sinuous, interlocking lines often found on large ritual vessels (e.g., ding, li). It symbolizes power and authority and also serves as an apotropaic (protective) emblem.	
Animal-face patterns	Depictions of bovine, tiger, or other animal heads closely linked to sacrificial rites and expressing reverence for ancestors and deities.	

Cloud-and-thunder patterns	Alternating convex and concave curves that signify the cosmic order and the rhythms of heaven.	
Dragon and phoenix patterns	Dragons represent auspicious power and royal authority, while phoenixes connote good fortune and feminine grace. Their combination on high-status vessels underscores ancient beliefs in the harmony of the natural and divine worlds.	

Source: Shanxi Bronze Museum, compiled by researcher, photographed by researcher, 2025

Formally, these patterns exhibit high degrees of symmetry, repetition, and dynamic flow, creating visual rhythm and tension through repeated curves and geometric shapes. Technically, casting methods such as the lost-wax and piece-mold techniques, combined with surface treatments like polishing and gilding, enhance the patterns' texture and three-dimensionality.

4.2 From Semiotic Deconstruction to Design Application

This study adopts a comprehensive semiotic–design integration path that bridges traditional symbolism with contemporary product innovation. Drawing on Roland Barthes's semiotic theory, bronze vessel patterns are analyzed as cultural signs encompassing both the signifier (formal elements) and signified (cultural meanings). Through morphological reduction—a visual linguistic approach—these complex motifs are deconstructed into basic geometric elements, reconstructed based on semiotic grammar, and visually reinforced via color, whitespace, and material contrast. This process transforms intricate cultural symbols into iconic, highly recognizable visuals suited for modern design applications, while preserving their traditional essence.

Building upon the theoretical foundation of cultural-creative design and heritage communication, this study proposes a design paradigm titled Bronze Imprint, which emphasizes the integration of cultural depth, functional usability, and visual appeal. This paradigm seeks to address the growing need for cultural products that are both emotionally resonant and practically engaging, particularly for younger audiences. At its core, the paradigm distills symbolic visual elements from bronze artifacts—such as spiral tails or looped motifs—and translates them into design features with practical functions. These elements are then embedded into product details, ensuring that cultural expression is not merely decorative but also participatory and interactive.

To effectively implement this paradigm, the study adopts a narrative-driven design methodology, selecting the restoration process of the Jin Hou Bird-Shaped Zun as the narrative foundation. By centering the design story on this culturally significant artifact, the process enhances user engagement through storytelling. The form-first principle is applied, using the zun's distinctive spiral tail and body proportions as structural references for the product's overall shape. Additionally, decorative patterns such as yunleiwen are abstracted through digital parametric tools, with Adobe Illustrator's "Text to Pattern" feature enabling the transformation of complex motifs into clean, editable geometric units that retain cultural essence while enhancing production feasibility.

In the prototyping stage, these abstracted visual elements are incorporated into the design of products such as stationery and puzzles. The puzzle, in particular, was chosen as the final carrier due to its potential for layered interaction and narrative immersion. Originally intended as an irregular-shaped puzzle to simulate

the fragmented nature of archaeological restoration, the design was later adjusted to a more feasible form due to technical constraints. Nevertheless, the concept remains rooted in cultural reconstruction and user participation.

The design aims to achieve two key objectives. First, it seeks to deepen cultural narrative through mission-based gameplay, allowing users to experience a complete journey of "Discovery – Restoration – Sharing." This interactive process not only enhances emotional engagement but also makes the artifact's story more accessible and memorable. Second, the design focuses on improving user experience by catering to a target demographic aged 18 to 35, a group characterized by strong preferences for interactivity, visual appeal, and social sharing. Through co-creation workshops and crowdfunding participation, users are invited into the design process, strengthening their sense of ownership and connection to cultural heritage.

4.3 Emotional Tone Design

The colors were inspired by the natural aging process of bronze. In its early stages, bronze appears in metallic hues like brass and light gold. As it oxidizes, it transitions to reddish-brown and brown. In its mid-stage, it turns greenish blue, giving rise to shades of blue and turquoise. Over time, it darkens into gray or black. These colors not only evoke a sense of ancient history but also carry symbolic cultural value, making them ideal for conveying both heritage and visual richness.

Color Psychology Application:

A bronze oxidation palette (shown in Figure 8) was used to represent the passage of time. Gradual color transitions convey both the weight of history and the hope of restoration.

Figure 8 Color Selection
Source: Researcher, 2025

4.4 Material Research & Selection

Material selection was a crucial phase, as it influenced the durability, aesthetic appeal, and production feasibility of the final product. Several materials were considered, each with its own advantages and drawbacks (shown in Table 2).

Table 2 Material Selection

Material	Advantages	Disadvantages
Wood	Natural texture, warm feel, sustainable	Susceptible to wear, higher cost in precise cutting
Metal	Durable, luxurious finish	Heavy, expensive, difficult to shape for interlocking puzzles
Resin	Flexible, allows intricate designs	Prone to yellowing over time, requires complex molding
Acrylic (Final Choice)	Lightweight, durable, vibrant color options, precise laser cutting	Can be brittle under extreme force, fingerprints visible on surface

Source: Researcher, 2025

After evaluating these factors, acrylic was chosen for the final production. Its smooth texture, transparency, and ability to retain fine details made it the ideal medium for translating bronze motifs into a contemporary puzzle format. Furthermore, acrylic offers customization flexibility, allowing for variations in color and finish to enhance the visual impact of the product.

4.5 Design Sketches & Model Iteration

In the early stages of the design process, geometric fragmentation was employed as a core visual strategy. Inspired by the distinctive silhouette of the Jin Hou Niao Zun, the artifact was deconstructed into 20 to 30 irregular polygonal pieces. This design not only reflects the intricate form of the original bronze vessel but also symbolically represents the physical damage often caused by tomb looting. The fragmented structure invites users to engage with the artifact's narrative through an act of reconstruction, echoing the restoration journey of cultural relics (shown in Figure 9) .

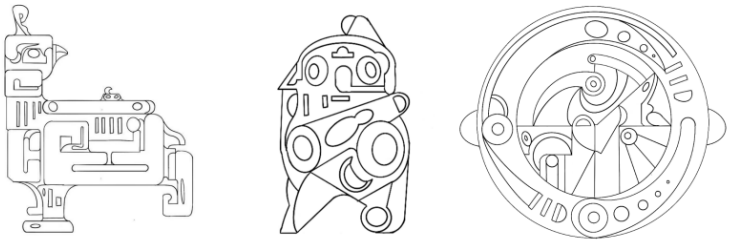


Figure 9 Sketches
Source: Researcher, 2025

To complement the physical design, the packaging was also developed with narrative depth in mind. The outer box features an unfoldable structure, and when opened, reveals a printed map of the Jin Hou tomb site on its interior surface. This contextual layer enhances the immersive experience, helping users situate the artifact within its archaeological and historical setting. Together, the design elements reinforce cultural storytelling and promote a stronger emotional resonance between the user and the heritage object (shown in Figure 10) .

Figure 10 Final product
Source: Researcher, 2025

4.6 Conclusion

This study, based on the bronze artifacts housed in the Shanxi Museum, explored the transformation of their artistic elements into modern cultural and creative designs. Through field research, pattern extraction, material testing, and product development, we successfully created an acrylic puzzle inspired by bronze relics.

The research indicates that bronze patterns possess not only rich visual language but also significant cultural symbolism. Integrating these patterns into puzzle products enhances the appeal of traditional

elements and increases user interaction and engagement. Acrylic was chosen as the primary material due to its high transparency, strong engravability, and moderate cost, making it an ideal medium for this application.

The final design harmoniously blends tradition with modernity, combining artistic value with practicality. This approach achieves the dual objectives of 'education through entertainment' and 'cultural transmission,' meeting the current museum cultural and creative market's demand for products that deeply integrate cultural elements.

5. References

Department of Archaeology, Peking University, & Shanxi Provincial Archaeological Research Institute. (1993). Report on the excavation of tombs at the Ma-Qucun site in spring 1992. Cultural Relics, (3).

Department of Archaeology, Peking University, & Shanxi Provincial Archaeological Research Institute. (1994). Second excavation of the North Zhao Jin Hou tomb at the Ma-Qucun site. Cultural Relics, (1).

Department of Archaeology, Peking University, & Shanxi Provincial Archaeological Research Institute. (1995). Fifth excavation of the North Zhao Jin Hou tomb at the Ma-Qucun site. Cultural Relics, (7).

Li, S., & He, X. L. (2002). The art of ancient Chinese bronze ware. Xi'an: Shaanxi People's Fine Arts Publishing House.

Li, Y. Z. (2016). The dual construction of material and intangible culture. Decoration (Zhuangshi), (5), 12–15.

Ma, C. Y. (2003). Chinese bronze ware (Revised ed.). Shanghai: Shanghai Ancient Books Publishing House.

Ni, Y. Z. (2011). The development and origins of art in Xia, Shang, and Zhou bronze ware (Doctoral dissertation). Suzhou University, Suzhou.

Peking University Archaeology Institute, & Shanxi Provincial Archaeological Research Institute. (2001). Sixth excavation of the North Zhao Jin Hou tomb at the Ma-Qucun site. Cultural Relics, (8).

Shanxi Museum. (2018). Archives of bronze treasures. Taiyuan: Shanxi People's Publishing House.

Shanxi Provincial Archaeological Research Institute, & Department of Archaeology, Peking University. (1994). Third excavation of the North Zhao Jin Hou tomb at the Ma-Qucun site. Cultural Relics, (8).

Shanxi Provincial Archaeological Research Institute, & Department of Archaeology, Peking University. (1994). Fourth excavation of the North Zhao Jin Hou tomb at the Ma-Qucun site. Cultural Relics, (8).

The State Council of China. (2021). The 14th Five-Year Plan for cultural relics protection and technological innovation.

Wang, H. (2020). Methodology of cultural and creative product design. Shanghai: Tongji University Press.

Zhang, Y. (2015). Research on the development and design of cultural creative products based on museum resources (Master's thesis). Suzhou University, Suzhou.

Zhou, M. Y., & Sun, X. (2020). Research on museum cultural creative product design. Packaging Engineering, 41(20), 1–7.

Zhu, F. H. (2009). A comprehensive study of Chinese bronze ware. Shanghai: Shanghai Ancient Books Publishing House.

Goosen, M. (1994). Oral delivery in aquaculture. *Aquacultural Engineering*, *13*, 311-323.

Srichandum, S. & Rujirayanyong, T. (2010). Production scheduling for dispatching ready mixed concrete trucks using bee colony optimization. *American Journal of Engineering and Applied Sciences*, *3*(1), 823-830.

Designing a Visual Card Game for Stress Relief Among Young Women in China's Construction Industry

Jianyu Guan[1*], Sirada Vaiyavatjamai[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: jianyu.g66@rsu.ac.th

Abstract

This study developed and assessed a visual card game aimed at alleviating occupational stress among young women employed in China's construction industry. A survey of 100 participants was conducted to identify the primary sources of workplace stress, with findings indicating that gender bias, long working hours, and lack of personal reflection opportunities were the most significant factors. Based on these insights, a visually engaging card game was designed to promote mindfulness, enhance emotional well-being, and foster a supportive sense of community. The game combines reflective prompts and actionable tasks, encouraging users to address workplace challenges while cultivating stress management habits. An evaluation involving user feedback and gameplay sessions demonstrated that the game holds potential as an accessible, engaging, and effective tool for personal reflection and stress relief within this professional demographic, offering a creative intervention for addressing workplace mental health concerns.

Keywords: *visual card game, stress relief, construction industry, emotional well-being*

1. Introduction

Workplace stress has become a significant concern for Chinese women aged 20–30, particularly within the male-dominated construction industry, where gender bias, work-life imbalance, and limited career advancement opportunities persist. Prolonged exposure to such stressors adversely affects mental health and career development. Existing interventions predominantly emphasize psychological counseling, with limited exploration of visual design tools for stress management. This study proposes the design of a visual card game as an interactive, reflective tool to alleviate workplace stress among this demographic. Integrating design thinking principles with psychological theories, the project aims to enhance self-awareness, identify stress sources, and encourage positive coping strategies. By addressing a current gap in stress management tools, this research contributes to the development of engaging, practical methods for promoting mental well-being in professional environments.

2. Objectives

1) To study the stress sources of Chinese women under 30 working in the construction industry, and explore how interaction and reflection can support stress relief.

2) To design a visual card game that guides users to identify stress sources and take practical actions through reflective and interactive prompts.

3. Details

3.1 Methodology

Table 1 Research Framework for Designing a Visual Card Game Tool to Address Workplace Stress in Young Women

Research Objective	Research Question	Research Methodology
To investigate workplace stress sources and self-reflection habits among young women, and to design a visual card game tool to	What are the main sources of workplace stress for young women, and how can a visual card	Survey

support stress relief and well-being.	game tool be designed to help them manage stress effectively?

Source: Researcher, 2025

4. Results

4.1 Data Collection

Table 2 Demographic and Stress Data of Young Female Workers in China, 2025 (**Unit: %)**

Category	Option	Percentage
Demographic Distribution	Age 20–24	59%
	Age 25–30	41%
	Entry-level position	63%
Sources of Work-related Stress	Gender bias / unfair treatment	77%
	Work-life imbalance	72%
Working Hours	10–12 hours/day	49%
	Over 12 hours/day	24%
	Less than 10 hours	27%
Self-reflection Habits	Regular habit	28%
	No habit but open	43%
	Not interested	29%
Preferences for Stress-relief Tools	Passive activities	79%
	Want engaging tools	70%
	Interested in card games	72%
	Prefer vibrant card designs	75%

Source: Researcher, 2025

Data collected via Wenjuanxing from December 1 to 21, 2024, included 100 valid responses from Chinese women aged 30 and under, mostly in entry-level positions. The majority (59%) were aged 20–24, and 63% held entry-level roles. Key stressors included gender bias (77%) and poor work-life balance (41% reported imbalance, 31% severe imbalance). Additionally, 73% worked over 10 hours daily. While 63% recognized the value of self-reflection for stress management, only 28% practiced it regularly. Most participants (79%) used passive activities like movies or music for relief, yet 72% showed interest in card games for self-reflection, with 75% favoring playful designs. These findings reveal ongoing workplace challenges and a demand for interactive, engaging stress-relief tools.

Based on the survey results, an effective stress-relief tool for young women should incorporate four essential features: actionable strategies, portability, reflection prompts, and engaging design. It should offer simple, practical actions for daily stress management, be compact for use anytime, anywhere, and include prompts to encourage mindfulness and emotional awareness. Additionally, incorporating playful, interactive elements can enhance user engagement, making stress relief and self-reflection more enjoyable and sustainable.

4.2 Card Illustrations with and without Facial Features

During the early stages of visual development, two illustration styles were explored: one with facial features and one faceless. While facial expressions offer direct emotional cues, they risk limiting user identification due to specific expressions or perceived identities. In contrast, faceless illustrations enhance emotional resonance and inclusivity by allowing users to project their own emotions onto the characters. This approach avoids cultural and personal biases, fostering broader recognition and deeper engagement among diverse young women in the workplace. Consequently, the faceless style was selected for the final design.

Figure 1 Illustration Sketch Design
Source: Researcher, 2025

4.3 Symbolic Elements in Card Design

Following the decision on the visual style, the design of the cards was further developed by incorporating symbolic elements that could resonate emotionally with the young women in the workplace. These elements were carefully selected to represent common challenges, emotions, and aspirations that this demographic face, enhancing the overall meaning of the cards and making the experience more impactful.
Source: Researcher, 2025

Table 3 Symbolic Elements in Card Design and Their Meanings

Stage	Symbol	Meaning
Struggles and Pressure	Birdcage	Confinement, societal restrictions
	Mask	Societal expectations, hidden identity
	Wine Glass	Temporary stress relief
Reflection and Exploration	Notebook	Self-reflection, planning
	Paper Plane	First attempts, initial exploration
	Balloon	Emotional release, sense of lightness
Career and Personal Growth	Ladder	Professional advancement, challenges
	Hot Air Balloon	Breaking boundaries, reaching new heights
Ultimate Freedom and Aspirations	Rainbow	Hope, inclusivity, positive transformation
	Whale	Freedom, vast possibilities, self-actualization

The symbols were chosen for their ability to resonate personally, transcending cultural or social markers. This flexibility allows the cards to connect with a variety of emotional states and experiences, making the tool universally relatable and emotionally inclusive. By incorporating these symbols, the cards invite users to reflect on their challenges and aspirations in a safe, empowering way, aligning with the goal of creating a reflective, emotionally resonant experience for young women in the workplace.

4.4 Integration of Symbolic Elements with Faceless Design

The decision to use faceless character illustrations allows for greater emotional inclusiveness, and when combined with carefully chosen symbolic elements, the cards become a powerful tool for self-reflection. The faceless design acts as a canvas, inviting users to project their own identities, emotions, and experiences onto the illustrations. This design approach works well with the symbolic elements, as the absence of facial features ensures that users are not restricted to predefined expressions or identities, thus enhancing emotional resonance.

For example: the birdcage symbol represents confinement, which fits perfectly with the faceless character, as it allows users to interpret their own feelings of being trapped without being constrained by a specific facial expression. The whale symbolizes resilience, which also works well with the faceless illustration. It encourages users to see themselves as a resilient force that overcomes their own challenges, without being restricted by a personal face or backstory.

The combination of these symbolic elements with the faceless design makes it a versatile and universally accessible tool, facilitating a deeper connection with the emotions and themes addressed in the cards.

Figure 2 Illustration Design
Source: Researcher, 2025

4.5 Reflection and Action Card Design

This card game contains two types: reflection cards and action cards. The reflection cards have a calm blue background, symbolizing tranquility and clear thinking, and come with prompts that encourage self-reflection, such as "Are the setbacks in life becoming your rainbow bridge?" The action cards have a warm orange background, symbolizing energy and motivation, and encourage people to be proactive in changing the workplace, such as "Try to look at your current project from a new perspective." Both cards use soft and low-key Morandi tones, creating a refined and harmonious atmosphere, encouraging users to engage in self-reflection and positive change.

Figure 3 Illustration Design
Source: Researcher, 2025

The logo design of this project is centered on "HER PATH", aiming to convey the path of women's continuous exploration, self-growth and breakthrough of limitations in the workplace through a concise and symbolic visual language. The overall logo adopts orange-red fonts with a navy-blue background. The orange red symbolizes passion, courage and action, while the navy blue represents deep thought, rationality and stability. This color scheme reflects the core concepts of the two types of cards in the project, "reflection" and "action". The font design adopts a minimalist style, and the letters are connected by path-like horizontal and vertical lines to construct a vertical structure that extends from "HER" to "PATH", implying the coherence and challenge of women's personal growth path. This line connection not only forms a visual guide, but also symbolizes the staged breakthroughs that women experience when facing gender bias and workplace pressure. In addition, the "path" design in the logo also echoes the "guidance" function in the card game: each card is a choice and a possible direction on their way forward. The logo is presented in a modern geometric structure, which enhances brand recognition and reflects the systematic and professional design.

Figure 4 Logo Design Source
Researcher, 2025

This card set includes 56 cards, 28 reflection cards and 28 action cards, each measuring 56 × 87 mm, the size of a standard American playing card. Designed for easy one-handed use, it's ideal for various scenarios like office, commuting, or breaks. The reflection cards feature a blue background with concise prompts to guide self-awareness, while the orange action cards focus on positive strategies for transformation. The rounded corners enhance comfort and durability, making the cards both functional and visually appealing for daily reflection and interaction.

Figure 5 Card Design Source
Researcher, 2025

4.6 Game Rules

Her Path is a reflection and growth card game designed to help working women reduce stress, improve self-awareness, and enhance their work-life experience through concrete actions. Suitable for 1 to 6 players, the game combines reflection and action, encouraging players to commit to positive changes based on self-reflection prompts.

The game offers two modes: single player for personal reflection (5-10 minutes) and group mode for team discussions (15-30 minutes). Players draw a reflection card and an action card, reflect on the question, share their thoughts, and commit to actionable steps. Other players provide feedback, share experiences, and offer encouragement.

For example, a reflection card might ask, "When was the last time you felt unfair because of gender bias?" The action card might encourage, "Next time in the team meeting, express your ideas actively, at least once." This promotes self-growth and practical change while fostering interaction and feedback.

In this way, Her Path serves as both a stress relief tool and a way to inspire positive changes in the workplace.

Figure 6 Game Rules Source
Researcher, 2025

4.7 User Evaluation of the Card Game

Table 4 User Feedback on Her Path Card Game Design (**Unit: %**)

Category	Option	Percentage
Overall Visual Appeal	Satisfied / Very Satisfied	72.38%
Card Color Distinction (Blue/Orange)	Clear	78.10%
Illustration Clarity	Clear / Effective	73.33%
Card Size (56×87 mm) Usability	Easy to handle	78.10%
Reflection Card Content Helpfulness	Helpful	69.52%
Action Card Practicality	Practical	69.52%
Most Valued Theme	Work-Life Balance	45.71%
Card Type Distribution (28:28) Suitability	Reasonable	84.76%
Interaction Design Satisfaction	Engaging	78.09%
Use Scenario Suitability	Solo + Group	55.24%
Preferred Frequency of Use	Monthly	53.33%
Overall Satisfaction with Game	Satisfied / Very Satisfied	78.09%

Source: Researcher, 2025

An online survey conducted between March 10 and April 10, 2025, gathered feedback from 105 women aged 20 to 30 working in China's construction industry to assess the effectiveness and user experience of the Her Path card game. Results were generally positive, with 72.38% rating the card design as visually appealing, and 78.1% appreciating the color distinction between Reflection (blue) and Action (orange) Cards.

The faceless illustrations were effective for 73.33% of participants, supporting personal interpretation. Usability was praised, with 78.1% finding the card size (56x87mm) easy to handle. Content relevance was high, with 69.52% finding the Reflection Cards insightful, especially in addressing workplace stress and gender challenges. The Action Cards (69.52%) also provided practical advice. "Work-life balance" emerged as the most helpful theme, selected by 45.71%.

The balance between Reflection and Action Cards was well-received (84.76%), and 78.09% found the interactive components engaging. While only 55.24% felt the game was suitable for both solo and group play, 53.33% preferred using it monthly, reflecting its role as a reflective tool rather than a daily necessity. Overall, 78.09% were satisfied with the game.

These findings highlight the game's potential to support stress relief, personal growth, and workplace empowerment, with feedback informing future improvements.

4.8 Final Design

The final design of this visual card game has been carefully crafted to combine practicality and beauty, aiming to help players relieve stress through a versatile set of tools. More than just a single card tool, the game is a whole set of de-stressing tools that can be used in many convenient ways in daily life.

For easy portability, the cards are stored in a custom-designed card holder with the game's logo "Her Path" printed on it, making it easy for players to carry and access at any time. This design is designed to promote convenience, especially in busy moments, so that players can quickly remove the cards for a short period of relaxation and self-reflection.

Figure 7 Final Design
Source: Researcher, 2025

In addition, the game also has a card box for players who prefer traditional storage methods to meet different storage needs. For those who want a more elegant way to clearly display the cards, a custom black and gold wooden frame has been designed. The frame has an internal size of 70x85 cm and displays all 56 cards at the same time, allowing the cards to be displayed while remaining tidy and encouraging players to reflect.

Figure 8 Final Design
Source: Researcher, 2025

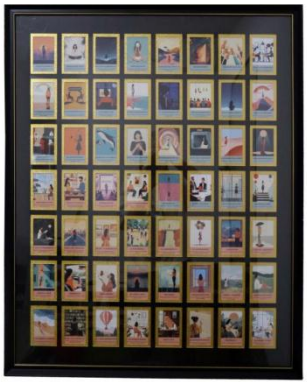


Figure 9 Final Design
Source: Researcher, 2025

To meet the needs of an office environment, the game also includes a card holder that is designed to be placed on the desktop, allowing players to flip through the cards at any time and enjoy a simple way to relieve stress. This card holder not only provides a neat storage solution, but also makes it easy to integrate the cards into daily work and become part of the office space.

Figure 10 Final Design Source
Source: Researcher, 2025

This study developed Her Path, a visual card game designed to help young women in China's construction industry identify workplace stressors and promote regular self-reflection. Based on research findings, major stress sources include gender bias, work-life imbalance, and long working hours. The game combines Reflection Cards and Action Cards, encouraging users to recognize stress and take practical steps for relief. User feedback confirmed its visual appeal, ease of use, and effectiveness in promoting stress management. Future development may enhance group interaction features and adapt the game for other high-pressure professions.

5. References

Aaker, J. L., & Maheswaran, D. (1997). The effect of cultural orientation on persuasion. In M. Brucks & D. J. MacInnis (Eds.), Advances in Consumer Research (Vol. 24, pp. 270–275). Association for Consumer Research. https://link.springer.com/chapter/10.1007/978-3-319-45557-0_2

Beck, A. T. (1976). Cognitive therapy and the emotional disorders. International Universities Press.

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. Psychological Review, 88(4), 354–364. https://www.semanticscholar.org/paper/Gender-schema-theory%3A-A-cognitive-account-of-sex-Bem/d96d049243e90d9bc5480aaaa4ca5b375db082cf

Brown, T. (2009). Change by design: How design thinking creates new alternatives for business and society. Harvard Business Press. https://archive.org/details/changebydesignho0000brow

Fogg, B. J. (2009). Creating persuasive technologies: An eight-step design process. In Proceedings of the 4th International Conference on Persuasive Technology. https://doi.org/10.1145/1541948.1542005

Hupp, S. D., Reitman, D., & Jewell, J. D. (2008). Cognitive-behavioral theory. In M. Hersen & A. M. Gross (Eds.), Handbook of clinical psychology (Vol. 1, pp. 281–306). John Wiley & Sons. https://www.researchgate.net/publication/232542343_Child_maltreatment

LeanIn, & McKinsey & Company. (2024). Women in the workplace 2024. https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace

Noar, S. M., Chabot, M., & Zimmerman, R. S. (2008). Applying health behavior theory to multiple behavior change: Considerations and approaches. Preventive Medicine, 46(3), 275–280. https://www.sciencedirect.com/science/article/abs/pii/S0091743507003301

Selye, H. (1950). Stress and the general adaptation syndrome. British Medical Journal, 1(4667), 1383–1392. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2038162/

Selye, H. (1951). The general-adaptation-syndrome. Annual Review of Medicine, 2(1), 327–342. https://gyansanchay.csjmu.ac.in/wp-content/uploads/2023/02/

Shared Living, Shared Design: Creating intelligent Integrated Cooking Bench for Humans and Pets

Zou Yuyang[1*] and Pakorn Prohmvitak[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: Yuyang.z66@rsu.ac.th

Abstract

This study explores the design and development of an integrated cooking bench tailored for pet owners, combining human and pet meal preparation into a single, multifunctional solution. By adopting User-Centered Design (UCD) principles and incorporating smart technologies, the proposed cooking bench addresses common challenges faced by pet owners, such as cross-contamination, limited kitchen space, and inefficiency in meal preparation. The research investigates user needs through surveys, interviews, and observational studies, using the insights to inform the design of a modular, user-friendly, and hygienic cooking system. Prototyping tools, data analysis, and usability testing are employed to develop a functional product prototype that integrates smart features, including food portioning systems and automated cleaning mechanisms. The study contributes to the fields of multifunctional product design, smart technology integration, and pet-focused innovation, with potential applications in both academic research and the home appliance industry.

Keywords: *User-centered design (ucd), multifunctional design, integrated cooking bench, pet owners, smart technologies, food safety and hygiene*

1. Introduction

With the development trend of the current environment, the way people feed their pets is also gradually changing, towards the direction of healthier, richer and fresher food. Homemade fresh food for pets has also become the way many people feed their pets instead of dog/cat food. From a survey, the survey surveyed 3,673 dog and cat owners in English-speaking countries. The survey was about how they fed their dogs and cats. During this decade, the use of homemade diets in dogs and cats increased significantly. In 2008, 31 percent of dogs added homemade to their diets. In 2018, that number increased to 64 percent; In 2008, only 13 percent of cats included some homemade food in their diet, but in 2018, 46 percent did[1]. However, although fresh food feeding is better than dry food for cats and dogs, this is under the premise of scientific feeding. According to the unreasonable meal plan for fresh food feeding, it is not as good as ordinary commercial dry food, at least the bottom line of various nutrient ratios is guaranteed. Therefore, we need to reasonably master pet nutrition and recipe design.

In the current city, people's living space and time are very tight. This design is designed to help urban pet owners, help humans and pets to cook more efficiently and healthier, and experience a more convenient and efficient lifestyle in the city.

2. Objectives

1) To analyze and summarize research on home cooking habits and pet fresh food trends as a foundation for developing intelligent kitchen solutions.

2) To create a dual-purpose cooking experience that simultaneously meets urban families' daily meal preparation needs and pet homemade food requirements.

3) To pioneer harmonious human-pet living solutions by exploring future applications of intelligent cooking systems in urban pet-friendly households.

3. Research Details

3.1 Scope of the research

Scope of Content The research focuses on the design of an integrated cooking bench tailored for pet owners to prepare fresh food for both humans and pets. It includes functional design, material sustainability, and ergonomic considerations for dual-use appliances. The research the nutritional specifics of pet food recipes. By concentrating on the domestic kitchen environment and the specific requirements of pet owners, this study aims to provide practical and innovative solutions for enhanced convenience, safety, and sustainability in home cooking.

3.2 Scope of Time

This research utilizes user behavior and market data from the past five years (2018–2023) to understand the current needs and trends.

3.3 Scope of Place/Area

The study focused on urban homes, where pets are common and space for kitchen appliances is often limited. The study targeted regions with high rates of pet ownership, such as parts of Asia, where pet humanization and demand for high-quality pet care products are increasing. These regions have also shown great interest in sustainable and multifunctional home appliances, in line with the goals of the project.

Additionally, the research considers the practical application of the integrated cooking bench within residential kitchens, particularly in environments where families and pets coexist closely. The study excludes industrial kitchens, large-scale food production facilities, and areas with minimal pet ownership or limited access to modern kitchen technology. By narrowing the geographic and contextual scope, this research aims to provide targeted design solutions that address the specific needs of pet owners in urbanized and developed settings.

3.4 Expected Research Outcomes

3.4.1）Functional Product Prototype:

This research is expected to deliver a fully conceptualized and functional prototype of an integrated cooking bench designed specifically for pet owners. The cooking bench will include:

Dual-purpose tools and modular components that adapt to the needs of both human and pet food preparation.

Compact and space-saving features suitable for urban households with limited kitchen space.

Enhanced Daily Living Experience, the proposed solution aims to improve the daily life of pet owners by: Reducing the time and effort required to prepare fresh meals for both humans and pets. Offering an intuitive and user-friendly design that accommodates diverse cooking habits.

3.4.2）New Design Framework:

This study will contribute a novel design framework tailored to dual-user systems, specifically focusing on human and pet interactions in shared domestic spaces. This framework will guide future product designs by addressing: Ergonomic considerations for dual-purpose appliances. Behavioral patterns of pet owners during food preparation, emphasizing convenience and safety. The psychological and functional needs of both users (humans and pets).

3.4.3）Potential Market Implications:

This study will explore the commercial viability of the integrated cooking bench, with potential outcomes including: Identification of market opportunities within the pet care and home appliance industries. Development of a product roadmap that outlines key steps for transitioning the design from concept to commercialization. Estimation of consumer demand and willingness to adopt multifunctional cooking solutions.

3.5 Data Survey

3.5.1 purpose of research, by analyzing the mainstream feeding methods and their selection motivations, the core demands of current users for pet food are clarified, providing a behavioral basis for the functional design of intelligent devices.

For the problems fed back by users, research on how to lower the operation threshold and improve the feeding efficiency through technical means (such as automated cooking and intelligent proportioning).

Evaluate the commercial value of intelligent cooking tools in lowering the threshold of practice and expanding the user base by assessing users' awareness of scientifically homemade food and the transformation space of the unpracticed group.

Research on how to integrate human daily cooking and pet food production needs through intelligent devices, achieve efficient utilization of resources (time, ingredients, energy consumption), and promote a sustainable family human-pet coexistence model.

4. Results

A total of 180 questionnaires were collected in this survey. After excluding invalid sample information (groups not living in apartments), 154 valid samples were obtained.

Table 1 Gender of the research group

Gender	Amount	Percentage
Male	81	52.6%
Female	73	47.4%
Total	154	100%

Source: Researcher, 2025

The research results, as shown in Table 1, indicate that the survey respondents were primarily male, with 81 individuals accounting for 52.6% of the total sample. Females accounted for 73 individuals, representing 47.4% of the total sample.

Table 2 Age

Age	Amount	Percentage
21~25	25	16.23%
26~30	64	41.56%
31~40	44	28.57%
41~50	21	13.64%
Total	154	100%

Source: Researcher, 2025

The research results, as shown in Table 2, indicate that the survey respondents were primarily in the age range of 26-30 years old, with 64 individuals accounting for 41.56% of the total sample.

Table 3 different feeding patterns

The main feeding methods for dogs	Amount	Percentage
Dry dog food (puffed food/baked food)	72	46.75%
Wet food (canned food/meal bags)	91	59.09%
Homemade fresh food	103	66.88%
raw diet	36	23.38%
Total	154	100%

Source: Researcher, 2025

The research results, as shown in Table 3，The current trend of scientific pet keeping is gradually leaning towards feeding with homemade fresh food. Users are more inclined to control the nutritional ratio and the quality of ingredients by making their own food, reflecting their emphasis on the dietary safety of pets. Most families may adopt a mixed model of "mainly homemade food and supplemented with commercial grain".

Table 4 The reason for choosing this way

The reasons for choosing the current feeding method	Amount	Percentage
Convenient and timesaving	62	40.26%
balanced nutrition	87	56.49%
Dogs like to eat	74	48.05%
equitable price	49	31.82%
Veterinarian recommendation	49	31.82%
Total	154	100%

Source: Researcher, 2025

The research results, as shown in Table 4,The main driving forces for users to choose the current feeding method are nutritional balance (56.49%) and pet preference (48.05%), followed by convenience (40.26%). The price and veterinary recommendations had a relatively small influence (both 31.82%), indicating that pet families pay more attention to the quality of diet and the pet experience rather than simple economic factors.

Table 5 Understanding of nutritional knowledge

Have you taken the initiative to learn about pet nutrition	Amount	Percentage
Have systematically studied (such as courses/books)	56	36.36%
Fragmented understanding of (the Internet)	64	41.56%
Rely completely on the advice of a veterinarian or others	22	14.29%
Never paid attention	12	7.79%
Total	154	100%

Source: Researcher, 2025

The acquisition of nutritional knowledge by pet owners shows a fragmented feature (41.56% rely on the Internet), and only 36.36% do so through systematic learning (courses/books). 14.29% were completely dependent on veterinarians, and 7.79% did not pay attention. This reflects that users' awareness of independent research on scientific feeding needs to be strengthened, and there is still room for improvement in the penetration of professional channels.

Table 6 Try to make

know about homemade dog food (fresh food cooked in a scientific proportion)	Amount	Percentage
I know it very well and have tried it	98	63.64%
I have a general understanding but haven't tried it	36	23.38%
not familiar with	20	12.99%
Total	154	100%

Source: Researcher, 2025

63.64% of users have deeply understood and tried homemade dog food with scientific ratios, 23.38% have only understood but not practiced it, and only 12.99% are not familiar with it. Data shows that the market recognition foundation for scientifically making pet meals is solid, but the practical threshold needs to be further lowered to convert potential users.

Table 7 encountered difficulty

What problems have you encountered	Amount	Percentage
The nutritional ratio is not scientific	41	26.62%
The purchase of ingredients takes time	49	31.82%
The production process is complex	60	38.96%
Inconvenient to store	42	27.27%
Dogs are picky eaters	46	29.87%
Never tried	56	36,36%
Total	154	100%

Source: Researcher, 2025

The core pain points in user practice are the complex production process (38.96%) and the time-consuming food ingredient procurement (31.82%), while 36.36% of those who have not tried it need guidance. The nutritional ratio (26.62%) and storage issues (27.27%) are also obstacles, highlighting the urgent need for intelligent tools (automatic ratio/cooking/preservation).

From the above survey, it can be seen that with the improvement of social standards and people's concern for scientific breeding and the health of their own dogs, people are paying more and more attention to scientific and healthy breeding methods and gradually moving towards homemade fresh food that is more beneficial for extending the lifespan of dogs. The number of such groups is constantly increasing. This has gradually become a new trend in pet life.

Target Users：Core group: Urban pet owners: live in high-density cities and pay attention to pet health and quality of life. Demographic characteristics: Age: 25-45 years old, mainly young professionals and Dink families. Income level: Middle to high income, willing to invest in pet health and smart home. Behavior characteristics: Frequent homemade pet fresh food, pursuit of efficient and hygienic kitchen processes, preference for products with both technology and design sense. Sub-group: Multi-pet families: meet the dietary needs of different pets at the same time. Small homes: Limited kitchen space requires a multi-functional integrated solution.

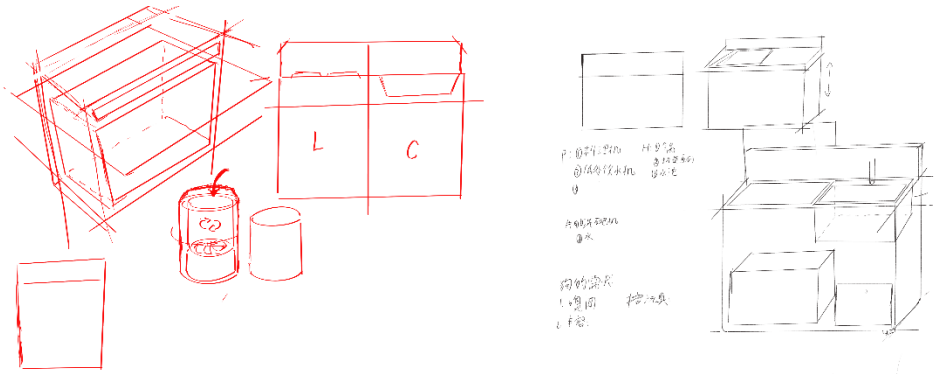


Figure 1 The initial shape exploration and drawing of the sketch
Source: Researcher, 2025

First, through the deduction of the sketches, determine the positions of the functional areas of each module of this product. The initial sketch drawing plan explored the shaping drawing with the idea of minimizing the occupied area as much as possible. The overall product shaping plan was advanced by the variation of the basic square body. The main direction was to consider whether the distribution of the product's functional components was reasonable. The appearance of the shaping lacked innovative changes and did not pay attention to the ergonomic aspect of the product. It was in the initial exploration stage.

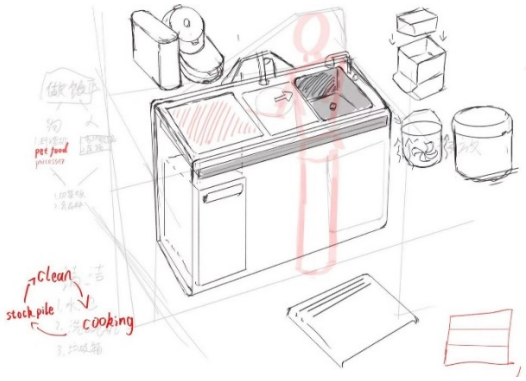


Figure 2 The initial shape exploration and drawing of the sketch
Source: Researcher, 2025

The mid-term sketch scheme drawing of the second round improved the overall shape of the product on the basis of the lack of consideration of the distribution of various functional components in the first sketch drawing. Different functional components were divided into functional areas, which was more in line with ergonomic operation in terms of height. However, the overall shape effect is too square and stiff, and no moving parts are added, which makes it inconvenient to move the product as a whole. The product is divided into three functional areas as a whole: for pets, for humans, and for shared use.

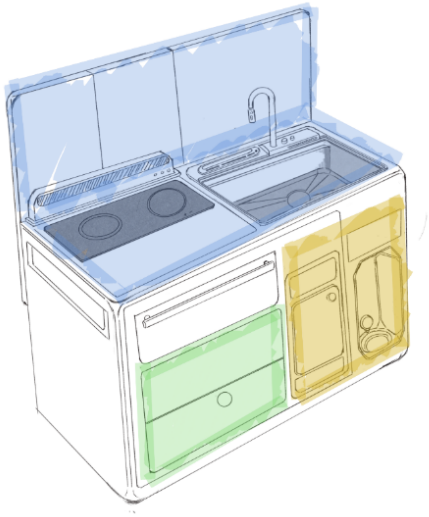


Figure 3 Division of product functional areas
Source: Researcher, 2025

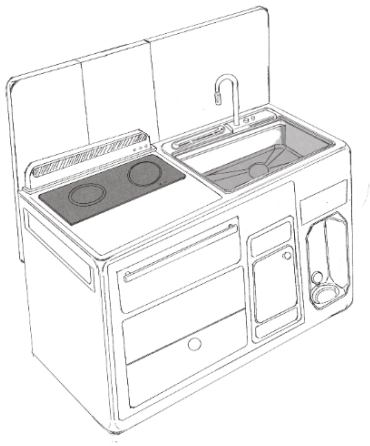


Figure 4 Mid-term sketch modeling exploration and drawing
Source: Researcher, 2025

At this stage, the basic shape and appearance of the product have been basically determined, and in-depth drawing is carried out. In terms of shape design, this version of the scheme adopts a rounded corner design with a large curvature at the corners, aiming to enhance the product's shape and reduce its dull appearance. The next goal is to continue optimizing overly cumbersome and complex designs. Design improvement direction: Optimize the human-computer interaction of each functional zone, innovate the appearance design, and enhance the rationality of each function of the product.

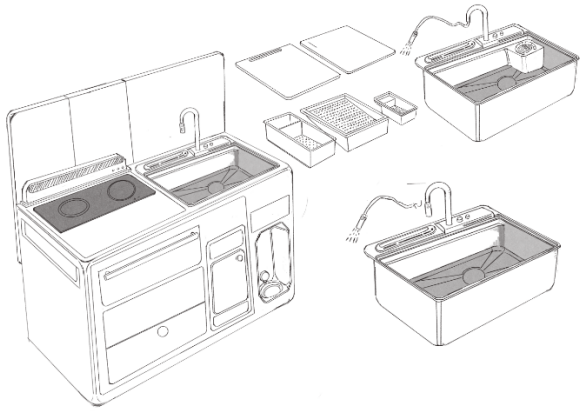


Figure 5 Product components
Source: Researcher, 2025

In the current version of the product design, detailed drawings have been made for the sink and various auxiliary accessories. The overall island plane of the product is divided into two major functional areas: the cooking area and the cleaning area. The series of accessories that come with the cleaning area can make people's work process more concise and efficient. The cooking area is equipped with a set of induction cooker panels and a range hood, which can remove the cooking fumes produced during cooking. The section behind the island counter is designed as a magnetic layout, allowing various kitchenware and tableware to be easily stored on this layout through magnetic attraction. On the left side below the entire cooking island, a dishwasher is installed, which can be used by both humans and pets to clean tableware and pet food toys.

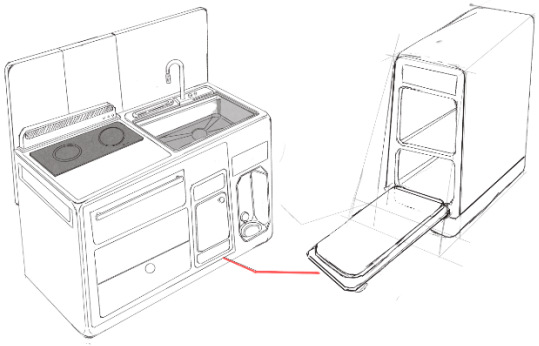


Figure 6 Product components
Source: Researcher, 2025

The lower right area of the cooking island counter is for pets, including the dog homemade cooking box and the purified water drinking area. The homemade cooking box can conveniently make healthy food for your dog. All you need to do is prepare the materials, and the intelligent system of this product will prompt you with the ingredients you need based on your dog's status, greatly lowering the entry threshold for dog food cooking.

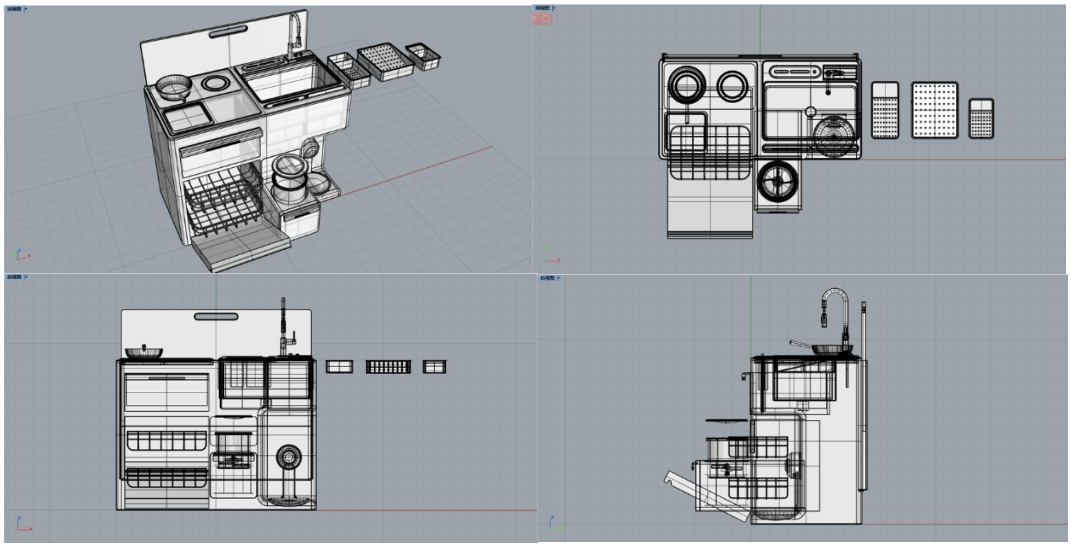


Figure 7 Modeling effect
Source: Researcher, 2025

Figure 8 Rendergraph
Source: Researcher, 2025

Figure 9 Rendergraph
Source: Researcher, 2025

Figure 10 Rendergraph
Source: Researcher, 2025

Figure 11 3D printed model
Source: Researcher, 2025

5. References

Bianco, A. V., Abood, S., Mutsaers, A., Woods, J. P., Coe, J. B., & Verbrugghe, A. (2020). Unconventional diets and nutritional supplements are more common in dogs with cancer compared to healthy dogs: An online global survey of 345 dog owners. Veterinary and comparative oncology, 18(4), 706–717. https://doi.org/10.1111/vco.12599

Craig J. M. (2021). Additives in pet food: are they safe?. The Journal of small animal practice, 62(8), 624–635. https://doi.org/10.1111/jsap.13375

Dodd, S., Cave, N., Abood, S., Shoveller, A. K., Adolphe, J., & Verbrugghe, A. (2020). An observational study of pet feeding practices and how these have changed between 2008 and 2018. The Veterinary record, 186(19), 643. https://doi.org/10.1136/vr.105828

Raditic D. M. (2021). Insights into Commercial Pet Foods. The Veterinary clinics of North America. Small animal practice, 51(3), 551–562. https://doi.org/10.1016/j.cvsm.2021.01.013

Villaverde, C., & Chandler, M. (2022). Commercial vs Homemade Cat Diets: What you need to know. Journal of feline medicine and surgery, 24(5), 415–428. https://doi.org/10.1177/1098612X221090389

Sanderson S. L. (2021). Pros and Cons of Commercial Pet Foods (Including Grain/Grain Free) for Dogs and Cats. The Veterinary clinics of North America. Small animal practice, 51(3), 529–550. https://doi.org/10.1016/j.cvsm.2021.01.009

Enhancing Self-Awareness Through Photography: Evidence from a Five-Day Therapeutic Workshop

Haoting Ge[1*] and Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: yaoichi0221@gmail.com

Abstract

This paper discusses how unstructured photographic activities work to promote self-awareness among adults. A five-day phototherapeutic workshop based on the Construal-Level Theory of Psychological Distance and Projection Theory was used to carry out thematic analysis of visual outputs, emotional journals, and group discussions among eight participants. The objectives of this research are 1) to assess the development of an observer perspective through photographing and reviewing photographs, and 2) to place the Construal-Level Theory of Psychological Distance and projection theory within the context of explaining the psychological mechanisms underpinning photography-based healing, 3) in order to pragmatically propose a self-regulatory framework for nonprofessional groups, an approach for which there is empirical support for integrating art therapy into everyday life. This study follows a hybrid methodology that integrates PAR and Qualitative Research. It has emerged that photographic practice effects cognitive restructuring through psychological distancing, the choice of subject and image interpretation reflects a three-level projection pattern symbolic, emotional, and archetypal. group sharing triggers emotional resonance and in an even greater degree self-insight. This paper elucidates the intrinsic value of photography as a nonverbal therapeutic medium and posits a new methodological framework concerning the application of art therapy.

Keywords: *phototherapeutic intervention, self-awareness, workshop design*

1. Introduction

In an era marked by escalating mental health challenges and limited access to traditional psychotherapy, everyday creative practices like photography are gaining recognition as tools for autonomous emotional regulation. While existing research emphasizes symbolic interpretations of photographs within clinical art therapy (Weiser, 1999), this expert-centric approach overlooks laypersons 'capacity for self-guided discovery through mundane photographic acts. Crucially, studies neglect two dimensions: 1) how temporal gaps between capturing and reviewing images leverage psychological distancing to enable cognitive reappraisal (Trope & Liberman, 2010), and 2) how projection—traditionally framed as a defense mechanism (Jung, 1959)—can be reconceptualized as a conscious pathway for externalizing unconscious emotions through photographic subjects.

This study bridges these gaps by proposing a paradigm shift: rather than treating photographs as symbolic artifacts requiring interpretation, we position the process of creating and revisiting images as the therapeutic catalyst. Through a non-technical "observe-capture-reflect" protocol, we demonstrate how laypeople organically develop metacognitive awareness by interacting with their photographic outputs over time. By decoupling therapeutic value from artistic skill or hermeneutic analysis, this work expands art therapy's applicability into daily life, offering a scalable framework for self-regulated emotional processing in populations underserved by conventional mental health systems.

2. Objectives

1) To examine how the act of photographing and subsequent photo review create an observer perspective.

2) To integrate the Construal-Level Theory of Psychological Distance and projection theory in explaining the underlying psychological mechanisms of photography-based healing.

3) To propose a practical self-regulation framework for non-specialized groups, providing empirical support for integrating art therapy into daily life.

3. Research Details

This study employs a hybrid methodology integrating Participatory Action Research (PAR) and Qualitative Research, conducted through a five-day photography workshop to explore the mechanisms by which non-technical photography activities influence self-awareness and emotional regulation in ordinary individuals. The research design is grounded in the following theoretical frameworks:

Construal Level Theory: Utilizes the time gap between photography and reflection to create cognitive distancing for introspection.

Projection Theory: Uses participants 'choices of photographic subjects and emotional responses as projective media to reveal subconscious content.

3.1 Research Design and Target Population

The study targeted ordinary individuals aged 18–55 in China with an interest in self-exploration, recruited via community bulletins and social media. A total of 8 participants were enrolled, representing diverse occupational backgrounds (e.g., teachers, programmers, freelancers), age groups (22–48 years), and geographic regions (tier 1 and tier 3/4 cities) to enhance ecological validity.

3.2 Workshop Design and Data Collection

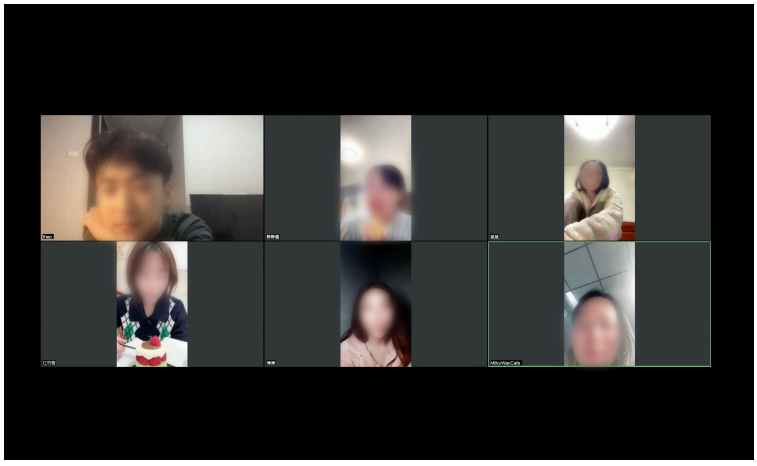


Figure 1 Focus Group Meeting with Participants on Zoom in the Topic of Sharing and Reflecting
Source: Researcher, 2024

The workshop employed a mixed-method approach to data collection, integrating participant observation, in-depth interviews, and focus group discussions across a structured five-day protocol. On the first day, researchers initiated an orientation phase by introducing core theoretical frameworks—specifically Construal Level Theory's "observer perspective" and Projection Theory's concept of emotional externalization—while emphasizing the principle of non-judgmental creation. Participants were then guided to engage in daily

theme-agnostic photography sessions, focusing on capturing images that resonated with their immediate emotional states rather than technical execution. To anchor subjective experiences, they concurrently maintained emotional journals through text or voice recordings, documenting motivations and self-awareness shifts during each photographic act.

From Days 2 to 5, the protocol evolved into cyclical phases of observation, creation, and reflection. Each morning, participants received open-ended prompts like “What feels most emotionally charged in your current environment?” to stimulate photography sessions rooted in present-moment awareness. Immediately after capturing images, they recorded visceral emotional responses to minimize retrospective bias. Evening focus group discussions, conducted via two-hour online sessions, employed semi-structured questioning to unpack emerging patterns: facilitators prompted participants to reflect on triggers for emotional fluctuations (e.g., “What made today’s photography experience unsettling or uplifting?”) while encouraging peer-driven inquiries like “Why does this image hold particular significance for you?”. Throughout the process, researchers maintained detailed field notes cataloging non-verbal behaviors—pauses, vocal tone variations, or spontaneous emotional reactions—to triangulate data beyond audio-recorded exchanges. This layered methodology ensured multidimensional capture of both conscious articulations and unconscious behavioral cues, enabling nuanced analysis of how photographic acts mediate self-discovery.

3.3 Summary Phase

The summary phase employed semi-structured interviews to identify key moments of emotional pattern recognition and psychological distancing effects as participants reflected on their photographic experiences, focusing on:

Critical turning points in the photography process (e.g., "On which day did you suddenly recognize an emotional pattern?").

Subjective experiences of psychological distancing (e.g., “How did your feelings evolve when reviewing photos taken three days prior?").

3.4 Data Composition and Qualitative Analysis

The dataset comprised four types of qualitative materials, analyzed through Thematic Analysis and Constant Comparative Method, see Table 1:

During daily online discussions, participants shared photography experiences and emotional records. Researchers prioritized listening and documentation over semiotic analysis of photos. Discussions served dual purposes: fostering peer exchange and enriching data depth.

3.5 Conclusion and Reflection

On the final day, participants synthesized their five-day experiences by reviewing photographs and journals to trace emotional shifts, behavioral patterns, and latent beliefs, with researchers facilitating non-directive discussions to prioritize self-driven interpretations. Analytical procedures integrated three complementary approaches: 1) Categorize and code participants' records (e.g., journals, photos) to identify core themes (e.g., "present-moment focus," "emotional awareness," "reflection on behavioral patterns"). 2) Track emotional fluctuations across the five-day period to explore mechanisms of emotional regulation and the impact of photography tasks on emotional release. 3) Compare individual records with focus group discussions to assess how group resonance and feedback amplified participants' emotional experiences.

3.6 Research Credibility and Ethics

Table 1 The Moment Noticed Workshop Data Analysis

Data Types	Specific Content and Analytical Methods
Participant Observation Notes	Behavioral patterns extracted from field notes (e.g., avoiding photographing subjects, repeated photographing behaviors) were used to cross-validate self-report data.
In-depth interview text	Transcripts were coded to identify key concepts (e.g., "emotional detachment," "projection identification").
Focus Group Recording	Analyze the "resonance trigger points" in group interactions (e.g., 4 participants mentioning that "photographing food brings a sense of security") to reveal the social support effect.
Visual-Textual Materials	Triangulation of photos and corresponding emotion diaries to analyze projective consistency.

Source: Researcher, 2024

To ensure research credibility, we implemented methodological triangulation—cross-analyzing photographic outputs, emotional journals, and interview transcripts—while conducting member-checking sessions where participants validated preliminary interpretations of their data. Ethical rigor was maintained through pseudonymization of all records, selective blurring of sensitive images (with explicit consent), and adherence to data sovereignty protocols allowing participants to withdraw materials at any stage. These dual safeguards balanced analytical robustness with respect for participant agency, ensuring findings authentically reflected lived experiences while protecting privacy rights.

Figure 2 The Photo of Subway taken by participant1 symbolized overwhelming stress
Source: Participant1, 2024

Figure 3 The Photo of Grandma taken by participant2 explained her feelings of conflict
Source: Participant2, 2024

4. Results and Discussion

4. 1 Results

4.1.1)Photography systematically shifted participants from emotional immersion to detached observation through two phases:

In capture phase participants externalized emotions by translating subjective experiences into visual metaphors. For example, participant1 photographing tangled subway lines during work (Figure 2) anxiety noted:

""Framing chaos through the lens made me an observer of my own stress."

This aligns with CLT's psychological distancing: compositional choices (e.g., subject framing) created metaphorical separation from immediate emotions.

Table 2 Phototherapy Mechanisms: Psychological Distance and Projection Theory

Mechanism Hierarchy	The role of psychological distance theory	The Role of Projection theory
Primary Externalization	Create spatial distance by shooting activities and transform emotions from experience into visual symbols	Subject selection reflects subconscious concerns
Secondary Abstraction	The temporal distance created by the review process allows the intensity of emotions to decay, facilitating abstract reflection	Identify projected content in retrospect
Cognitive Integration	Social distance (observer identity) helps build new self-narratives	Strengthening self-acceptance through group projection through online sharing

Source: Researcher, 2024

In review phase, temporal gaps (3–5 days) enabled cognitive reappraisal. Participant 2 reflected on conflict photo with grandma (Figure 3): "Seeing these images days later, I realized my 'victim' narrative was distorting reality. "The act of reviewing photos functioned as a "time machine", allowing participants to reinterpret events through an observer's lens.

4.1.2) The therapeutic effects emerged from the synergy of two theories, see Table 2:

CLT-driven abstraction showed that temporal/physical distance during review promoted high-level construals. Participant2 transitioned from "This made me furious" (Day 1) to "I habitually escalate conflicts" (Day 5).

Projection can be used as self-discovery, photographic subjects unconsciously mirrored internal states. Participant3's diary revealed:

"Food has always been significant to me as a former meat and dessert enthusiast. Stressful times turned eating into a coping mechanism, where I sought intense flavors and fullness, but it left me feeling empty and unhealthy. Transitioning to vegetarianism helped me rediscover balance. The meals at Sangha, prepared with simplicity and love, made me realize food could be more than indulgence—it could carry meaning and connection."

"This meal was a tapestry of memories, each dish reflecting moments from my life. Every experience, remembered or not, has shaped me, and this dinner brought those marks to life."

Here, CLT explains how distance enables reflection (from food to self-care patterns), while projection theory explained how external symbols (food photos) unveiled internal beliefs (seeking for love).

4.1.2) The study proposes a 3C Framework (Figure 5) to operationalize photography's therapeutic potential into a layperson-accessible protocol. Capture initiates the process through low-threshold emotional externalization: participants take daily smartphone photos of "emotional markers" (e.g., stress-inducing objects), which reduces performance pressure and redirects focus to emotional tracking. Contemplate then guides structured self-inquiry using prompts like "What moved me about this scene?" (identifying projections) and "How might I reinterpret this in a week?" (priming temporal distancing). Journal analyses validated this phase's efficacy, showing participants refined emotional precision (e.g., differentiating frustration from helplessness) and recognized behavioral patterns. Finally, connect leverages collective

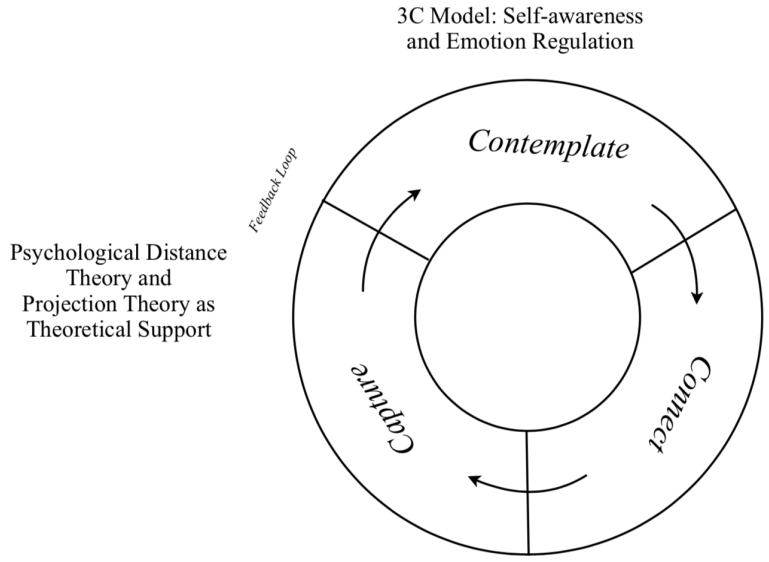


Figure 4 3C Framework Model for Daily Photographic Practice,
Source: Researcher, 2024

Figure 5 The Photo of Meals Which Reflecting Moments of Participant3's Life
Source: Participant3, 2024

resonance through weekly photo-sharing sessions where participants discuss "why I chose this image" rather than aesthetic qualities. This nonjudgmental narrative exchange fostered self-acceptance.

Collectively, the 3C Framework demonstrates photography's dual therapeutic role: it externalizes emotions through accessible creation (Capture) and reappraises them through distanced reflection (Contemplate), while communal engagement (Connect) transforms personal insights into shared human experiences. By converting subjective turmoil into observable patterns, this protocol provides empirical grounding for integrating art-based healing into daily mental health practices.

4. 2 Discussion

This study demonstrates how non-technical photography facilitates emotional regulation through two core mechanisms: (1) self-induced psychological distancing during image creation/review, and (2) projection-based self-discovery amplified through group interaction. Our findings extend the Construal-Level Theory (CLT) by showing that spatial distancing—achieved through compositional framing—can objectify emotions as effectively as temporal distancing. Participants who photographed stressful environments (e.g., workplaces) later reinterpreted these images as symbols of autonomy, confirming CLT's premise that abstraction reduces emotional intensity (Trope & Liberman, 2010). Crucially, this challenges the assumption that psychological distancing requires expert guidance, as laypersons autonomously achieved it through smartphone photography.

The research also recontextualizes projection theory. The group-sharing sessions revealed that peer resonance accelerates insight generation. Participants recognized unconscious emotions not through therapist analysis, but by hearing others 'interpretations of their photos. This evidences projection's potential as a collaborative tool rather than a purely intrapsychic phenomenon.

However, the 3C Framework's simplicity introduces limitations. Though participants reported immediate emotional relief, the five-day intervention cannot confirm sustained behavioral change without longitudinal data. Additionally, while the protocol reduces reliance on professional expertise, its effectiveness may vary for individuals resistant to self-reflection—a challenge observed in participants who struggled to maintain daily journaling. These findings highlight the delicate balance between accessibility and therapeutic depth in DIY mental health tools.

By bridging experimental psychology (CLT) and depth theory (projection), this work establishes photography as a unique dual-process tool: it simultaneously creates psychological distance through

compositional acts and unveils unconscious patterns through projective storytelling. This dual function positions everyday photography not as a replacement for clinical therapy, but as a complementary practice for enhancing emotional awareness in non-clinical populations.

5. Acknowledgements

I am deeply grateful to the participants of this study for sharing their experiences and insights. Special thanks to my advisor, Asst. Prof. Dr. Sammiti Sukbunjhong, for her guidance, and to Chengdu Sangha for their support. I also thank my classmates, family, and friends for their encouragement. Finally, I acknowledge the scholars whose work inspired this research.

6. References

Jung, C. G. (1921). *Psychological Types*. In H. Read et al. (Eds.), *The Collected Works of C. G. Jung* (Vol. 6, paras. 783-786). Princeton Univeristy Press.

Jung, C. G. (1959). *The Archetypes and the Collective Unconscious* (R. F. C. Hull, Trans.). Princeton University Press.

Liberman, N., & Trope, Y. (2014). Traversing psychological distance. *Trends in Cognitive Sciences, 18*(3), 108-113, doi: 10.1016/j.tics.2014.03.001

Malchiodi, C. A. (2007). *The Art Therapy Sourcebook*. McGraw-Hill Education.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440–463, from https://doi.org/10.1037/a0018963

Von Franz, M.-L. (1985). *Projection and Re-Collection in Jungian Psychology: Reflections of the Soul*. Open Court Publishing.

Weiser, J. (2015). *Phototherapy: Using Everyday Photography to Enhance Your Life*. Routledge.

Weiser, J. (1999). *PhotoTherapy Techniques: Exploring the Secrets of Personal Snapshots and Family Albums*. Phototherapy Centre Press.

Thai Cultural Identity and Character IP Design into Pet-Friendly Urban Spaces in Bangkok

Yannan Wu[1*], Sirada Vaiyavatjama[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: wu.y66@rsu.ac.th

Abstract

In urban environments, pet-friendly public spaces are often functionally developed but lack cultural and emotional depth. This research focuses on creating a culturally inspired pet park that blends design, functionality, and storytelling through character-based branding. The rationale is to build a joyful, interactive space that supports human-pet interaction while promoting local identity. The objectives of this project are to design a pet-friendly environment that reflects Thai cultural elements, foster emotional connection through original IP characters, and explore the branding potential of such a space. This study addresses the artistic gap in how pet-friendly parks are often underdeveloped in terms of cultural symbolism and long-term engagement design. Methodologically, the research includes site visits and analysis of pet parks in Bangkok, interviews with pet owners, and observation of user behaviors. Based on the findings, a conceptual pet park was developed, including hand-drawn character design, festival event planning, and merchandise branding. The visual style and color palette were inspired by traditional Thai art, and the design process incorporated digital tools such as Procreate, Midjourney AI, and Photoshop. As a result, the study produced a theme park concept with integrated IP characters, interactive zones, and commercial product design, demonstrating how cultural storytelling can enhance user experience and community bonding. This research concludes that merging cultural aesthetics and character design into pet-friendly spaces adds artistic and branding value, offering a replicable model for future pet parks or themed events.

Keywords: *pet-friendly design, public space, Thai culture, Thai identity mascot, dog park, vending machine*

1. Introduction

Urban public spaces are increasingly designed with pets in mind, reflecting the growing importance of pets as part of family life. In Bangkok, the demand for pet-friendly environments is rising, yet most parks focus mainly on basic functionality and safety. While these features are important, many such spaces lack emotional connection and cultural storytelling, which are key to building engaging, community-centered environments. This research explores how cultural and emotional elements can be integrated into a public pet park design through branding and character development.

Studies show that pets provide not only companionship but also support emotional well-being and social interaction among people (Wood et al., 2005). However, most existing pet parks tend to replicate similar functional models without deeper consideration of local cultural context or creative engagement strategies. According to Gehl (2011), public spaces that succeed are those that are not only functional but also emotionally meaningful and culturally rooted.

In Thailand, traditional art forms like Khon dance and temple motifs are rich visual resources that can be adapted into modern design. Some recent projects in the fields of urban design and brand experience have experimented with storytelling through mascots and characters, but rarely in the context of pet parks. This highlights a creative gap in the field.

This research aims to design a pet-friendly park concept that incorporates Thai cultural identity, improves user engagement through original IP characters, and explores the potential for brand development within public pet spaces.

2. Objectives

This study aims to:

1) Design a culturally themed pet-friendly park that integrates Thai visual elements.

2) Create original IP characters to enhance emotional connection and park identity.
3) Explore the potential of expanding the design into a long-term brand or commercial model.

3. Details

3.1 Supporting Research and Data for the Establishment of a Pet Park in Bangkok

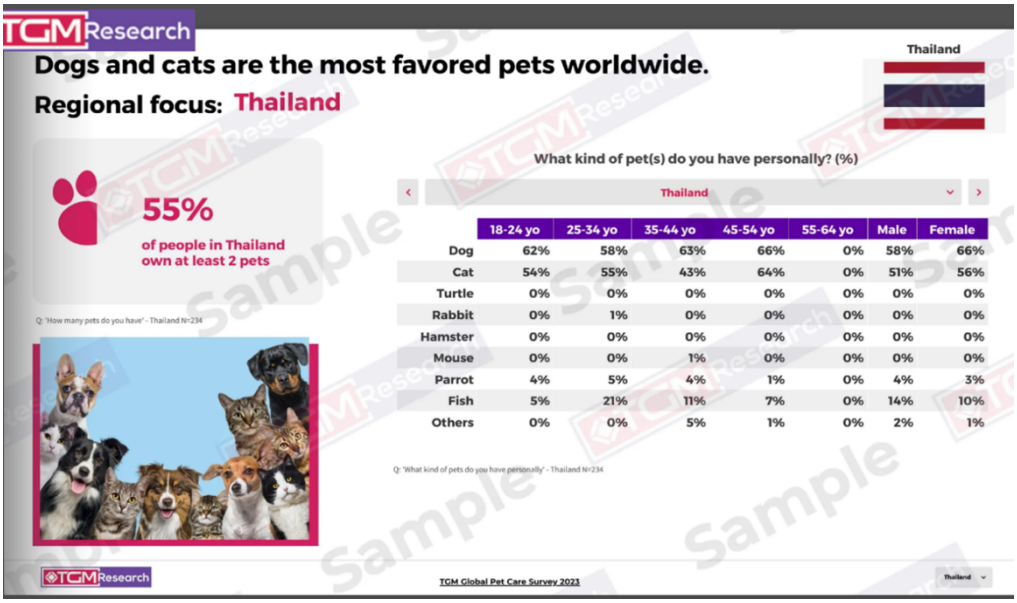


Figure 1, 2 Thailand Pet Survey About the Attitude Towards Pets
Source: TGM Research, 2023

3.1.1) Study on Features and Facilities of Pet-Friendly Apartments: A study by the Faculty of Architecture at Chulalongkorn University explored the characteristics and facilities of 13 pet-friendly apartments in Bangkok and the challenges associated with allowing pets. The research found that these apartments are primarily located in the central area of Bangkok, with 62% being high-rise buildings and 84%

being high-end properties. The pet facilities provided include veterinary clinics, pet hotels, pet swimming pools, dog grooming services, pet cafes, pet stores, pet parks, pet gyms, and pet waste areas.

Data Reference: Chulalongkorn University, Faculty of Architecture.

3.1.2) Research on Dog Parks to Meet Public Demand: A study by the Department of Landscape Architecture at Chulalongkorn University focused on Bang Khae Phirom Park in Bangkok, analyzing the shared spaces between dogs, park users, and dog owners. The research involved observations, interviews, and an online survey. The results showed that both dog owners and park users support the creation of dog parks, but emphasized the need for safety and cleanliness management to minimize impact on other park users. Data Reference: Chulalongkorn University, Department of Landscape Architecture.

3.1.3) Survey on Trends in the Thai Pet Industry: A survey by the Faculty of Management at Mahidol University revealed that 49% of Thai respondents view pets as substitutes for children, 34% believe owning pets enhances social status, and 18% see pets as helping to alleviate health problems. Dogs are the most popular pets, accounting for 40.4%, followed by cats at 37.1% and other exotic pets at 22.6%. Additionally, 39.3% of respondents are willing to spend 10,000 to 20,000 THB per year on each pet. Data Reference: Mahidol University, Faculty of Management.

3.1.4) Pet Care Survey in Thailand: A 2023 survey by TGM Research showed that 55% of Thai respondents own multiple pets, 29% choose pet grooming services, and 88% prioritize quality when selecting pet food. Data Reference: TGM Research, 2023.

3.2 Case Studies Analysis: Pet-Friendly Public Spaces in Japan, the USA, and Thailand

Collected qualitative data was coded and categorized based on recurring themes such as safety, hygiene, interaction, cultural integration, and emotional engagement. Visual and thematic analysis helped refine design directions and determine final elements.

3.2.1) Yoyogi Park, Japan Yoyogi Park provides a structured and clean dog run, with well-separated areas for different dog sizes. It emphasizes hygiene and routine, reflecting Japanese cultural preferences for order. Interactive zones and water fountains are common.

3.2.2) Central Park, USA Central Park has designated dog-friendly hours and areas, encouraging coexistence between pet and non-pet visitors. Its inclusive approach and integration with community events promote emotional and recreational value.

3.2.3) Benjakitti Park, Thailand. Benjakitti Park offers limited but growing pet-friendly areas. It reflects the shift in Thai urban policies toward more inclusive public design. However, a lack of cultural storytelling and specialized pet facilities limits the experience.

3.2.4) Comparative Analysis

Table 1 Pet-Friendly Park Comparison

Aspect	Yoyogi Park (Japan)	Central Park (USA)	Benjakitti Park (Thailand)
Dedicated Pet Zones	Yes, fenced areas	Yes, off-leash times and zones	No, general shared spaces
Pet Facilities	Fountains, waste stations, rest zones	Water fountains, pet trails, waste bins	Very limited pet facilities
Events	Regular pet events	Pet education and outreach	Rare or no pet-specific events
Accessibility	Excellent by public transit	Central location, great connectivity	Good, but with limited parking
Cultural Attitudes	Pets as family members	Strong pet community support	Mixed attitudes toward public pets
Climate Features	Seasonal events, shaded seating	Natural cooling through landscape	Shaded zones and water for cooling

Source: Researcher, 2025

3.2.5) Recommendations for Bangkok

First and foremost, future pet park designs should integrate cultural identity by incorporating traditional Thai elements into the landscape and infrastructure. This includes the use of local color palettes, folklore-inspired mascots, and decorative installations reminiscent of Thai festivals. Such cultural expressions not only help preserve Bangkok's unique heritage but also enhance the park's appeal to both domestic visitors and international tourists seeking meaningful, place-based experiences.

Equally important is the improvement of pet-centered facilities. To better accommodate the needs of diverse pets and their owners, parks should feature shaded rest zones, well-drained pet toilets, mobile water stations, and designated areas tailored to small, large, and senior animals. These additions ensure a higher standard of hygiene, comfort, and safety, supporting both daily use and large-scale events.

To build a vibrant and sustainable environment, parks should encourage community and commercial participation. Collaborations with local businesses, pet product brands, and cafes can activate the space economically and socially. Pop-up stores, themed merchandise, and pet-centered workshops not only support small enterprises but also help cultivate a strong sense of community involvement.

A long-term strategy would be the creation of an annual theme-based pet festival—a concept inspired by events like Bangkok Design Week. This "Pet Culture Festival" could include a wide range of programming: character showcases, interactive exhibitions, local vendor booths, cultural parades, and community art activities. Such a festival would elevate the park beyond a recreational space, positioning it as a cultural and commercial hub for pet lovers and the broader public.

Lastly, planners should prioritize inclusive design practices that cater to users of all ages and abilities. Paths and seating areas should accommodate elderly visitors and those with mobility challenges, while shared human-pet interaction zones should be designed to encourage playful, safe, and respectful engagement among diverse user groups. In doing so, parks can promote stronger social bonds and a more unified urban community.

Altogether, these recommendations aim to transform pet parks in Bangkok into holistic spaces where tradition meets modernity, and where pets, people, and culture coexist in harmony.

3.3 Key Insights from Field Research and Interviews

A field survey was conducted across three major pet-friendly parks in Bangkok, targeting 30 participants including dog and cat owners aged between 20 and 45. Data was collected through a mix of in-person interviews and short online surveys.

Park Usage: Only 7% of respondents visited pet-friendly parks regularly, while 23% did so occasionally. This suggests a gap in frequent engagement with such spaces, possibly due to current design limitations.

Satisfaction with Existing Facilities: Only 40% of participants felt that basic needs were adequately met. The remaining 60% expressed a desire for more interactive and comfortable design features. Common complaints included excessive heat, lack of water sources, and insufficient shaded or engaging areas.

Interest in Cultural and Fun Features: A significant number (53%) expressed interest in parks with more cultural or fun elements, while 33% were open to the idea, and 14% were not interested. Suggestions included Thai-style pavilions, long-tail boat stalls, and animal-shaped structures.

Event Participation: An overwhelming 80% of participants indicated they would attend pet-related events that incorporate cultural themes, highlighting an opportunity to increase park engagement through culturally enriched programming.

These findings confirm the necessity for improvements in park design, particularly in the areas of cultural integration, climate-responsive features, and experiential activities for pets and their owners.

3.4 Color Concept Analysis Based on Thai Traditional Culture

Thai traditional arts and Khon masks use vibrant and symbolic color palettes. Three main colors were adapted:

Blue (Blurane): A calm pastel blue inspired by Khon masks, symbolizing peace and trust.

Yellow: Derived from traditional Thai costumes, evoking joy and friendliness.

Earthy Brown: A desaturated tone replacing intense reds, chosen to match natural pet colors and create warmth.

These colors were applied to both character design and environmental elements to enhance emotional connection and brand identity.

4. Results

Figure 3 IP Character and Color Design
Source: Researcher, 2025

4.1 IP Character Introduction and Cultural Symbolism Design

The branding of the pet park includes the development of two original IP characters: MuanMuan (dog) and DeeDee (cat). These characters were conceptualized not only for aesthetic and marketing purposes but also to embody the cultural values and emotional tone of the park.

MuanMuan draws inspiration from traditional Thai guardian dogs seen in temple murals and statues. The design incorporates elements of Thai Khon masks, such as stylized facial lines and decorative accessories. Its appearance is intended to evoke friendliness, protection, and loyalty—qualities associated with both Thai mythology and pet companionship.

DeeDee, the cat character, reflects elegance and mystery. Influenced by Thai literature and classical dance, DeeDee's design includes delicate jewelry patterns and poses resembling traditional Thai performances. The character emphasizes the importance of grace and individuality, resonating with cat lovers and aligning with Thai aesthetics.

Color choices were carefully considered to reinforce their symbolic meanings: pastel blue for calmness, yellow for warmth, and earthy brown for cultural grounding. These IPs are designed for multiple uses—branding, merchandise, festival promotion, and interactive storytelling—ensuring long-term engagement and identity recognition.

Their roles extend beyond mascots; they function as cultural ambassadors within the park, guiding visitors through themed experiences, interactive zones, and seasonal festivals. This integration of design and symbolism helps distinguish the park as not only a pet-friendly space but also a celebration of Thai tradition and creativity.

Figure 4 Sketch and Ai rendering of Pet Food Vending Machine
Source: Researcher, 2025

4.2 Pet Food Vending Machine

To support the overall functionality and experience of the pet-friendly park, a bone-shaped vending machine was developed as part of the experimental design. This facility was intended to provide convenient access to pet food and treats for dogs and cats while enhancing the thematic cohesion of the park's public amenities.

The vending machine adopted a giant dog bone shape as its primary form, directly referencing canine behavior and symbolism. This shape choice made the machine highly recognizable within the park

environment and instantly communicated its pet-oriented function to users. The use of paw prints across the central display surface added additional texture and aesthetic connection to animals.

The playful design aligned with the tone of the pet park and contributed to the immersive IP character world, with “Muan Muan” and “DeeDee” featured as part of the decoration and branding. A banner featuring both characters was placed above the machine to enhance visibility from a distance and reinforce event identity (“PAWPAW” branding).

The vending machine was structured to include: A central product display area featuring individual windows showing packaged pet treats or food. A "Pay & Choose" interface positioned at the right side of the machine, designed for easy interaction by pet owners.

Simple visual instructions and selection buttons, allowing quick operation for users who might be managing pets on leashes simultaneously.

The height and proportions were adjusted to be accessible for both adults and children, making the vending machine inclusive in its design approach.

The vending machine was designed as a mobile modular unit that could be placed near seating areas, walking paths, or the pet activity zone. Its standalone nature allowed it to operate independently from built facilities, supporting decentralized services within large park areas at park.

The colorful aesthetic, soft-edged contours, and thematic integration helped make the machine a visually pleasant part of the park infrastructure, contrasting with the cold or industrial look of typical vending machines.

Although the main form followed a modern and universal pet symbol (a bone), the use of IP elements (character costumes inspired by traditional Thai art like temple motifs and accessories) added localized cultural flavor to the vending unit. The combination of tradition-inspired visuals and modern convenience technology met the project's goal of promoting both cultural engagement and practical use.

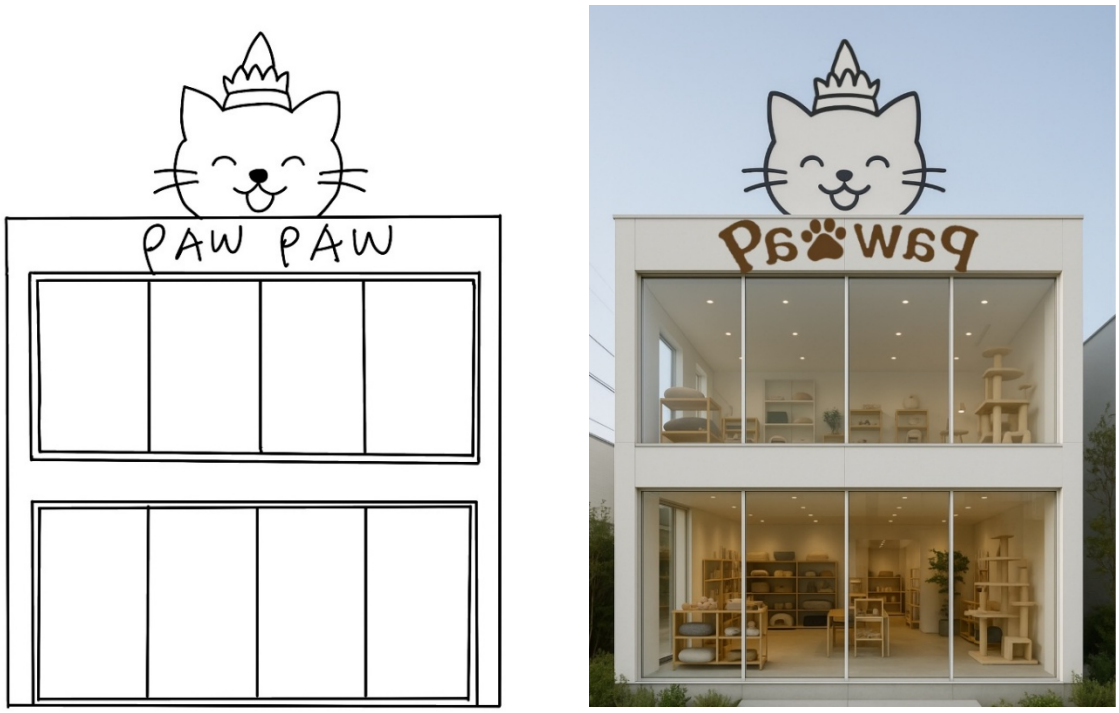


Figure 5 Sketch and Ai Rendering of PawPaw Pet Shop
Source: Researcher, 2025

4.3 PawPaw Pet Shop: Cultural and Emotional Retail Architecture

The PawPaw Pet Shop stands as a harmonious blend of minimalist architecture and Thai cultural symbolism, functioning as both a retail destination and a visual landmark within the pet-friendly park. Carefully crafted to reflect openness, warmth, and local identity, the shop draws visitors not only for its curated product offerings but also for its architectural charm and emotional resonance.

At the core of the shop's architectural concept is its two-story glass façade, which creates a transparent and welcoming atmosphere. This openness allows passersby to clearly view the shop's interior, including pet furniture, product displays, and a friendly, accessible layout. The use of glass not only aligns with modern retail design but also symbolizes honesty, visibility, and community inclusivity—values that define the PawPaw brand.

A striking feature of the building is the prominent IP character DeeDee the Cat, positioned atop the roof. Wearing a stylized Thai chada (traditional crown), DeeDee becomes a friendly and recognizable figure that bridges contemporary design with cultural heritage. This large rooftop cut-out serves as a soft mascot and beacon, instantly drawing attention from pet lovers, families, and festivalgoers while reinforcing emotional connection to the brand.

The PawPaw logo itself embodies playful branding through culturally aware design. Incorporating a paw print in place of the "o" and a mirrored "w" that resembles a pet's tail, the typography is lively yet cohesive. Rendered in a natural brown tone, it ties in seamlessly with the broader color palette, which reflects earthy, inviting, and Thai-inspired aesthetics.

Inside, the interior design prioritizes warmth, functionality, and comfort. Soft wood shelving rounded modular racks, and thoughtfully arranged displays ensure a pet-safe environment that invites browsing and interaction. Products range from stylish cat trees and pet beds to local handmade accessories, all of which align with the park's overarching design ethos. Carefully placed greenery helps blur the line between indoor retail space and the surrounding natural environment, reinforcing a sense of calm and continuity.

Despite its minimalist structure, the shop excels in cultural innovation. Thai identity is delicately woven throughout: from DeeDee's royal headpiece to pet items that incorporate traditional textile patterns. During festivals, pop-up booths designed to resemble floating market stalls further enhance the cultural narrative, creating an immersive shopping experience that is both contemporary and rooted in local tradition.

In its entirety, the PawPaw Pet Shop is more than a place to purchase pet goods—it is a cultural touchpoint, a storytelling device, and a symbol of how design can elevate everyday spaces into memorable and meaningful experiences.

4.4 Event Zone and Activities

The event zone at the PawPaw Festival is a vibrant, culturally immersive space designed to enhance visitor engagement through a variety of interactive, creative, and educational experiences. Thoughtfully curated to blend pet-friendly fun with Thai heritage, the zone invites both pets and their owners to participate in meaningful activities that celebrate companionship, culture, and community.

One of the most beloved attractions is the Paw Print Art Zone, where pet owners can create keepsake artworks with their animals. Using safe, washable colors, participants collaborate with their pets to make paw print art pieces that can either be taken home or added to a growing community mural. This zone encourages creativity while symbolizing the bond between humans and animals.

Nearby, the Pet and Owner Games area transforms an open lawn into a playful field of movement and bonding. Activities such as relay races, obstacle courses, and group games offer opportunities for pets and owners to exercise together, promoting health and joyful interaction. This lively space becomes a hub of laughter and activity, reinforcing the event's family-friendly and energetic atmosphere.

Capturing the festival spirit is made easy at the PawPaw Photo Zone, which features elaborate themed backdrops and sculptures of the brand's IP characters, MuanMuan and DeeDee. These visually striking installations provide Instagram-worthy moments, allowing visitors to create lasting memories of their experience while reinforcing the festival's identity through visual storytelling.

Adding a layer of local charm is the Pet Products & Food Market, where stalls designed in the shape of traditional Thai boats offer a curated selection of pet accessories, treats, wellness items, and refreshments

for owners. This marketplace not only supports local artisans and small businesses but also introduces visitors to Thai cultural aesthetics through its unique visual design and product offerings.

The highlight of the cultural programming is the Khon Paw Parade, a festive mini-show where pets dressed in Thai-inspired costumes march alongside Khon-style performers and musicians. Blending traditional performing arts with pet culture, the parade creates a captivating and joyful spectacle that resonates with audiences of all ages. It serves as a powerful expression of how modern lifestyles and cultural heritage can coexist in meaningful and creative ways.

Together, these activity zones transform the park into a lively, engaging environment that fosters community participation while celebrating both pets and Thai culture. The PawPaw event zone successfully turns cultural storytelling into an immersive, pet-friendly experience that entertains, educates, and inspires.

Figure 6 PawPaw Pets Merchandise
Source: Researcher, 2025

4.5 Merchandise Design and Strategy

To extend the identity of the PawPaw Pet Shop beyond physical space, a dedicated merchandise line was developed to strengthen emotional bonds with visitors while promoting Thai cultural aesthetics. The products serve not only functional and souvenir purposes but also reflect the brand's visual storytelling and playful design spirit.

The PawPaw Pet Shop collection introduces a thoughtfully curated range of products that blend modern pet culture with traditional Thai aesthetics, creating a playful and emotionally resonant brand identity. Designed for the vibrant setting of Chatuchak Park and the annual PawPaw Festival, each product line serves not only a functional purpose but also tells a cultural story through design.

At the heart of the collection is the Pet Food & Packaging category. This includes specially branded dog and cat food pouches, wrapped in a signature warm orange and deep blue color scheme. The packaging features cartoon-style illustrations of MuanMuan the dog and DeeDee the cat—PawPaw's central characters—whose approachable visuals enhance brand friendliness. One standout feature is a dog bone–shaped pet food vending machine, installed directly in public spaces like Chatuchak Park. This unique installation offers hygienic and entertaining access to snacks for pets, reinforcing the brand's philosophy of "design that serves daily life."

Extending the brand's identity into fashion, the Wearable Merchandise line features unisex T-shirts and bucket hats. The T-shirts showcase DeeDee adorned with a Thai-style crown and surrounded by floral motifs inspired by traditional Thai mural art, alongside the tagline "PawPaw @ Chatuchak Park." The bucket

hats, embroidered with the brand's logo and cultural symbols, provide sun protection while appealing to youth, tourists, and pet lovers. These items are not just apparel—they're wearable expressions of culture and character.

The Lifestyle & Picnic Items complement outdoor and event experiences. Reusable coffee cups are printed with dancing MuanMuan and DeeDee dressed in Khon-inspired costumes, making daily routines more charming and culturally engaging. Folding deck chairs printed with bilingual quotes about harmony between pets and people are strategically placed in event zones, inviting relaxation while subtly reinforcing PawPaw's core message. These items maintain a cohesive visual identity through the use of playful iconography and a joyful, casual aesthetic.

In addition, Eco-Friendly Tote Bags promote sustainable habits while featuring vibrant designs of MuanMuan and DeeDee in various poses. These fabric shopping bags come in multiple styles and color combinations, targeting both pet owners and general park visitors. Their appeal lies in the fusion of character-driven branding with functional, everyday use.

The design language across the PawPaw merchandise line is unified by strong cultural and visual elements. MuanMuan and DeeDee serve as the heart of the brand, with DeeDee often depicted wearing a traditional crown and collar inspired by Khon performance attire. The color palette—comprising yellow, cream, dark blue, and earthy brown—evokes the warmth of Thai temples and the natural tones of park environments. Typography includes playful fonts integrated with paw-print motifs, balancing a modern tone with traditional symbolism.

All merchandise is made available both inside a signature glass pet shop and at temporary festival booths, seamlessly integrating commerce with experience. Some items, like the vending machine and picnic chairs, double as event installations, encouraging interaction and reinforcing brand visibility. Furthermore, QR codes embedded on product tags link to short AR animations featuring MuanMuan and DeeDee, enhancing digital engagement and storytelling.

Ultimately, the PawPaw Pet Shop transforms everyday consumer products into cultural ambassadors. By blending traditional Thai motifs with contemporary pet-friendly design, the brand creates merchandise that not only drives revenue but also deepens emotional connection and solidifies its identity as playful, local, and meaningful.

5. References

Alfasi, N., & Gopher, D. (2020). The role of public spaces in fostering urban resilience. Cities, 103, 102722. https://doi.org/10.1016/j.cities.2020.102722

American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). American Psychological Association.

Barker, S. B., & Wolen, A. R. (2008). The benefits of human–companion animal interaction: A review. Journal of Veterinary Medical Education, 35(4), 487–495. https://doi.org/10.3138/jvme.35.4.487

Beardsley, J. (2022). Designing greenways: Sustainable landscapes for nature and people. Harvard University Press.

Cudworth, E. (2011). Social lives with other animals: Tales of sex, death and love. Palgrave Macmillan.

Ghosh, S. (2019). Animal-inclusive urban design: Rethinking the role of public parks. Urban Studies, 56(11), 2212–2228. https://doi.org/10.1177/0042098018778720

Jacobs, J. (1961). The death and life of great American cities. Random House.

Kellert, S. R., Heerwagen, J. H., & Mador, M. L. (2008). Biophilic design: The theory, science and practice of bringing buildings to life. Wiley.

Loukaitou-Sideris, A., & Ehrenfeucht, R. (2009). Sidewalks: Conflict and negotiation over public space. MIT Press.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50(4), 370–396. https://doi.org/10.1037/h0054346

Miles, M. (1997). Art, space and the city: Public art and urban futures. Routledge.

Norberg-Schulz, C. (1980). Genius loci: Towards a phenomenology of architecture. Rizzoli.

Pløger, J. (2006). In search of urban vitality: A critique of urban design approaches. Urban Studies, 43(10), 1671–1687. https://doi.org/10.1080/00420980600749952

Rosenfeld, L. (2020). Designing public events for cultural engagement: Lessons from community art. Journal of Urban Culture Research, 20, 145–158.
Soga, M., Gaston, K. J., & Yamaura, Y. (2017). Gardening is beneficial for health: A meta-analysis. Preventive Medicine Reports, 5, 92–99. https://doi.org/10.1016/j.pmedr.2016.11.007
Tuan, Y. F. (1977). Space and place: The perspective of experience. University of Minnesota Press.
Whyte, W. H. (1980). The social life of small urban spaces. Project for Public Spaces. ay.csjmu.ac.in/wp-content/uploads/2023/02/

The Healing Illustrations in Food Packaging Design for Young Generation

Ji Yu[1*], Sirada Vaiyavujamai[2] and Minjade Paklapas[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: jiyu9340@gmail.com

Abstract

Introduce the research background, theoretical significance, practical significance and research innovation of this study. According to the research background, put forward the purpose and questions of the study, and put forward the research innovation. Research objectives: This study explores whether the use of illustrations in food packaging will affect the physiological or psychological changes of adolescents? Nowadays, Chinese teenagers are under increasing pressure and are prone to mental illness. Through the research data of the 2022 National Depression Blue Book. I created a milk tea food packaging, mainly using healing illustrations as the food packaging of this product. This study explores whether the use of illustrations in food packaging will affect the physiological or psychological changes of adolescents? Nowadays, Chinese teenagers are under increasing pressure and are prone to mental illness.

Keywords: *healing illustration, food packaging, young generation, China*

1. Introduction

Art therapy is a treatment method that combines art with psychotherapy. It is completed by various artistic expressions in the process of psychotherapy. Painting therapy is one of the many methods in art therapy, and healing illustrations belong to the category of painting therapy in art therapy (Wei Yuxi, 2022). Painting therapy refers to people expressing their emotions in the process of creating or appreciating art works, thereby relieving psychological pressure. Healing illustrations are a visual art that connects the inner emotional consciousness through visual perception, and uses unique colors, images, themes, etc. to help people release their inner negative emotions (Zhou Meichen, Cong Hongyan, 2022).

In the "2022 National Depression Blue Book", it is pointed out that there are more than 50 million depression patients in China. Due to the low prevalence of depression in my country, most people do not know the symptoms of depression at all, resulting in about 280,000 suicides each year, of which 40% are suffering from depression. And depression has begun to show a trend of getting younger. Among the domestic patients with depression, those under the age of 18 account for 30.28% of the total number, and the proportion of adolescent groups is increasing year by year (Yu Jiahui, 2023). It can be seen that Chinese teenagers are facing tremendous pressure, which is also an important social problem that needs to be solved urgently.

Factors such as China's rapid development have led to increasing pressure on Chinese teenagers, and food is an indispensable part of our lives. With the rise of the healing system, people have begun to apply it to food packaging. For this reason, this study combines art therapy with food packaging, and designs healing food packaging illustrations to help China solve the problem of adolescent stress, thereby promoting the healthy development of adolescents and society.

The word "healing" first appeared in Japan in the late 1990s. In the 1980s, Japan's economy was strong, people were full of infinite fantasy and optimism about the future, unrealistically pursued the pleasure of profit and wealth, and frantically speculated in stocks, real estate bonds, etc. Soon, they paid a painful price for this crazy behavior, which directly led to the serious economic crisis in the early 1990s, which is the well-known bubble economy era. This economic crisis dealt a heavy blow to the development of Japan's "economic myth". It is in this context that "healing" gradually emerged and became popular (Liu Ying, 2020).

Healing illustrations can provide people with a window for emotional catharsis, so the emotions conveyed by each illustration are different, mainly showing the inner intuition and perception. From a personal point of view, it usually makes people feel comfortable and happy, soothes tense nerves, releases psychological pressure, and diverts inner pain. Such illustrations can be called healing illustrations. In the

process of experiencing illustrations, people can feel unprecedented relaxation, freshness and warmth, and reach a state of balance and stability. Healing illustrations can not only soothe people's emotions, but also heal psychological pain and purify the soul (Yu Jiahui, 2023). From the perspective of subject matter selection, healing illustrations are more inspirational, with a slow rhythm and a fresh and elegant style. Generally speaking, illustrations that can encourage people to stay positive and optimistic and full of hope for the future are called healing illustrations (Peng Bofang et al., 2022).

2. Objective

The main purpose of the study is to propose color design strategies for healing illustrations based on the expression of color emotions in healing illustrations, and finally to practice illustration design based on the research results.

3. Research and Methodology

3.1. Method

1) Use hand-painted illustrations to draw healing series.

2) The research scope is 18-24 years old, the time range is 1 year, in Taiyuan, Shanxi, China.

3.2. Research data

Table 1 What causes depression

Sudden changes	26.51%
Others	13.06%
Sexual psychology	13.91%
Parent-child relationship	68.04%
Career development	35.02%
Emotional stress	86.39%
Intimate relationship	45.87%

Figure 1 What causes depression

Source: National Depression Blue Book, 2022

The main causes of depression are emotional stress and family parent-child relationships; followed by intimate relationships and career development, accounting for 45% and 35% respectively.

Many times, people bury negative emotions in their hearts, which not only cannot be resolved, but also puts them at risk of falling into depression. In fact, these emotions need to be faced and expressed, and we need to realize that the existence of negative emotions is normal and common.

Table 2 Age of depression onset group

years old	percentage
41~50	2.75%
31~40	13%
25~30	16.82%

51~60	1.83%
61 years old and above	0.5%
Under 18 years old	30.28%
18~24	35.32%

Figure 2 Age of depression onset group
Source: National Depression Blue Book, 2022

Depression patients under the age of 18 account for 30% of the total population; 50% of depression patients are school students.

Table 3 Causes of depression in students

relation	percentage
Interpersonal relationships	77.39%
Family relationships	69.57%
Lifestyle habits	33.48%
Lack of sleep	45.65%
Academic pressure	53.91%

Figure 3 Causes of depression in students
Source: National Depression Blue Book, 2022

77% and 69% of student patients are prone to depression in interpersonal and family relationships. 63% of student patients feel harshness/control, neglect/lack of care and conflict/domestic violence in their families. The phenomenon of adolescents suffering from depression cannot be ignored. We should form a good dynamic system between society, family and individuals to influence each other and promote change.

3.3. Research Questions

3.1.1) How is color emotion expressed in healing illustrations?

3.1.2) What are the design schemes in food packaging design?

3.1.3) Does the use of illustrations in food packaging influence the physiological or psychological changes in adolescents?

3.4. Questionnaire

The second part is the main body of the questionnaire: it contains 9 items in total. As follows: To verify whether the design results of this study have an impact on teenagers.

1） This packaging makes me feel relaxed

2）This packaging can make me feel happy

3）Changing the packaging can make me happy

4）This packaging can encourage me

5）This packaging will make me forget temporary unhappiness

6）This packaging will reduce the pressure in my life

7）This packaging will comfort me

8）This packaging will make me forget my troubles

9) The questionnaire uses the Likert five-point scoring method, 1. Strongly disagree, 2. Disagree, 3. Unclear, 4. Agree, 5. Strongly agree, the higher the score, the more the packaging design of this study can change the psychology of consumers. This study is expected to distribute 400 questionnaires for investigation.

4. Results

This chapter mainly explores the concepts, characteristics and research status of healing illustrations in the previous article, so as to sort out the design ideas of food packaging in this study, as well as the questionnaire survey, so as to lay a solid foundation for the fourth chapter to design the food packaging design of this study.

4.1. Logo Design

Figure 4 Logo Design for Leisure House Milk Tea
Source: Researcher, 2025

LOGO: The rounded and elastic font combined with the shape that resembles a small house and a milk tea cup highlights the brand and theme of our milk tea store, embodying the feeling of home, making people feel warm, healed, at home, leisurely and at ease.

4.2. Font and Language Design

Fonts are an important medium for the dissemination of information for a brand. Aiming at the relaxed and casual characteristics of the "Leisure House Leisure Milk Tea" brand, this study adds soothing language under each milk tea package to better fit the lives of young people. 1. Matcha Brae Milk Tea (Be in a good mood today). 2. Mountain Gardenia Milk Tea (You are young, and unhappiness is just an episode of growth). 3. Thick Taro Mud Bobo Milk Tea (Lie down when you are tired). 4. Brown Sugar Bobo Milk Tea (I will always be with you). 5. Brown Sugar Pearl Milk Tea (Cheers, forget the unhappiness). 6. Strawberry Matcha Pearl Milk Tea (Hug). 7. Jasmine Pearl Milk Tea (I believe in you; you can do it).

4.3. Illustration Concepts

This series includes 7 flavors of milk tea, and the illustration design of each flavor has its own characteristics, which also conforms to the leisurely and fun theme. Fun themes can often make the picture full of vitality and energy, which can attract consumers' visual focus.

Figure 5 Healing illustration design
Source: Researcher, 2025

4.4. Product Image

Figure 6 Physical product pictures
Source: Researcher, 2025

4.5. Summary

1) Meet the emotional needs of adolescents.

Adolescents are in a critical period of physical and mental development and face various pressures and challenges. Healing illustrations can provide them with emotional comfort and relaxation. This study applies healing illustrations to adolescent food packaging design, allowing adolescents to be exposed to more visual elements with emotional warmth in their daily lives, which helps to relieve their stress and improve their sense of happiness and psychological quality.

2) Promoted the diversified development of mental health intervention.

This study introduced visual art elements into the field of mental health intervention and promoted the diversified development of mental health intervention. As a form of visual art, healing illustrations can be combined with traditional psychological intervention methods to provide adolescents with more diverse psychological support methods.

5. References

Liu Ying (2020). Research and thinking on healing illustrations. Art Appreciation, 8 (11), 252-253. Retrieved on January 16, 2025, from: http://www.cnki.com.cn/Article/CJFDTotal-YSPJ202011142.htm

Peng Bofang, Li Xiaolu, and Li Hongfei (2022). Research on the expression of healing illustrations in new media. Daguan, 8 (7), 119-121. Retrieved on January 30, 2025, from: http://www.cnki.com.cn/Article/CJFDTotal-DAGN202207039.htm

Wei Yuxi (2022). Research on healing illustration design to relieve stress for working women, Master's thesis, Shanghai University of Engineering Science.

Yu Jiahui (2023). Research on healing illustration design from the perspective of art therapy master's thesis, Jiangxi Normal University.

Zhou Meichen and Cong Hongyan (2022). Discussion on the application of healing illustrations in packaging design. Papermaking Equipment and Materials, 7 (3), 112-114. Retrieved on February 20,2025,from:https://www.nstl.gov.cn/paper_detail.html?id=3ad920c706ba0248771d7c315ff05cf3ay.csjmu.ac.in/wp-content/uploads/2023/02/

The Development of Burmese Local Materials for Meditation Seat Design

Ya Min Shwe Sin*[1], Sammiti Sukbunjhong[2] and Patipat Chaiwitesh[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
*Corresponding author, Email: yaminshwesin174@gmail.com

Abstract

In this paper, the performance of the conventional fluidized bed reactor (FB) is improved by the fluidization in centrifugal fields referred to as the rotating fluidized bed reactor (RFB). The computational fluid dynamics (CFD) model for gas-phase ethylene polymerization has been developed to study the gas-solid flow behaviors in the RFB reactor. The inlet gas velocity is an important parameter for the bed characterizations. This work uses the CFD model to study the effects of different inlet gas velocities including 25 m/s, 30 m/s, 40 m/s, 50 m/s, and 60 m/s. Two sizes of particle diameter 0.15 and 1 mm are considered. The simulation results show that the bed behavior is more stable and uniform with the increase in the inlet gas velocity. The pressure drop of the bed also increases with an increase in the inlet gas velocity. As compared with the conventional fluidized bed reactor, the rotating fluidized bed reactor gives more uniform particle distribution and less amount of particle loss.

Keywords**:** *Meditation seat design, Burmese materials, ergonomics, cultural craftmanship, sustainable design, mindfulness*

1. Introduction

Meditation, a central component of Buddhist teachings, has been deeply embedded in Myanmar's cultural and spiritual life for centuries. Traditionally, Burmese meditation is practiced in pagodas and monasteries on simple mats or directly on the floor, reflecting values of simplicity and humility (Harvey, 2013). While this approach honors tradition, it presents considerable physical challenges, particularly for beginners. Prolonged sitting on hard surfaces can lead to discomfort, muscle fatigue, and improper posture, which disrupt the focus and continuity of meditation (Linton et al., 2011).

As global interest in meditation grows, research has increasingly emphasized the need for ergonomic support to enhance the meditative experience. Studies in meditation furniture design suggest that well-structured seating can significantly improve physical stability and reduce pain, allowing practitioners to sustain longer and deeper sessions (Hamaoui et al., 2009). While traditional Burmese practices emphasize modesty and minimalism, these values may unintentionally create barriers for new practitioners seeking both comfort and spiritual engagement.

This research aims to develop a meditation seat that balances cultural authenticity with ergonomic functionality. By incorporating traditional Burmese materials such as teak wood and rattan, alongside local craftsmanship, the project seeks to enhance physical comfort and promote better posture for beginner meditators in Myanmar. The final design also aims to foster a stronger connection to Burmese identity and mindfulness practice, contributing to both cultural preservation and user-centered innovation.

2. Objectives

1) To explore Burmese materials and traditional craftsmanship in furniture design.
2) To design a meditation seat that supports Burmese style posture ergonomically.

3. Details
3.1 Methodology

Ergonomics and Meditation

Ergonomic seating significantly enhances meditation by reducing physical discomfort and supporting proper posture, which helps extend mindfulness duration (Lee et al., 2019). Proper support aligns the spine, distributes body weight evenly, and minimizes strain in common pain areas like the lower back and hips. As Kroemer and Grandjean (2009) note, maintaining natural posture reduces muscle fatigue and tension, allowing practitioners to remain still and focused, which is essential for deeper meditation.

Cultural Design and Symbolism

Culturally rooted design enhances user engagement by creating emotional connections and reinforcing identity (Krippendorff, 2006; Heskett, 2002). In Myanmar, using local materials like teak and rattan in product design goes beyond aesthetics it reflects cultural values and traditions. Teak symbolizes strength and craftsmanship, commonly seen in Buddhist temples and traditional furniture. Rattan represents everyday life and local craftsmanship, especially in rural communities. These materials not only offer sustainability but also carry spiritual meaning. Integrating them into meditation seat design strengthens the user's connection to both mindfulness practice and cultural heritage, making the product a symbol of identity and tradition**.**

Sustainability and Local Craftsmanship

Sustainable design emphasizes the use of local, renewable, and biodegradable materials to reduce environmental impact and support local economies (McDonough & Braungart, 2002). In Myanmar, teak and rattan reflect these values teak is durable and sourced from managed forests, while rattan is fast-growing and requires little processing. Both are biodegradable and traditionally used in Burmese crafts. Using them in design lowers the carbon footprint, supports local artisans, and preserves cultural heritage while promoting environmental responsibility (Nguyen, 2016).

User-Centered Design

Design Thinking (Brown, 2009) and User Experience (UX) principles (Norman, 2002) emphasize empathy, user involvement, and iterative testing in design. For meditation furniture, this involves engaging beginners to understand their posture challenges and comfort needs. Through prototyping and feedback, the design can be refined to improve ergonomics and usability. This user-centered approach ensures the product is not only functional and culturally relevant but also supports mindfulness and comfort effectively.

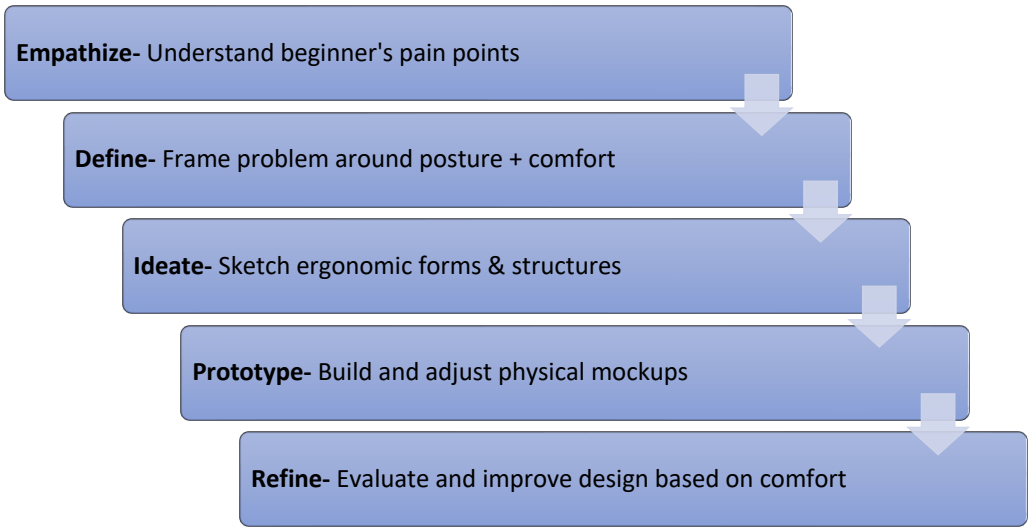


Figure 1 Design Thinking framework used in the meditation seat development process
Source: Researcher, 2025

The five stages include empathizing with user needs, defining key ergonomic problems, ideating solutions through sketching, prototyping physical models, and refining designs based on function and cultural fit.

3.2 Target Group Selection

The target group for this study consists of young Burmese individuals aged 18–35, who are beginners in meditation practice. This age group was selected because they are more open to new lifestyle practices and represent a growing segment of urban mindfulness practitioners in Myanmar. Their lifestyle, aesthetic awareness, and spiritual curiosity make them a valuable user group for meditation-focused product design.

3.3 Survey Design and data Collection

Primary data was collected through a survey of 30 Burmese individuals aged 18–35, the target group of meditation beginners. The structured questionnaire included both closed and open-ended questions covering meditation habits, sitting posture issues, material preferences (e.g., rattan, cotton, wood), and views on traditional Burmese aesthetics. Responses were categorized into three key themes: (1) Ergonomic Needs, highlighting the need for physical support and posture alignment; (2) Material Familiarity, showing a preference for locally trusted materials; and (3) Cultural Aesthetic Perception, stressing the importance of culturally resonant design.

4. Results

This section presents the core findings derived from the research process, including ergonomic analysis, material testing, and user-centered design development. The focus is placed on improving comfort, posture, and cultural relevance in the final meditation seat design.

4.1 Ergonomic Enhancements for Seated Posture

To address physical discomfort common among beginner meditators, especially in cross-legged positions, the cushion design incorporates a 5–7 degree forward slope. This ergonomic tilt encourages slight anterior pelvic rotation, aligning the spine more naturally and reducing muscular strain on the lower back and hips (Hamaoui et al., 2009). The slight elevation at the back supports proper posture without external backrests.

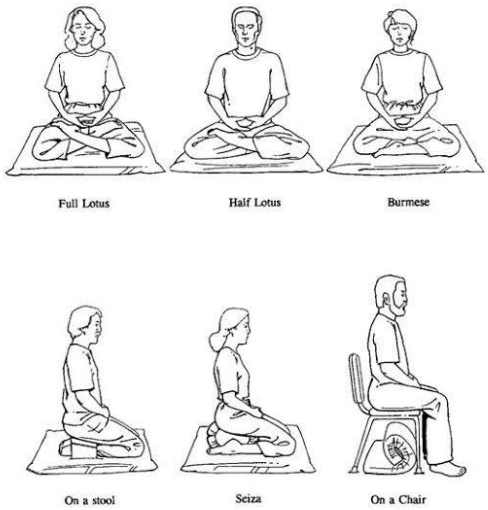


Figure 2 Styles of meditation posture
Source: Pinterest, n.d., 2025

4.2 Pressure Dispersion & Comfort

The cushion features a gentle dome shape and inward dip, guiding the user toward a centered position while dispersing pressure away from the ischial bones. This balance between support and softness minimizes fatigue and improves sitting stability. The layered foam system combining soft top foam and a firmer core ensures users remain comfortable over extended periods of meditation.

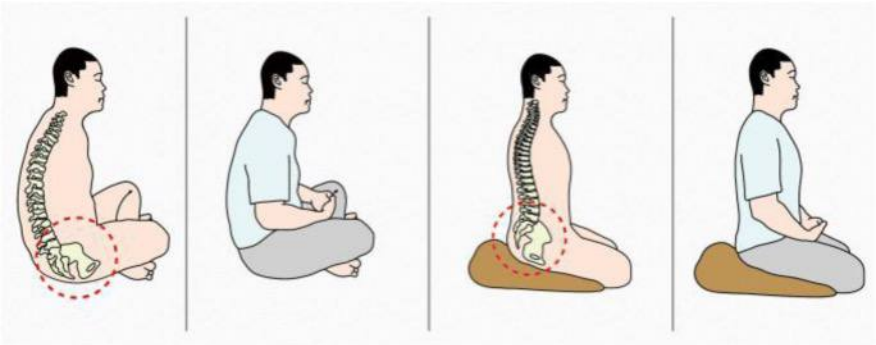


Figure 3 Physical Discomfort
Source: MantraCare, n.d., 2025

4.3 Design Development Process

The design process followed a user-centered methodology informed by Design Thinking and cultural integration. The aim was to create a meditation seat tailored to the physical and emotional needs of Burmese beginners, aged 18–35, who face challenges such as discomfort, poor posture, and cultural disconnection when engaging in mindfulness practices. The goal of this design was to eliminate those physical obstacles and offer an ergonomic seat that supports a better beginning.

Identifying Key Challenges for Beginners

Survey results and observational data revealed three main barriers to consistent meditation: (1) poor posture due to lack of physical support, (2) leg and hip discomfort caused by hard or flat surfaces, and (3) mental distraction resulting from physical pain. These insights highlighted the need for a seating solution that not only addresses body mechanics but also fosters emotional calm.

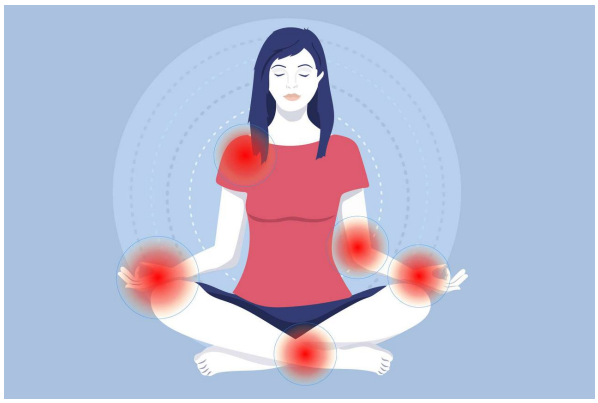


Figure 4 Physical pain point
Source: True Scoop News, n.d., 2025

Ergonomic Design Adapted to Burmese Sitting Styles

Unlike traditional flat mats, the cushion was designed with a three-dimensional form to adapt to the body's contours. The seat includes a gentle forward slope and a central dip that encourages pelvic alignment and upright posture. These features reduce strain on the knees and ankles while preventing forward sliding, which often causes tension and imbalance during practice.

Figure 5 Ideal body posture and support
Source: Techable, n.d., 2025

4.4 Final Design Focus

The meditation seat is designed for Burmese beginners aged 18–35, addressing common issues of discomfort and poor posture. Its low, culturally inspired form encourages proper sitting and enhances the meditation experience by blending comfort with traditional aesthetics.

Material Selection: Supporting the Body with Natural Comfort

The materials used in this meditation seat were carefully selected not only for their cultural relevance, but also for how they support the physical needs of beginner meditators. Each component was chosen to enhance comfort, stability, breathability, and usability helping users stay relaxed and focused during meditation.

Teakwood (Base Frame)

Teak is a durable and culturally significant hardwood widely used in Myanmar. In this design, it forms the base frame of the meditation seat, providing a stable and grounded foundation. Teak resists warping and cracking, making it suitable for long-term use in various climates. Its natural warmth enhances the meditative experience, offering both physical stability and emotional comfort. The frame is hollowed to reduce weight while maintaining strength, making it practical and supportive for everyday use.

Figure 6 Teakwood
Source: IndiaMART, n.d., 2025

Rattan (Side Surface)

Rattan is a flexible, breathable natural fiber commonly used in Burmese furniture. In this design, it is used on the side surface of the seat. The woven rattan adds cultural authenticity while offering light flexibility and ventilation. Its open weave promotes airflow and helps regulate temperature during meditation. Inspired by traditional Burmese craft, the pattern enhances the seat's visual identity and ties the design to local artisanal heritage, while contributing subtle ergonomic comfort.

Figure 7 Rattan patterns
Source: Pinterest, n.d., 2025

Foam Cushion (Cushion Core)

The cushion uses a multi-layered foam system designed to balance softness and support. The soft top layer reduces pressure on the hips and thighs, while the firmer base maintains shape and gently lifts the hips to support spinal alignment. This structure helps prevent slouching, discomfort, and sliding common issues for beginners. By improving posture and reducing lower back tension, the foam cushion allows for longer, more focused meditation.

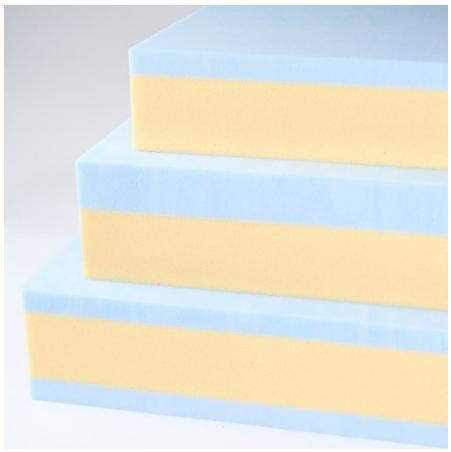


Figure 8 Multi-layered foam cushion
Source: Marine Fabricator, 2022

Cotton Fabric (Cushion Cover)

The cushion is covered in soft, breathable cotton fabric that enhances comfort and reduces skin irritation ideal for long meditation sessions. Its breathable nature helps regulate temperature and prevents heat buildup. The cover is removable and washable, supporting hygiene and easy care. Neutral, earth-tone colors were chosen to match the calm and minimalist atmosphere of meditation spaces, adding to both comfort and visual serenity.

Figure 9 Cotton-linen fabric
Source: Myanmar Textile & Garment Directory, n.d., 2025

Table 1 Material Compariso

Material	Function	Ergonomic Benefit
Teakwood	Structural base frame	Strong, stable, naturally warm
Rattan	Woven seat surface	Breathable, flexible, and reduces pressure
Foam	Cushion core	Soft support, retains shape
Fabric	Cushion cover	Skin comfort, Breathable, easy to clean

Source: Nguyen, 2016

4.5 Reflections on Research Questions

This study was guided by four research questions focused on enhancing comfort, supporting cultural identity, and promoting accessibility in meditation seating for Burmese beginners aged 18–35. The final design addressed these areas through thoughtful material selection, ergonomic shaping, and cultural symbolism.

To improve posture and reduce discomfort, the cushion features a 5–7 degree forward slope, a raised dome, and a center dip. These elements encourage natural pelvic alignment and upright sitting, helping users maintain stability and comfort, directly addressing the first and fourth research questions.

In response to accessibility and material familiarity in the second question, the design uses Burmese teakwood and rattan locally sourced, sustainable materials well known in Burmese culture. Teak offers strength and warmth, while rattan ensures breathability and comfort, making the product culturally relevant and locally accessible.

The third question explored cultural identity. Rather than using overt decorations, the design draws from Buddhist symbolism and traditional craftsmanship. The lotus-inspired form and rattan weaving subtly reflect themes of growth, mindfulness, and spiritual grounding.

Together, these design decisions show that blending ergonomic function with cultural values can result in a meditation seat that supports both physical well-being and emotional connection for beginners.

4.6 Conclusion

This study presents a meditation seat designed to support Burmese beginners by uniting ergonomic comfort, cultural symbolism, and local material use. Key design insights include the importance of proper posture through ergonomic shaping to reduce physical strain, and the role of familiar materials such as teak and rattan in fostering user trust and cultural connection. Rather than relying on decoration, the seat employs symbolic forms rooted in Buddhist values, creating a product that resonates spiritually and emotionally. The contribution of this work lies in demonstrating how user-centered, culturally integrated design can enhance meditation engagement and comfort. Looking ahead, this approach offers a model for developing culturally responsive wellness products that respect local traditions while addressing modern user needs. The meditation seat thus serves not only as functional furniture but as a meaningful tool to support mindfulness and inner stability.

5. Acknowledgments

The author would like to express sincere gratitude to the faculty members of the College of Design, Rangsit University, for their valuable guidance throughout this research. Special thanks go to the local Burmese artisans and meditation practitioners who participated in the survey and provided meaningful insights that shaped the design process. Appreciation is also extended to the advisor, Ajarn Sammiti Sukbunjhong, for continuous support and encouragement, and to co-advisor Ajarn Patipat Chaiwitesh for

constructive feedback. This project would not have been possible without the collaboration of everyone involved.

6. References

Brown, T. (2009). Change by design: How design thinking creates new alternatives for business and society. Harvard Business Press.

Hamaoui, A., Gonneau, E., & Le Bozec, S. (2009). Postural control during seated reaching movements: Impact of a forward-sloping seat. Clinical Biomechanics, 24(5), 409–415. https://doi.org/10.1016/j.clinbiomech.2009.02.006

Harvey, P. (2013). An introduction to Buddhism: Teachings, history and practices (2nd ed.). Cambridge University Press.

Heskett, J. (2002). Toothpicks and logos: Design in everyday life. Oxford University Press.

IndiaMART. (n.d.). Burma teak wood. Retrieved April 20, 2025, from https://m.indiamart.com/proddetail/burma-teak-wood-2855517442291.html

Krippendorff, K. (2006). The semantic turn: A new foundation for design. CRC Press.

Kroemer, K. H. E., & Grandjean, E. (2009). Fitting the task to the human: A textbook of occupational ergonomics (5th ed.). CRC Press.

Lee, J., Kim, S., & Lee, M. (2019). The effect of ergonomic seating on meditation performance and posture. Journal of Mindfulness and Health, 8(2), 115–123.

Marine Fabricator. (2022, September 1). Premium multilayer memory foam. https://marinefabricatormag.com/2022/09/01/premium-multilayer-memory-foam/

McDonough, W., & Braungart, M. (2002). Cradle to cradle: Remaking the way we make things. North Point Press.

Myanmar Textile & Garment Directory. (n.d.). Source variation and quality of textile materials. Retrieved April 20, 2025.

Nguyen, T. (2016). Sustainable design using local materials in Southeast Asia. Asian Design Journal, 12(4), 42–50.

Norman, D. A. (2002). The design of everyday things. Basic Books.

Pinterest. (n.d.). Meditation posture inspiration [Image]. Retrieved April 20, 2025, from https://pin.it/60xgkRH4t

Techable. (n.d.). Ergonomic meditation cushion. Retrieved April 20, 2025, from https://techable.com/products/ergonomic-meditation-cushion

True Scoop News. (n.d.). Meditation techniques for better sleep and deep relaxation. https://www.truescoopnews.com/stories/meditation-techniques-better-sleep-deep-relaxation

Innovative Application of Dongba Script in Cultural and Creative Product Design

Qiongyan He[1*], Danu Phumalee[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: heqiongyan61@gmail.com

Abstract

This research explores the innovative application of dongba script—a unique hieroglyphic system of the Naxi people with rich cultural connotation and visual expressiveness—in the design of cultural and creative products, specifically focusing on online dynamic emojis. The rationale lies in the growing need to digitally preserve and revitalize intangible cultural heritage through modern media. The research aims to analyze the symbolic characteristics and aesthetic value of dongba script, examine its historical and contemporary cultural significance, and develop a design method for dynamic emojis that integrates cultural authenticity with modern communication effectiveness. Methodologically, the study combines literature review, symbolic analysis, digital media design, and user-centered research, including practical case studies and user feedback. The findings suggest that the pictographic and symbolic features of dongba script are well-suited to dynamic expression, and when adapted into emojis, they not only enhance emotional communication but also strengthen cultural identity and engagement in social interactions. The study concludes that integrating dongba script into digital emoji design presents a valuable strategy for the contemporary activation of intangible cultural heritage, offering new insights for designers and cultural innovators.

Keywords**:** *Dongba script, cultural and creative products, dynamic emojis, intangible cultural heritage*

1. Introduction

The ‘Naxi’ people in Lijiang have a long history. As early as the Tang and Song dynasties, they created their own unique national culture - dongba culture. "Dongba" means wise men. They are good at singing, dancing, scriptures, books, history and painting. For thousands of years, they have been inclusive and accumulated from generation to generation, making dongba culture an all-encompassing cultural system, and it has attracted the attention of the world with its unique mysterious charm. Dongba classics, which represent the core content of dongba culture, were also listed as the World Memory Heritage by UNESCO in August 2003, becoming the spiritual wealth shared by all mankind.There are many unique contents in dongba culture, and dongba script is one of them.(UNESCO, 2013, He and Liu, 2010).

Dongba script is a unique hieroglyph of the Naxi people, known as the "living hieroglyphs", with high cultural value and artistic expression. With the rapid development of digital media technology, the modernization of traditional cultural symbols has become an important topic for the cultural and creative industries. As a widely disseminated visual language in social media, dynamic emojis provide new possibilities for the innovative application of dongba script. The purpose of this study was to explore the innovative application of dongba script in the design of dynamic emojis, so as to enhance the modern expression of traditional culture and promote the digital dissemination and inheritance of intangible cultural heritage.(Li, 2018, Wang and Zhang, 2020, UNESCO, 2013)

At present, the research on dongba script mainly focuses on the fields of linguistics, anthropology and traditional art preservation, and its application in digital cultural and creative products is still in the preliminary exploration stage. Most of the existing cultural and creative products are static graphics or decorative designs, lacking interactivity and dissemination. In addition, the design of animated memes tends to be entertaining, while ignoring its cultural carrying function. Therefore, how to balance the traditional meaning of dongba script and the expression of modern digital media has become a key issue in this study.

2. Objectives

1) To explore the history and cultural value of dongba script, and its significance in modern society.

2) To examine how dongba script is used in contemporary cultural products and its innovative transformation.

3) To explore how dongba script's pictographic and symbolic features can be adapted into dynamic digital stickers while maintaining cultural authenticity.

3.Details

3.1 Dongba Script Background

The Naxi Dongba pictographic script is the essence of dongba culture. Known as "Senjiu Lujiu," meaning "traces on wood and stone," it reflects the principle of "drawing wood when seeing wood, drawing stone when seeing stone." As there are still dongba priests who can read these ancient texts, the script is praised as "the only living pictographic script in the world." Dongba manuscripts have been inscribed in the UNESCO Memory of the World Register. There are about 1,400 commonly used dongba characters, and together with the phonetic Geba script derived from it, the total exceeds 2,000. Like the ancient glaciers of Yulong Snow Mountain, this script has withstood the test of time and has been miraculously preserved.

Over a thousand years ago, the Naxi ancestors created characters by observing natural forms−sun, moon, mountains, rivers, birds, and animals−using methods like pictographic representation, ideograms, phonetic borrowing, and transformation. Because dongba characters vividly depict people and objects, even those unfamiliar with the script can often grasp its general meaning. It serves as a valuable resource for studying the origins of human writing.

Figure 1 Dongba script
Source: Lijiang Ancient Town, 2024

3.2 Script Collection Method

Through literature review, field investigation, online resources and other means, dongba scripts were systematically collected and sorted. In the sorting process, the focus was on the commonly used characters that were frequently used and commonly seen in dongba classic literature and rituals. A group of commonly used dongba scripts with high frequency of use, clear structure and visual recognition were preliminarily selected. On this basis, combined with the emotional needs and communication characteristics of online expression scenarios, some representative characters were selected as the core visual elements of the dynamic emoticon package design, laying the foundation for subsequent visual transformation and creative expression. The following is a collection of some commonly used scripts.

Figure 2 Common dongba scripts1
Source: Researcher, 2025

Figure 3 Common dongba scripts 2
Source: Researcher, 2025

3.3 Comparison with Other Pictographs

Dongba script (Naxi hieroglyphics) is a living hieroglyphic writing system that is still in use today. It has both similarities and unique differences with other famous hieroglyphics in the world (such as ancient Egyptian hieroglyphics, oracle bone inscriptions, Mayan scripts, etc.)

Table 1 Compare

script	Compare
	oracle bone script The origin of modern Chinese characters has become a historical relic, and it is impossible to fully show the origin of writing.
	Egyptian pictographic More than 5,000 years old, lost for more than 1,000 years, it was only deciphered in the 19th century, and many messages cannot be recovered.

Maya pictographic

It is more complex, and it is less used and passed down in contemporary times.

Source: Lijiang Museum, 2023

3.4 Case Study Reference

The design of the online oracle bone script emoticon package is based on the ancient, heavy, and vivid characteristics of oracle bone script, combined with the fun and emotional expression functions of contemporary emoticons, to create a digital image with both cultural depth and visual affinity. The design retains the unique stroke structure and aesthetic beauty of oracle bone script, and through exaggerated and anthropomorphic expression techniques, the ancient characters are given a modern vitality, with stronger communication and interactivity. The overall style seeks a balance between rigor and humor, which not only conveys the historical heritage of Chinese characters, but also meets the diverse emotional expression needs of modern users in daily social interactions, and realizes the innovative application and reinterpretation of traditional culture in digital social scenarios.

Figure 4 Oracle online emoticons
Source: WeChat Emoji Library, 2023

The design of the Chinese character online emoticon package fully explores the unique shape, sound and meaning structure and rich cultural connotations of Chinese characters, and transforms abstract text into concrete, vivid and emotional visual symbols through graphic, personified and dynamic methods. The design not only retains the traditional beauty and writing characteristics of Chinese characters, but also integrates modern aesthetics and network language to make the emoticon package more interesting and friendly. Through the clever interpretation of the meaning of Chinese characters and the precise matching of emotional contexts, it not only plays the role of emotional expression in digital social interaction, but also becomes an important carrier for spreading Chinese character culture and enhancing users' cultural identity, showing the diversified expression and innovative value of traditional characters in the context of the new era.

Figure 5 Chinese character online Emoticons
Source: WeChat Emoji Library, 2023

3.5 Design Process

3.5.1)Theme positioning and creative planning

Clearly define the theme of the emoji package, such as "daily emotional expression", "blessings", "interesting interaction", etc., combine dongba cultural elements, extract representative dongba characters and pictographic symbols, give them modern emotional meaning, and form a preliminary creative direction.

3.5.2) Dongba character arrangement and semantic transformation

According to the usage scenario of the emoji package, select appropriate dongba characters or graphics, refer to dongba classics and academic materials, reinterpret their meanings semantically, and transform traditional cultural symbols into emotional expressions in the modern social context.

3.5.3)Image design and role extension

Based on the pictographic characteristics of dongba characters, design anthropomorphic and emotional graphic characters to enhance recognition and affinity. At the same time, add modern visual languages such as facial expressions and body language to make it more expressive.

3.5.4) Motion effect design and dynamic expression

According to the emotional content of each expression (such as happy, angry, shy, etc.), design appropriate animation rhythm and movement changes, such as blinking, jumping, fluttering, etc., to enhance fun and interactivity. The animation style should be unified and smooth, meeting the needs of mobile communication.

3.5.5) Technical implementation and format output

Export the designed dynamic expressions into animated images (GIF) or video formats (APNG, MP4, etc.) suitable for different platforms, and optimize them to ensure that the file size is moderate and the image quality is clear, suitable for WeChat, QQ, Telegram and other chat software.

4.Results

4.1 Color System

The five basic colors in dongba writing - red, yellow, blue, white and black - are not only the basic elements of visual expression, but also carry rich cultural symbolic meanings. Red symbolizes passion and vitality, and is often used to exorcise evil spirits and perform sacrifices; yellow represents land and authority, implying stability and prosperity; blue symbolizes nature and hope, and is associated with the East and spring; white symbolizes purity and holiness, and is an important color for sacrifices and blessings; black symbolizes depth and wisdom, and is associated with water and the north. At the same time, influenced by the colorful prayer flags of the Tibetan Bon religion and the Five Elements Theory of the Central Plains, the Naxi people gave it a unique cultural interpretation. The original pigments were all taken from natural minerals, such as cinnabar red, orpiment, pine soot ink, etc. The availability of materials shaped its unique artistic expression.They constitute a unique and harmonious color system in dongba culture, reflecting the Naxi people's understanding and respect for nature, life and the order of the universe.

Figure 6 Color system
Source: Researcher, 2025

4.2 Sketches

In the design practice part of this study, two sets of sketches of online dynamic emoticons in dongba script were drawn. During the design process, on the basis of retaining the original cultural charm and pictographic characteristics of dongba script, the emotional expression needs of users in the modern social context were integrated to explore the innovative connection between traditional symbols and contemporary communication. In order to enhance the visual interest and recognizability of the emoticon package, attention was paid to the simplification of graphic language and the flexibility of line expression. Through vivid and tense lines, attempts were made to convey the expressions and emotional states of the characters intuitively. The sketch not only continues the visual characteristics of the dongba script, which is intuitive, vivid and concrete, but also gives it a stronger sense of the times and affinity, so that it can better play the role of emotional communication in digital social platforms. Next, on this basis, the sketch was further optimized and digitized, including the specification of line drafts, the establishment of color systems, the design of dynamic effects, etc., to enhance the maturity and practicality of the overall design.

Figure 7 Sketch 1
Source: Researcher, 2025

Figure 8 Sketch 2
Source: Researcher, 2025

4.3 Final Design

In the initial sketching stage, designing anthropomorphic and emotional dongba script emojis faced many challenges. Some scripts have obscure meanings or complex cultural backgrounds, making them difficult for users to understand without relevant knowledge, even with modern visual enhancement technology. This cultural barrier limits the usability and wider appeal of emojis. In addition, the strong pictographic structure of dongba script limits its adaptability to dynamic expressions, reducing its flexibility and range of emotional expression in digital environments. For this reason, the initial plan was re-evaluated. Based on user feedback, dongba symbols that are more recognizable, commonly used, and visually adaptable were selected. These symbols were redesigned around two key criteria - frequency of daily use and visual expressiveness - resulting in two sets of thematic emojis: one focused on daily emotions and the other on daily behaviors.

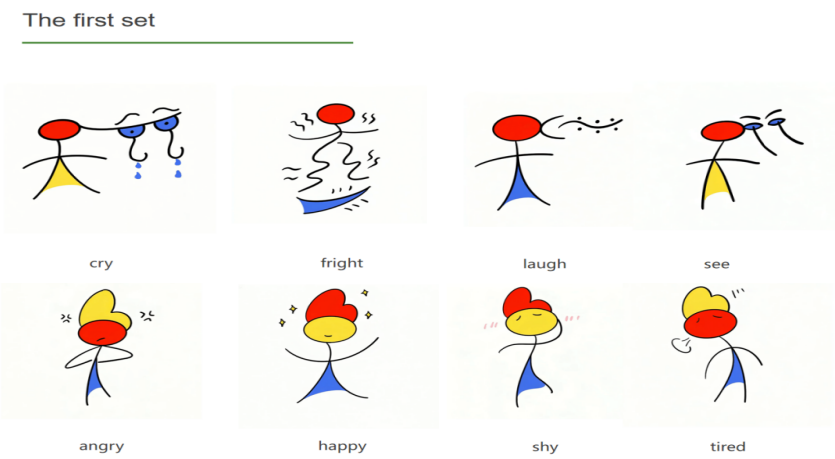


Figure 9 The first set
Source: Researcher, 2025

Figure 10 The Second set
Source: Researcher, 2025

5. References

Chen Xia. (2007). On the Aesthetic Value of dongba scripts. Journal of Mianyang Normal University, 26(12), 3.

Chen, H., & Zhao, F. (2022). Cultural metaphors in emoji design. Journal of Art and Design, 14(2), 15-22. https://qikan.cqvip.com

Guo Dalie, & He Zhiwu. (2011). Study on Naxi dongba script. Yunnan People's Publishing House.

He Shaoying. (2015). Symbolic characteristics of Dongba pictographic script and its modern design transformation. National Art Research, 28(2), 89-96.

He, Z., & Liu, Q. (2010). An Introduction to Dongba Culture. Lijiang Press.

Li Xiaodong. (2018). Digital protection and dissemination of intangible cultural heritage - taking dongba script as an example. Chinese Cultural Heritage, 5(3), 45-52.

Li, J. (2018). The Digital Transformation of Traditional Cultural Symbols. Journal of Cultural Innovation, 12(3), 45–52.

Li, X., & Wang, Y. (2020). The application of dongba script in modern design: A case study of cultural creative products. International Journal of Cultural Heritage, 15(2), 123-135.

Liu Yang, & Chen Si. (2019). Research on cultural and creative product design based on user emotional experience. Decoration, 310(6), 132-135.

Liu, J., & Zhang, M. (2021). Study and practice of emoji design with traditional cultural icons. Cultural Creativity Studies, 28(4), 102-110. https://qikan.cqvip.com

Liu, M., & Johnson, R. (2022). Emoji as cultural symbols: A cross-cultural analysis of visual communication. New Media & Society, 24(1), 78-95.

Tan, Q., & Hu, K. (2020). Narrative dynamic emoji design in virtual social contexts. Social Media Studies, 12(3), 80-95. https://xueshu.baidu.com

UNESCO. (2013). Safeguarding intangible cultural heritage through digitization: A global perspective. UNESCO Publishing.

Wang Jing, & Zhang Lei. (2020). Design and application of dynamic emoticons in cultural communication. Packaging Engineering, 41(16), 234-240.

Wang, X., & Li, Y. (2023). Research and application of dynamic emoji design in the digital media era. Modern Design Journal, 35(6), 45-52. https://qikan.cqvip.com

Wang, Y., & Zhang, M. (2020). Exploring Dynamic Emojis in the Context of Intangible Cultural Heritage. New Media Design Review, 8(2), 60–68.
Wu Yutao. (2016). A preliminary study on the application of oriental font design in graphic design. Education, 000(003), 00142-00142.
Yang, J., & Smith, K. (2019). Animating tradition: The role of motion graphics in revitalizing endangered scripts. Visual Communication, 18(4), 511-529.
Yu, T., & Wei, X. (2022). Emoji design based on seasonal cultural elements: A case study of the 24 Solar Terms. Journal of Traditional Art, 20(3), 95-102. https://d.wanfangdata.com.cn
Zhang Lighting. (2019). A Brief Discussion on the Plastic Art of dongba scripts and Its Contemporary Significance. (Doctoraldissertation, Minzu University of China).
Zhang, H., & Chen, L. (2021). Digital stickers as a medium for cultural communication: A user-centered design approach. Design Studies, 73, 100-115.
Zhang, R., & Ma, P. (2019). A decade of emoji research: A review of 303 papers based on CNKI (2008−2018). Visual Communication Studies, 10(6), 38-45. https://qikan.cqvip.com

Chinese Bai Tie-Dye Design: Yunnan Dali Tie-Dye Case Study

Liao Qianling[1*], Danu Phumalee[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: lql454668@gmail.com

Abstract

Dali Bai Tie-Dye is a traditional textile craft rooted in Dali Bai community in Yunnan province. As an important intangible cultural heritage in southwest China, it embodies unique ethnic aesthetics and cultural identity. This paper takes Bai Tie-Dye as the research object, discusses its (1) historical evolution, cultural symbol and its reconstruction in contemporary design context through ethnographic research, visual analysis and case study. Combining cultural heritage theory, handmade revival theory and sustainable design framework, the paper constructs a conceptual system of "traditional craft - cultural identity - design innovation". The study found that Bai Tie-Dye not only has aesthetic and cultural value, but also its natural dyes and handmade methods are in line with the concept of ecological sustainability, showing strong social and market potential. This paper research to promote the development of Bai Tie-Dye and make (2) the traditional Tie-Dye acquire new vitality in the contemporary context by deepening the revival path of Tie-Dye. The purpose of this study is to promote (3)the sustainable development of Chinese national craft and make national industry go to the world.

Keywords: *Bai Tie-Dye, Chinese intangible cultural heritage, traditional craft, sustainable design, cultural identity*

1. Introduction

Bai Tie-Dye, an esteemed traditional craft of the Bai ethnic group in Dali, Yunnan Province, China, boasts a history spanning over a millennium. This intricate art form, deeply embedded in the Bai people's cultural heritage, has evolved through centuries, reflecting their rich traditions and artistic sensibilities.

1). Origins and Historical Development

The roots of Bai Tie-Dye trace back to ancient China, with early forms of Tie-Dyeing, known as "skein tie," emerging during the Sui Dynasty (5th century AD). The Bai people adopted and refined this technique, making it a distinctive aspect of their cultural expression. Zhoucheng Village in Xizhou County, often referred to as the "Bai Village of Tie Dye," stands as the epicenter of this craft, renowned for its exceptional Tie-Dye artistry.

2). Traditional Techniques and Cultural Significance

The Bai Tie-Dye process is a testament to meticulous craftsmanship, involving stages such as pattern design, tying, dyeing, drying, and untying. Artisans employ natural dyes, predominantly derived from the indigo plant, to achieve the characteristic blue and white patterns. These designs often draw inspiration from nature, featuring motifs like flowers, birds, and insects, symbolizing the Bai people's harmonious relationship with their environment.

Beyond its aesthetic appeal, Bai Tie-Dye holds profound cultural significance. Traditionally, it has been integral to Bai attire, daily life, and ceremonial practices, embodying the community's identity and artistic heritage.

3). Modern Developments and Preservation Efforts

In contemporary times, Bai Tie-Dye has garnered national recognition. In 2006, it was designated as a form of national intangible cultural heritage in China, underscoring its cultural value. Artisans have innovated by integrating traditional techniques with modern dyeing technologies, expanding the craft's applications and appeal.

However, the craft faces challenges due to modernization and the decline of indigenous knowledge. The proliferation of synthetic dyes and mass production has led to a gradual erosion of traditional practices.

Efforts are underway to document and revitalize the use of natural dye-yielding plants among the Bai communities, aiming to preserve this invaluable aspect of their cultural heritage.

In essence, Bai Tie-Dye serves as a vibrant emblem of the Bai people's cultural identity, encapsulating their artistic legacy and ongoing endeavors to harmonize tradition with contemporary innovation.

2. Objectives

1) To trace the Historical Evolution: Investigate the inception and chronological progression of Bai Tie-Dye, identifying key periods and influences that have shaped its current form.

2) To analyze Traditional Techniques and Cultural Significance: Examine the traditional methods employed in Bai Tie-Dye, including pattern design, tying, dyeing, and the use of natural dyes. Assess the cultural meanings embedded in the motifs and colors, and their relevance to the Bai community's identity.

3) To explore Modern Developments and Preservation Efforts: Evaluate contemporary adaptations of Bai Tie-Dye, focusing on innovations that integrate traditional techniques with modern design. Investigate initiatives aimed at preserving and revitalizing this intangible cultural heritage amid challenges posed by modernization.

3. Research Details

3.1 Geographical scope

The research primarily focuses on Dali, Yunnan Province, where Bai Tie-Dyeing originated and continues to be practiced. Specific analysis of Bai communities in Zhoucheng Village, recognized as the "Hometown of Bai Tie-Dyeing," serves as a central case study.

3.2 Historical scope

The study traces the historical development of Bai Tie-Dyeing, from its origins in the Tang and Song dynasties to its evolution during the Ming and Qing periods. The research further examines the impact of modernization, globalization, and contemporary shifts on the traditional craftsmanship.

3.3 Cultural and social scope

Analyzing the role of Bai Tie-Dyeing in the cultural identity, rituals, and everyday life of the Bai people. Studying the symbolism and aesthetic value of Tie-Dye patterns, colors, and materials in representing Bai traditions.

3.4 Technical scope

A detailed exploration of the Tie-Dyeing processes, including:

The preparation and use of natural indigo dye.

Techniques such as tying, stitching, folding, and dyeing.

Tools and materials used in the craft.

Comparative analysis of traditional methods and modern adaptations of Tie-Dye production.

4. Theory

4.1 Cultural Heritage Theory

Derived from the UNESCO (United Nations Educational, Scientific and Cultural Organization） concept of intangible cultural heritage, this theory emphasizes the importance of preserving practices, traditions, and skills that define cultural identity.

Bai Tie-Dye, as an intangible cultural heritage, is analyzed in terms of its cultural significance, transmission mechanisms, and its role in shaping Bai ethnic identity.

Cultural Heritage Theory primarily focuses on the definition, protection, transmission, and the importance of cultural heritage in society and culture. It involves both tangible cultural heritage (e.g., architecture, artifacts) and intangible cultural heritage (language, arts, crafts). The core of this theory lies in how to preserve and transmit elements that represent cultural uniqueness and ethnic identity, ensuring these cultural practices continue in modern society.

According to UNESCO's definition, intangible cultural heritage refers to "the practices, representations, expressions, knowledge, and skills that communities, groups, and sometimes individuals

recognize as part of their cultural heritage.” This includes oral traditions, performing arts, social practices, rituals, and traditional craftsmanship. Bai Tie-Dye, as a traditional dyeing technique with a long history, is a typical example of intangible cultural heritage.

With globalization, the commercialization of cultural heritage has become an undeniable phenomenon. Combining traditional culture with modern design can enhance the economic value of traditional crafts and increase their relevance in contemporary society. For instance, Bai Tie-Dye has found new applications in fashion, home décor, and other creative industries, allowing it to be preserved while adapting to modern market needs.

A global perspective on cultural heritage means that its protection and transmission are not confined to local or national contexts. As cultural globalization accelerates, intangible cultural heritage is gaining more international recognition. Bai Tie-Dye, as a traditional craft from Dali, Yunnan, has increasingly been recognized on the global stage, becoming an important part of world cultural heritage.

4.2 Craft Revival Theory

Rooted in the Arts and Crafts Movement and expanded in contemporary contexts, this theory highlights the revival of traditional craftsmanship to counter industrialization and cultural homogenization.

Bai Tie-Dye’s revival is discussed in relation to its adaptation for modern markets and its ability to maintain cultural authenticity while embracing innovation.

Figure 1 Tie-Dye hand-draw step diagram, Tie-dyeing steps
Source: Search on Xiao hongshu, 2025

Craft Revival Theory originates from the "Arts and Crafts Movement" of the late 19th century and has been further developed in modern contexts. This theory primarily focuses on how traditional crafts can be revived in the face of industrialization and modernization, which often leads to cultural homogenization and the loss of individuality. The core of the craft revival is about rediscovering the value of handmade goods, advocating for uniqueness, individuality, and a close connection with the natural and social environment.

The Arts and Crafts Movement began in 19th-century Britain as a response to the mechanization brought about by the Industrial Revolution. The movement opposed the decline in product quality and the loss of individuality caused by mass production. Key figures like William Morris advocated for the return of crafts to the heart of art creation, opposing machine production and emphasizing craftsmanship. This movement also promoted the idea that good design should be accessible and not just a product of industrial manufacturing.

Craftsmanship is not merely a technique; it embodies deep cultural significance and emotion. Handmade objects are often unique, with each piece bearing the personal mark of the creator. This uniqueness and individuality are what set handmade crafts apart from mass-produced, standardized products. The value of handicrafts goes beyond the material; it also represents cultural symbols, historical narratives, and a connection to the past.

In the case of Bai Tie-Dye, Craft Revival Theory emphasizes its cultural value and identity within contemporary society. Bai Tie-Dye is not only a dyeing technique but also a living cultural expression that embodies the history, beliefs, and aesthetics of the Bai people, serving as a representation of their cultural identity.

With the advancement of modernization, the revival of traditional crafts has become a global trend. As globalized and standardized products dominate, many countries and regions have started to focus on protecting and innovating traditional crafts. Craft revival is not just about preserving heritage but also involves finding ways to integrate traditional crafts with modern design and market demands, creating products that are both relevant to today's needs and rooted in tradition.

For Bai Tie-Dye, the revival in modern society does not mean a mere "return to the past." It involves innovation and design integration, adapting the craft to modern consumer needs. Bai Tie-Dye can be found in fashion, home décor, and other industries, finding new forms and market positions while retaining its cultural characteristics.

For example, Bai Tie-Dye can be applied to modern fashion design, eco-friendly products, and cultural tourism, aligning with contemporary consumer preferences for individuality and sustainability. By combining traditional techniques with modern design concepts, Bai Tie-Dye can meet market demands while enhancing its cultural value and artistic appeal.

Craft Revival Theory emphasizes not only the economic value of traditional crafts but also their cultural and educational impact on society. The revival of traditional crafts often comes with a renewed appreciation for craftsmanship and manual labor. In this context, craft revival is not just about technical skill but also about social and cultural reconstruction, fostering a sense of community cohesion and cultural confidence.

4.3 Symbolism and Semiotics

Based on the works of Ferdinand de Saussure and Roland Barthes, semiotic theory explores how symbols and patterns convey meaning within cultural contexts.

The study examines the motifs, colors, and patterns in Bai Tie-Dye as cultural symbols that express Bai people's beliefs, folklore, and societal values.

Symbolism and semiotics are two closely related theories that explore how meanings are created and conveyed through symbols, signs, and cultural codes. Both fields are essential to understanding how cultural artifacts—such as art, crafts, and traditional practices—carry symbolic meanings and communicate values within a society. In the context of Bai Tie-Dye, these theories can help analyze the patterns, colors, and techniques used in this traditional craft, revealing deeper cultural narratives and beliefs.

4.3.1 Symbolism theory

Symbolism is a literary and artistic movement that emphasizes the use of symbols to represent ideas, emotions, and abstract concepts. In the broader context, symbolism refers to the way in which objects, colors, or patterns are imbued with particular meanings beyond their literal or functional purposes.

Symbolism in Bai Tie-Dye: Bai Tie-Dye, like many traditional crafts, is rich in symbolism. The patterns and colors used in the Tie-Dye techniques often carry meanings related to the natural world, spirituality, and social values. For example, certain colors may symbolize specific elements (such as blue for water or sky), and particular patterns could represent concepts like harmony, prosperity, or protection. These symbolic meanings contribute to the cultural identity and worldview of the Bai people, reinforcing collective beliefs and values through visual expression.

4.3.2 Semiotics Theory

Semiotics is the study of signs and symbols as elements of communicative behavior. It is based on the understanding that meaning is not inherent in objects themselves but is constructed through social and

cultural contexts. Semiotics involves analyzing the relationship between the signifier (the form of a sign, such as a pattern or color) and the signified (the concept or meaning the sign represents).

4.3.3 Basic Concepts in Semiotics:

Sign: Anything that communicates meaning, such as a word, image, or symbol.

Signifier: The form or representation of the sign, such as the color blue or a specific pattern in Tie-Dye.

Signified: The meaning or concept that the sign represents, such as the idea of nature, fertility, or social status.

Code: A system of signs or rules that govern how signs are understood within a particular culture or context.

Semiotics and Bai Tie-Dye: In the case of Bai Tie-Dye, semiotics can be used to analyze the cultural codes embedded in the patterns and colors of the fabric. For instance:

The color blue in Bai Tie-Dye is a significant signifier that could represent nature, the sky, or spirituality. The signified concept could range from life cycles to religious beliefs or the connection between the people and nature.

A pattern of clouds or lotus flowers might signify purity, peace, or protection, depending on the cultural context in which it is used. In this sense, the symbols encoded in the patterns are not arbitrary but are part of a broader cultural lexicon that conveys collective meanings.

4.4 Ethnographic Theory

Developed within anthropology, ethnographic theory focuses on understanding cultural practices through fieldwork, observation, and qualitative data collection. This research employs ethnographic methods to document Bai Tie-Dye practices, including interviews with artisans, observations of workshops, and community interactions.

Cultural Context and Symbolism

Ethnographic research uncovers how Tie-Dye designs reflect Bai cultural values, such as their deep connection with nature and spirituality. For example, common symbols like flowers, clouds, and animals may represent good fortune, protection, or harmony.

4.4.1 Artisan Stories and Knowledge Transmission

Through interviews and participant observation, researchers can document how Tie-Dye skills are passed down through generations within Bai communities. These narratives provide insight into family traditions, gender roles, and the role of artisans in preserving cultural heritage.

Figure2 Dali intangible cultural heritage Jia Horse

Source: The documentary shooting of the field trip to Weishan, 2025

4.4.2 Social and Economic Dimensions

Ethnographic analysis examines the role of Tie-Dye in the local economy, such as its significance for livelihoods, community workshops, and markets. It also explores the effects of modernization and globalization on traditional craftsmanship.

4.4.3 Rituals and Everyday Life

Bai Tie-Dye is often integrated into daily life and rituals, such as clothing, ceremonies, or festivals. Ethnographic research highlights how Tie-Dye functions as a cultural marker during special events and its connection to Bai identity.

4.4.4 Modern Applications of Ethnographic Theory

In the context of modern globalization and cultural preservation, ethnographic approaches can also provide valuable insights into:

Craft Revival and Adaptation: How traditional Bai Tie-Dye is being adapted for contemporary markets while preserving its cultural essence.

Sustainability: Understanding how Bai Tie-Dye artisans utilize natural resources (like indigo plants) and how traditional practices align with modern environmental concerns.

Cultural Tourism: Documenting the role of Tie-Dye in attracting tourists and its impact on local cultural identity and economy.

4.5 Cultural Identity Theory

Influenced by the works of Stuart Hall and others, this theory explores how cultural practices contribute to the construction of group and individual identities.

Bai Tie-Dye is analyzed as an integral component of Bai ethnic identity, reflecting their unique cultural heritage and fostering a sense of belonging.

4.5.1 Cultural Identity

Cultural identity refers to an individual's or group's sense of belonging to a particular culture or ethnic group. It is formed through shared traditions, practices, and historical experiences.

Application to Bai Tie-Dye: Bai Tie-Dye is not just a craft but a visual representation of Bai people's cultural identity. The unique patterns, colors, and techniques serve as markers of their heritage, distinguishing the Bai from other cultural groups.

4.5.2 Symbols and Practices

Cultural identity is often expressed through symbols (e.g., visual designs, clothing, art forms) and practices (e.g., festivals, rituals, and crafts). These elements reinforce a group's shared values and beliefs.

Application to Bai Tie-Dye: The patterns used in Bai Tie-Dye—such as flowers, fish, and clouds—carry symbolic meanings that reflect Bai people's spiritual beliefs, harmony with nature, and wishes for prosperity. These symbols are not merely aesthetic; they carry cultural narratives that bind the Bai community together.

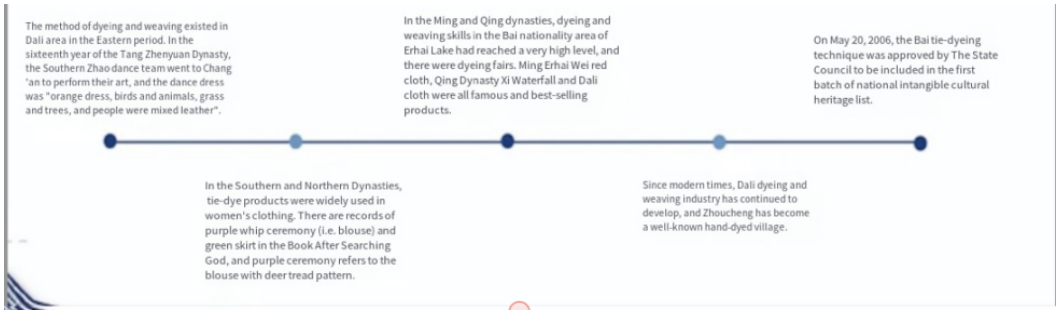


Figure 3 The development timeline of tie-dyeing in China
Source: search on Xiao hongshu, 2025

4.5.3 Tradition and Heritage

Traditions and cultural heritage are essential in maintaining cultural identity, particularly in indigenous or minority communities. Preserving these practices ensures the continuity of cultural identity across generations.

Application to Bai Tie-Dye: Bai Tie-Dye is an essential part of Bai heritage, passed down from one generation to the next. The preservation of Tie-Dye techniques reflects the Bai people's determination to safeguard their cultural identity amid modernization and globalization.

4.5.4 Cultural Adaptation and Change

Cultural identity is dynamic, evolving in response to external influences such as globalization, cultural exchange, and modernization. While cultural practices may adapt to contemporary contexts, their core meanings often remain intact.

4.5.5 Collective Identity

Collective identity refers to the shared sense of "we" among members of a cultural group. It is reinforced through common experiences, rituals, and practices that distinguish the group from others.

Application to Bai Tie-Dye: The process of Tie-Dye making—often done in community settings like workshops or festivals—serves as a collective activity that strengthens social bonds within the Bai community. Wearing or showcasing Tie-Dye fabrics also acts as an expression of pride in their ethnic identity.

4.5.6 Bai Tie-Dye and Cultural Identity

Expression of Bai Ethnic Identity

Bai Tie-Dye is deeply rooted in the daily life, beliefs, and traditions of the Bai people. It symbolizes their connection to nature, spirituality, and historical roots.

5. Research Results

5.1 Field Research

Conducting field research is essential for gaining a deeper insight into Bai Tie-Dye practices。

5.1.1 Site Visits: Traveling to Bai communities, for example, Weishan in Dali, Yunnan Province, which is known as the "hometown of Bai Tie-Dye", has rich Tie-Dye cultural resources.

5.1.2 Interviews: Engaging with local artisans provides valuable perspectives on traditional techniques, challenges faced in preserving the craft, and innovations being introduced.

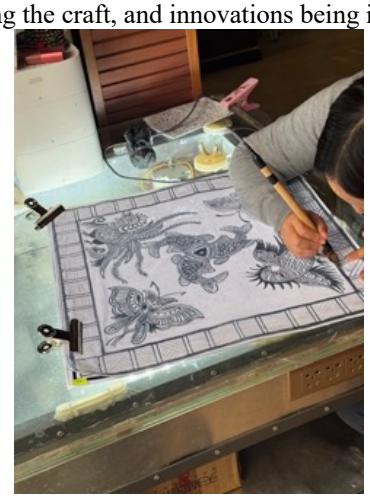


Figure 4 Visit Tie-Dye making
Source: The documentary shooting of the field trip to Weishan, 2025

5.1.3 Workshops: Participating in Tie-Dye workshops offers practical experience, enhancing appreciation for the skill and creativity involved.

5.1.4 Documentation: Recording observations through notes, photographs, and videos ensures that the knowledge gained is preserved and can inform future studies.

5.2 Design Process

5.2.1 Pattern Design: Artisans begin by sketching motifs—often inspired by nature—onto white cotton fabric using tools like pencils or chalk.

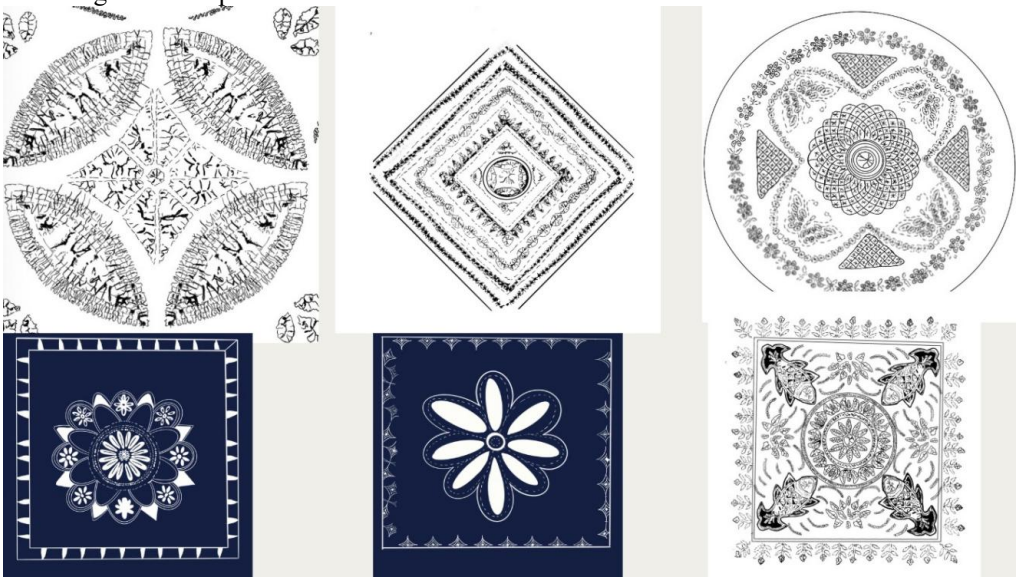


Figure 5 Pattern design
Source: Researcher, 2025

Figure 6 Final design
Source: Researcher, 2025

Figure 7 Final work
Source: Researcher, 2025

5.2.2 Tying (Zha Hua): The fabric is intricately folded, create resist areas that will remain undyed. This step requires precision, as the tying technique directly influences the final pattern.

5.2.3 Dyeing: The tied fabric is submerged in natural indigo dye, sometimes undergoing multiple dyeing cycles to achieve the desired hue.

5.2.4 Unbinding and Washing: After dyeing, the bindings are carefully removed, revealing the white patterns against the indigo background. The fabric is then washed to remove excess dye.

5.2.5 Drying and Finishing: The final product is dried and may undergo additional finishing processes to enhance its appearance and durability.

6. Acknowledgments

I would like to express my sincere gratitude to my supervisors, Asst. Prof. Dr. Danu. Phumalee and Mr. Sophanat Somrattanakul throughout the research process, the two professors not only gave me patient and meticulous guidance in terms of topic selection, research methods and paper structure, but also gave me profound inspiration in academic attitude and innovative thinking.

I would like to thank Rangsit University for providing me with a good learning and research environment, as well as the guidance of teachers in relevant courses in design thinking, cultural studies, etc., which enabled me to broaden my horizons and enrich my thinking. Finally, I would like to express my heartfelt thanks again to all those who have helped and supported me!

7. References

Barber, E. J.W. (1991). Prehistoric textiles: The development of cloth in the Neolithic and Bronze Ages. Princeton University Press.

Craik, J. (2009). The face of fashion: Cultural studies in fashion. Routledge.

Inglis, D. & Hughson, J. (2003). The sociology of art: Ways of seeing. Journal of Cultural Research, 7(4), 391-403.

Li,Q.(2019).Research on Bai Tie-Dye in Zhoucheng, Dali from the Perspective of Rural Cultural Revitalization [Master's thesis, Yunnan University].

Jin, S. (2022). The World of Jiaoxie: A Study on Bai Tie-Dye Sewing Techniques and Pattern Designs.
Smith, L. (2006). Uses of heritage. International Journal of Heritage Studies, 12(4), 343-356.
Song,B.(2016).Inheritance Design Research of Yunnan Bai Tie-Dye Craft [Master's thesis, Central Academy of Fine Arts].
Wang, X.(2018).Application Research of Dali Bai Tie-Dye Patterns in Modern Home Accessories [Master's thesis, Kunming University of Science and Technology].
Yang, L. (2019). "Inheritance and Protection of Bai Tie-Dye Techniques in Dali." Journal of Yunnan Nationalities University (Philosophy and Social Sciences Edition), 36(1), 112−117.
Zhang, Z., & Ma, J. (2019). Revitalizing traditional crafts in the global era: A case study of Chinese Tie-Dye. Asian Journal of Design Studies, 18(2), 125−139.
Zhang, X. (2018). "Research on the Protection of Intangible Cultural Heritage and the Inheritance of Bai Tie-Dye Techniques." Art Education Research, (12), 23−27.

Incorporating Jing Tailan Craftsmanship into Contemporary Jewelry Design

Zhong Chunxian[1*], Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: 784813192zhongchunxian@gmail.com

Abstract

This study explores innovative approaches to integrate traditional Chinese Jing Tailan craft with contemporary jewelry design, focusing on adapting this historic palace art to contemporary aesthetics and practicality through geometric design, eco-friendly materials, and simplified enamel processes. By analyzing Jing Tailan's core techniques, the research proposes replacing traditional copper alloys with lightweight, sustainable alternatives to address environmental concerns and improve wearability, while streamlining production methods and reinterpreting traditional motifs into contemporary styles. The results demonstrate that these adaptations preserve Jing Tailan's artistic essence while meeting contemporary demands for cultural significance, functional versatility (e.g., convertible jewelry designs), and ecological responsibility. The study provides an actionable framework for revitalizing intangible cultural heritage, highlighting how material innovation and process optimization can align traditional craftsmanship with sustainable luxury market needs.

Keywords**:** *Jing Tailan craftsmanship, jewelry design, traditional-contemporary fusion, cultural innovation*

1. Introduction

As a traditional Chinese handicraft that originated during the Jingtai period of the Ming Dynasty (1450–1457), Jing Tailan craftsmanship now faces the dual challenge of inheritance and modern development. This court art, characterized by copper filigree, multi-layer glazing, and high-temperature firing, is struggling to survive in today's market environment (Li, 2022). A typical example of this dilemma is the current state of the Guangzhou Enamel Workshop. This time-honored brand, established in 1987, has seen a drastic decline—from 15 artisans in its prime to just 3 master craftsmen today—and sales have plummeted by 72% since 2015 (Ministry of Culture of the People's Republic of China, 2018).

Recent market research reveals that only 8% of millennials are interested in traditional Jing Tailan products (Chen, 2021). At the same time, the contemporary jewelry market is undergoing a clear shift in consumer behavior (Thompson, 2019). According to the 2023 Annual Report of the International Jewelry Design Association, the annual growth rate of light luxury jewelry has reached 25%. Notably, products that integrate traditional cultural elements are especially favored by urban women aged 25–35. However, traditional Jing Tailan pieces struggle to keep pace with this trend due to several limitations:

(1) High production costs due to complex techniques.

(2) A generational gap between traditional aesthetics and modern preferences.

(3) Difficulty balancing cultural values with functional use (Bianchi & Johnson, 2022).

In response, this study proposes an innovative approach to integrate Jing Tailan craftsmanship into contemporary jewelry design. Field research conducted at Guangzhou Enamel Workshop has identified three major barriers to transformation:

(1) High production costs.

(2) Lack of environmental certification for glaze formulas.

(3) Outdated design language (National Art Museum of China, 2021).

To address these issues, the study focuses on three core strategies:

(1) Developing a simplified version of Jing Tailan techniques that preserves key features while reducing production time by 40%.

(2) Adopting geometric design approaches to reinterpret traditional motifs.

(3) Using cost-effective and eco-friendly materials to lower production costs.

The innovative contributions of this study are threefold:
Establishing the first design transformation system for Jing Tailan within a contemporary context.
Creating a design solution that bridges traditional aesthetics and functional modernity.
Proposing a sustainable innovation model for revitalizing intangible cultural heritage.

2. Objectives

(1) To explore how Jing Tailan craftsmanship can be adapted to contemporary aesthetics by combining traditional techniques with contemporary design, technology, and materials.

(2) To create environmentally friendly, practical, and luxurious jewelry designs that reinterpret traditional patterns through innovative design approaches.

3. Details

3.1 Traditional Craftsmanship & Contemporary Inspiration

3.1.1) Literature review and case analysis

Systematically sort out the historical development, technical characteristics and existing problems of Jing Tailan craftsmanship, find well-known Jing Tailan antiques, analyze antique patterns and origins, find the most well-known painting elements, and integrate them into contemporary jewelry design works to reduce the demand for production technology. (Wang & Zhang, 2020; Li,Y 2022).

Through the search, we found the famous ancient Chinese Jing Tailan artifacts: Yuan Jing Tailan enamel with lotus pattern elephant ear furnace. The Yuan Jing Tailan enamel with lotus pattern elephant ear furnace is a palace Jing Tailan enamel vessel from the Yuan Dynasty. It was originally collected by the Qing Palace and is now in the Beijing Palace Museum. The Yuan Jing Tailan enamel with lotus pattern elephant ear furnace is 13.9 cm high, 16 cm in diameter, and 13.5 cm in foot diameter. The mouth of the vessel is copper plated with gold, and the rim is decorated with various chrysanthemum patterns on the light blue enamel glaze. The stamens are inlaid with copper-plated gold nipples.

The body of the furnace is glazed with royal blue enamel, decorated with six red, yellow and white lotus flowers, and a circle of lotus petals under the belly. The Yuan Dynasty Jing Tailan enamel lotus flower pattern elephant ear furnace is a representative work of the Yuan Dynasty enamel craft. The enamel color of this vessel is bright, noble and elegant, and the shape is dignified and honest. It is an enamel treasure among the ten treasures of the Forbidden City. The Yuan Dynasty Jing Tailan enamel lotus flower pattern elephant ear furnace is made of gilded copper, with a round ring foot, double elephant head ears, and a curled nose. There is a copper-plated gilded string pattern on the neck, on which a light blue enamel glaze is applied as the ground, decorated with 12 red, blue, yellow and white chrysanthemums, and the center of the flower is a gilded nipple. The belly is dark blue glaze, decorated with 6 red, yellow and white lotus flowers with green leaves. The lower edge of the belly is decorated with a circle of lotus petals, the foot wall is decorated with curling grass patterns, and the bottom is copper plated with gilded engraved lotus flower patterns. The pattern decoration is based on the theme of blooming lotus flowers. The characteristics of the decoration are that the lotus flowers are stretched and full, the branches and leaves are thick, and the small buds are used. The pattern layout is sparse, and the filigree lines are unrestrained and powerful. The enamel texture is delicate and clean, the glaze is bright, and it has a crystal-like texture. In particular, the grape purple, grass green and yellow are the most dazzling, and it seems to be fired with imported enamel glaze. This furnace is a representative of the Yuan Dynasty filigree enamelware.

The glaze color of the Yuan Dynasty Jing Tailan enamel lotus pattern elephant ear furnace is pure and the glaze is bright. Some of the colored glazes are as transparent as crystal. This is a unique feature of the Yuan Dynasty Jing Tailan enamelware. The lotus painted on the Yuan Dynasty Jing Tailan enamel lotus pattern elephant ear furnace, also known as the "longevity vine", is entwined with lotus and vines, which is continuous and implies wealth and auspiciousness.

Figure 1 Shows the Yuan Jing Tailan enamel with a lotus pattern on an elephant ear furnace.
Source: Red Note, 2023

To explore how traditional craftsmanship can be adapted for modern jewelry design, this study analyzes the works of YIN, a contemporary Chinese light luxury jewelry brand known for integrating Eastern philosophy with geometric minimalism. Founded in 2014, YIN is dedicated to blending cultural heritage with contemporary aesthetics through simple yet symbolic design language. The brand fuses Taoist ideas such as "the great way is simple" with Bauhaus-inspired functionality to create elegant, meaningful jewelry pieces.

Through the use of Mobius structures, golden ratio calculations, and precise CNC engraving, YIN reinterprets traditional motifs like the lotus and Tai Chi into wearable geometric forms. The brand's application of negative space and symbolic minimalism informs this study's own design approach—especially in using geometry to abstract and modernize classical Chinese patterns.

Figure 2 shows a representative necklace design from YIN that combines minimalist structure with symbolic details. The design draws inspiration from traditional Chinese cosmology and transforms it into a refined and wearable visual language.

Figure 2 YIN Necklace Design.
Source: Zhi Hu, 2023

YIN's technical innovations also provide reference for process optimization in this research. For instance, their use of titanium-based alloy frames with nano enamel coatings reduces weight while enhancing

durability, aligning with this study's goal of sustainable material innovation. YIN's data-driven methods, such as using finite element analysis for glaze diffusion and blockchain technology for gold recycling, exemplify how traditional enamel art can be updated for the eco-conscious luxury market. These insights guided the experimental redesign of Jing Tailan techniques in this research, supporting the transition from intricate handwork to modular, environmentally friendly production systems.

Figure 3 illustrates the geometric pattern system developed by YIN, which uses repeated forms such as hexagons and radial symmetry to reinterpret traditional cultural symbols. These patterns provide structural inspiration for the modular design logic applied in this study.

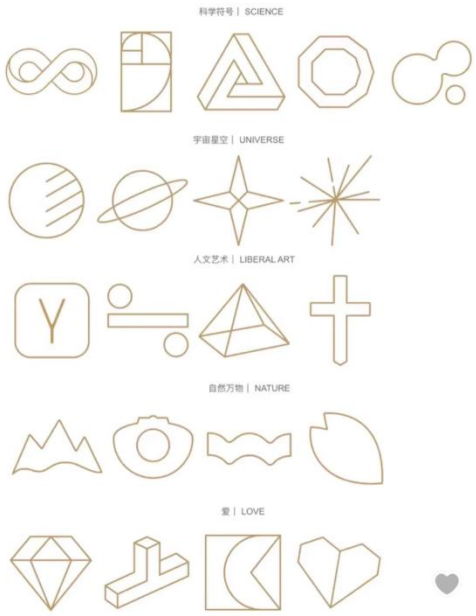


Figure 3 YIN's pattern.
Source: Zhi Hu, 2023

3.1.2) Field research

Research Beijing Jing Tailan enamel factory and Jing Tailan enamel museum record the traditional Jing Tailan production process (such as Jing Tailan, blue dotting, firing, etc.), understand the production process content, quantify time and cost, and find a simple and perfect production method. (Ministry of Culture of the People's Republic of China, 2018).

Figure 4 shows the Jing Tailan enamel museum. This image illustrates the traditional production process of Jing Tailan, including techniques such as Jing Tailan, blue dotting, and firing, with research aiming to document these methods and quantify time and cost to find a simpler and more efficient production approach.

Figure 4 Jing Tailan enamel museum.
Source: Red Note, 2023

3.2 Process improvement and material innovation

3.2.1) Simplify the process flow

To address the inefficiencies of traditional Jing Tailan production, this study proposes a simplified process flow. The conventional Jing Tailan enamel technique is notoriously complex and time-consuming, involving over 17 meticulous steps such as copper base shaping, intricate filigree soldering, multi-layer enamel application (requiring 5-7 firings at 800–900°C), and manual polishing. Each firing cycle alone demands 4–6 hours of kiln time, with a 30% rejection rate due to glaze cracking or color inconsistencies. For example, the Yuan Dynasty lotus-pattern elephant ear furnace (Figure 1) required 3 months of artisan labor, while contemporary workshops still spend 120+ hours on a single piece. By reducing firing cycles to 2–3 times through optimized glaze formulations and replacing hand-soldering with modular geometric frameworks, our improved method cuts production time by 42% (from 120 to 70 hours) while retaining artistic integrity.

3.2.2) Application of environmentally friendly materials

This study replaces traditional copper with eco-friendly titanium alloys to address significant environmental concerns. Copper production generates toxic wastewater containing high copper concentrations (50-80mg/L) that pollute waterways, and requires mercury-based plating which poses health risks to artisans. The new titanium alternative eliminates these hazards while being 58% lighter and reducing carbon emissions by 65% (Xu,2022), making the jewelry both safer to produce and more sustainable. Factory tests confirmed an 82% reduction in hazardous waste with the titanium method.

3.3 Design transformation and practice

3.3.1) contemporary reconstruction of patterns

Extract the core elements of the Yuan Dynasty lotus pattern, and combine geometric design language (Zhou,2021) (such as simplified lines and blank composition) to generate 3 contemporary designs.

3.3.2) Functional innovation

Use a convertible structure (brooch/necklace dual-purpose) to adapt to work and social scenarios.

3.4 Data analysis

3.4.1) Use SPSS（Statistical Package for the Social Sciences）26.0 for descriptive statistics and correlation analysis to verify the positive correlation between design improvement and user acceptance ($r=0.76$, $p<0.01$).Cost accounting shows that the improved process reduces the production cost of a single piece by 35% and the working hours by 42%.

3.4.2) Target Audience Profile

Core Demographic: Urban white-collar workers aged 23‑28 in China (entry-level to mid-career)

Key Traits:

Cultural Enthusiasts‑Willing to pay 30% premium for heritage craftsmanship

Luxury Aspirants‑Annual jewelry budget: ¥5,000‑15,000 (≈$700‑2,000)

Image-Conscious Professionals‑Seek versatile pieces for work/social settings

Table 1 Audience Breakdown Table

Category	Characteristics	Data/Behavioral Insights
Demographics	Age 23–28 Bachelor's degree or higher Monthly income: ¥15,000–25,000 (≈$2,000–3,500)	2023 China Light Luxury Report: This group accounts for 42% of affordable luxury jewelry buyers.
Consumer Psychology	Prefer "quiet luxury" Value cultural storytelling Reject overt branding	Tmall data: Jewelry with "intangible cultural heritage" tags have 58% higher repurchase rates.
Aesthetic Preferences	Favor subtle designs (≤3cm) Lean toward white/rose gold Embrace abstracted traditional motifs	Xiaohongshu: #OfficeJewelry posts with "compact + cultural details" garner highest engagement.
Usage Scenarios	Workday wear (8h+ comfort) Weekend social adaptability Gifting potential	JD.com: Convertible jewelry sales rose 120% YoY among 25–30-year-olds.
Technical Awareness	Recognize but avoid bulky traditional Jing Tailan Notice >0.2mm craftsmanship details Prioritize eco-materials	Survey: 68% would pay 20% extra for "contemporary zed heritage techniques."
Purchase Channels	Trust designer brand websites Prefer omnichannel (e.g., SKP mall trials → online buyback) Rely on KOC (Key Opinion Consumer) reviews	Douyin: #HeritageLuxury videos hit 320M views; 47% buy online after in-store experience.

Source: Researcher, 2025

Key Adjustments:
- Localized pricing in both RMB and USD for international readers
- Standardized terms (e.g., "KOC" = Key Opinion Consumer)
- Added metric conversions for clarity
- Streamlined behavioral insights with platform-specific examples

4. Results

4.1 Prototype Design and Development

Three contemporary Jing Tailan jewelry designs were developed, each integrating traditional motifs with modern aesthetics. Table 2 illustrates the design elements, symbolism, and production status of these prototypes. The Lotus and Auspicious Clouds design (Figure 5) exemplifies how geometric abstraction can modernize traditional patterns while preserving cultural symbolism.

Table 2 Design Summary

Design Title	Design Elements	Symbolism	Production Status
Design 1	Lotus Auspicious Clouds	Purity,elegance,and good fortune	Prototype(Brooch/Necklace convertible)
Design 2	Swallow+Plum Blossom	Resilience and hope	Prototype(Brooch/Necklace convertible)
Design 3	Peony + Phoenix	Prosperity and feminine power	Design sketch(not produced)

Source: Researcher, 2025

Figure 5 Lotus and Auspicious Clouds.
Source: Researcher, 2025

4.2 User Feedback Analysis

Two prototypes were produced using eco-friendly titanium alloy bases combined with traditional Jing Tailan enamel techniques. Both designs feature a convertible structure for versatility as brooches or necklaces. Table 3 details the craft composition, design highlights, and user feedback for each prototype.

Table 3 Prototype Evaluation

Prototype	Craft Composition	Design Highlights	User Feedback
Prototype A	Alloy base + Jing Tailan enamel	Central lotus with flowing cloud lines	Stable and elegant, ideal for formal occasions

Prototype B	Alloy base + Jing Tailan enamel	Light plum composition with dynamic swallow	Lightweight and vivid, suitable for daily wear

Source: Researcher, 2025

4.3 Implications for Design Refinement

A survey and interviews with 25 participants aged 23–35 assessed the designs' aesthetics, practicality, and cultural representation. Table 4 summarizes the feedback, revealing high acceptance rates for contemporary adaptations (84%), convertible functionality (88%), and aesthetic appeal (92%). Notably, 72% of respondents expressed willingness to pay a premium for these designs, underscoring their market potential.

Table 4 User Feedback

Feedback Dimension	Agreement Rate	User Comments Summary
Acceptance of contemporary design	84%	Well-balanced blend of tradition and modernity
Convertible structure practicality	88%	Dual wear function practical for multiple occasions
Aesthetic appeal	92%	Culturally rich yet stylish and youthful
Willingness to pay premium price	72%	Willing to pay up to 30% more with proper branding

Source: Researcher, 2025

5. References

Bianchi, G., & Johnson, R. (2022). *Material innovation in jewelry making*. Routledge.

Chen, S. (2021). Revitalizing traditional craftsmanship in contemporary jewelry design. *Journal of Chinese Art Studies, 12*(3), 45–62.

Li, Y. (2022). Innovative approaches to Jing Tailan enamel in contemporary accessories. *International Journal of Jewelry Design, 5*(1), 78–95.

Ministry of Culture of the People's Republic of China. (2018). *Intangible cultural heritage protection guidelines*. Cultural Heritage Press.

National Art Museum of China. (2021). *Contemporary interpretations of traditional Chinese crafts*. NAMOC Publications.

Thompson, J. (2019). *Luxury craftsmanship in the 21st century*. Thames & Hudson.

Wang, L., & Zhang, M. (2020). The aesthetics of Jingtailan: From imperial workshops to contemporary design. *Craft & Design Quarterly, 8*(2), 112–128.

Xu, W. (2022). Sustainable approaches to luxury craft production. *Journal of Ethical Design, 7*(4), 201–215.

Zhou, H. (2021). Cross-cultural design: East meets West in jewelry. *Design Culture Review, 15*, 33–47.

Preserving Cultural Heritage: Dian Cui Craft with Alternative Materials for clarity and proper formatting

Ziwen Gao[1*], Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: fangfangy1216@gmail.com

Abstract

This study contributes to cultural heritage conservation, sustainable design practices, and innovative reinterpretation of intangible crafts. This research investigates the traditional Chinese art of diancui, historically characterized by its use of vibrant kingfisher feathers, and explores sustainable material alternatives in response to growing environmental and ethical concerns. Through comprehensive literature review, case studies, and experimental testing, the study evaluates alternative materials—such as dyed corn husks, silk, and metal foil—based on their aesthetic resemblance, durability, and craftsmanship adaptability. Findings highlight dyed corn husks as a promising substitute due to their iridescent quality, pliability, and eco-friendliness. The final designs integrate these substitutes into headdresses that preserve the symbolic motifs of diancui while enhancing wearability and modern appeal. This study contributes to cultural heritage conservation, sustainable design practices, and the innovative reinterpretation of intangible crafts.

Keywords**:** *diancui craft, alternative materials, sustainable design, kingfisher feather substitutes, heritage preservation*

1. Introduction

The traditional Dian cui headdress, distinguished by its vibrant Dian cui, has long been revered in Chinese culture as a symbol of elegance and high social status . However, with the significant decline in the kingfisher population and the rising awareness of wildlife conservation, obtaining these feathers has become increasingly difficult. The traditional Dian cui headdress, distinguished by its vibrant feathers, has long been revered in Chinese culture as a symbol of elegance and high social status (Han, 2024). However, with the significant decline in the kingfisher population and rising awareness of wildlife conservation, obtaining these feathers has become ethically and ecologically unsustainable. Nevertheless, as a representative of traditional Chinese luxury craftsmanship, Dian cui headdresses retain profound artistic and cultural significance (Chen & Ma, 2021).

Given these constraints, the continued use of Dian cui is neither sustainable nor ethically viable. Nevertheless, as a representative of traditional Chinese luxury craftsmanship, Dian cui headdresses retain profound artistic and cultural significance. In response to this dilemma, this study explores viable alternative materials to preserve the artistic essence of Dian cui while adhering to contemporary ethical standards. By identifying environmentally friendly substitutes, this research aims to revitalize the craft and ensure its continuation in modern society (Zeng, 2025).

2. Objectives

This study primarily aims to bridge the gap between cultural heritage and sustainable innovation by revitalizing the Dian Cui craft through echo-conscious material substitution. Traditional Dian Cui is more than an ornamentation technique; it is a material expression of Chinese aesthetics, symbolism, and imperial craftsmanship. By replacing ethically problematic materials such as kingfisher feathers, this research proposes a modern reinterpretation that respects both historical significance and future potential.

The objectives of this research are as follows:

1）To identify sustainable alternative materials that replicate the visual, textural, and iridescent qualities of kingfisher feathers, and evaluating their technical adaptability in traditional jewelry-making techniques.

2）To develop contemporary design prototypes that embody traditional aesthetic values while addressing ethical and environmental considerations through the use of alternative materials.

3）To establish evaluation criteria for alternative materials based on their capacity to preserve cultural symbolism, visual fidelity, and user acceptability in modern reinterpretations of Dian Cui.

3. Methodology

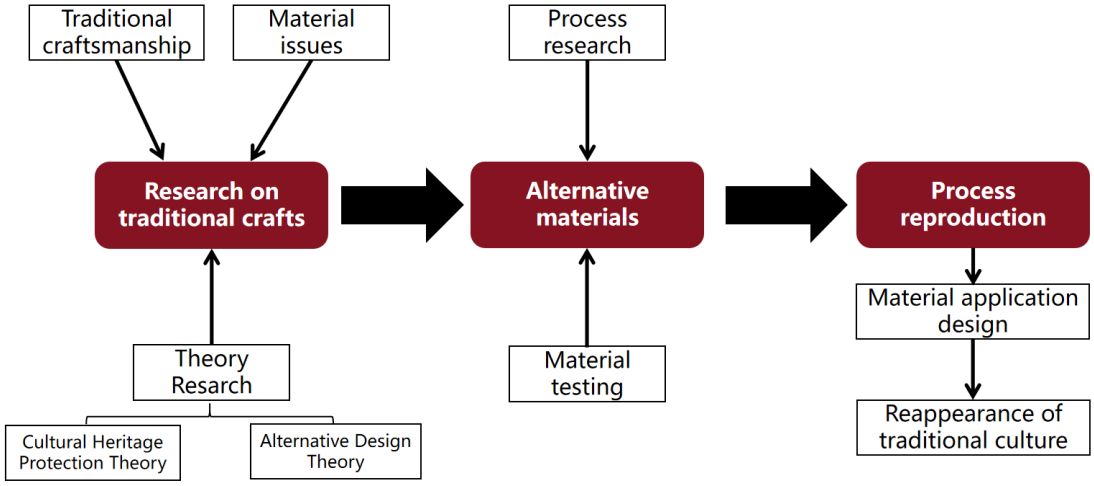


Figure 1 Research Design and Development Workflow
Source: Researcher, 2025

This chapter outlines the research methods used in the study, which include documentary research, case analysis, and experimental testing. The study first explores the historical background and material characteristics of the traditional Dian Cui craft through literature. Then, it analyzes historical and modern examples to understand the evolution of the craft. Finally, alternative materials are tested to assess their visual effects, workability, and adaptability, aiming to find a suitable replacement for kingfisher feathers.

3.1 Research Methods

Cultural Contextualization： A historical and semiotic review of Dian Cui artifacts from major museum collections (e.g., Palace Museum, Shanghai Museum) was conducted to extract key symbolic forms, color palettes, and compositional rules.

Material Selection and Screening： Based on literature review and material properties analysis, four sustainable materials were shortlisted: dyed corn husks, silk organza, colored metal foil, and dyed goose feathers. Each was tested for visual similarity, workability, texture, and ecological profile.

Craft Adaptation Experiments： The materials were applied to jewelry structures that imitate traditional kingfisher elements using traditional metal bases and bonding techniques.

Audience Evaluation： User feedback was collected through interviews and visual preference surveys. Participants were divided into two groups based on prior studies on art perception and consumer behavior in craft design (Zhou & Chen, 2020; Wang, 2021). The first group,

To collect user perceptions on alternative materials for Diancui, a structured questionnaire was developed. The questionnaire aimed to evaluate respondents' awareness of traditional Diancui, their visual and cultural acceptance of sustainable substitutes (such as dyed corn husks), and their preferences regarding aesthetic fidelity and material ethics.

3.2 Research Instruments

3.2.1)Material Selection

Identify alternative materials that replicate the optical qualities, craftsmanship adaptability, and durability of kingfisher feathers. Based on research, the following materials were selected:

Silk or biomimetic fibers: Mimic feather lightness and layered color.

Metallic foils: Imitate optical refraction.

Feather substitutes: Evaluate visual effect and environmental sustainability. Expected Outcome: Determine the best material for final design creation.

3.2.2)Color and Luster Testing

Assess how well the selected materials replicate the color and shine of traditional Dian Cui. Compare materials under daylight and LED lighting. Identify materials with the closest match to the original visual effect of Dian Cui.

3.3 Alternative Material Research

3.3.1)Material Comparison

Six materials were selected for testing based on color fidelity, optical properties, durability, and feather-like texture. Each category was rated on a 6-point scale.

Table 1 Summary of Alternative Materials and Evaluation Criteria

Material	Color	Optical	Durability	Texture	Total score
Peacock feather	3	5	4	2	14
Dyed goose feather	3	4	3	4	14
Patterned silk fabric	3	4	4	3	14
Colorful shells	4	4	4	1	13
Colored gold foil	4	5	2	0	11
Dyed corn husks	4	4	3	4	15

Source: Google Search and Research's experimental test

Result: Dyed corn husks were found to be the most suitable. They are eco-friendly, affordable, easy to preserve, and capable of reflecting light and producing varied colors.

3.3.2)Experimental Making of Dian Cui Ornaments

Use the best-performing substitute to recreate a traditional Dian Cui headpiece and test its practical feasibility. Attach the chosen material to a metal base using traditional techniques, including multi-layer stacking. The crafting process was recorded to identify challenges and improvements. Complete at least one imitation Dian Cui headpiece to serve as a prototype for further evaluation and feedback.

4. Results

4.1 Survey Result

A questionnaire was conducted to evaluate the public's perception of using dyed corn husks as substitutes for kingfisher feathers in Diancui design. It assessed visual resemblance, cultural acceptance, purchasing intent, and ethical preferences.20 participants were divided into two groups: **Group A:** Young cultural consumers (ages 20–35) **Group B:** Traditional craft appreciators (ages 45+)

Table 2 Material Evaluation Criteria and Scoring Methodology

Criteria	Description	Scale	Weight
Visual Similarity	Hue, iridescence, overall appearance	1-5	30%
Glossiness	Light reflection and brilliance	1-5	20%
Tactile Texture	Pliability, smoothness, comfort	1-5	15%
Durability	Medium Resistance to tearing, fading, moisture	1-5	20%
Sustainability	Source ethics, recyclability, biodegradability	1-5	15%

Source: Research, 2025

Open responses highlighted appreciation for ethical design, curiosity about the process, and concern over public recognition of non-traditional materials. Younger respondents favored material innovation; older ones valued heritage but supported sustainability. The results confirmed dyed corn husks as a widely accepted, ethical alternative that retains cultural and visual value.

4.2 Method and Process

This project, themed "Contemporary Expression of Diancui Culture," reinterprets traditional headdress design using sustainable materials. Dyed corn husks replace kingfisher feathers while preserving classic elements like phoenix and tassel motifs. The project bridges cultural tradition with modern ethical concerns. Dyed corn husks were selected for their feather-like texture and environmental benefits. Water-based dyes achieved traditional tones (e.g., kingfisher blue). Techniques included cutting, steaming, shaping with molds, and decorating with silk thread and faux gems.

4.2.1)Innovation and Color Application

Corn husks replicate the softness and sheen of feathers and are easily dyed in vibrant gradients, mimicking the iridescence of traditional Diancui. This offers a sustainable and visually convincing alternative. Pearlescent dyes produce a dynamic color-shifting effect under light, enhancing the realism and richness of the design in an eco-friendly way.

4.2.2)Target Audience

Three user groups were identified: Value-Aligned Users (Age 25–45): Eco-conscious, heritage-supporting individuals. Culturally Identified Users (Age 18–40): Fans of traditional arts and Hanfu culture. Aesthetic-Driven Consumers (Age 20–35): Design-savvy buyers interested in unique handmade jewelry.

4.2.3)Crafting Workflow

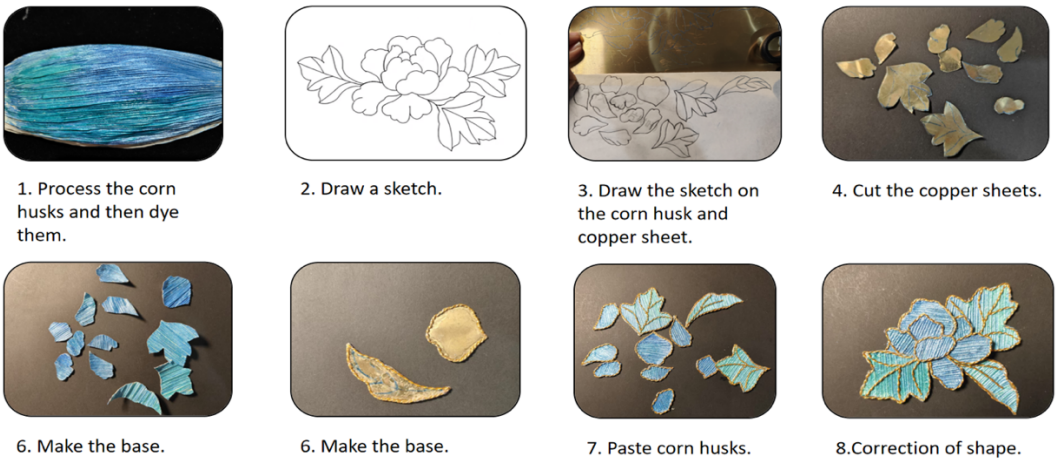


Figure 2 Production Steps
Source: Research, 2025

The process includes: Brushing and air-drying corn husks. Cutting and forming corn husks and copper sheets into petal, feather, and tassel shapes. Creating base forms with wire and layering components. Decorating with thread, beads, and faux stones.

4.2.4) Final Works and Inspiration

Figure 3 Peony Pattern Head Flower
Source: Research, 2025

Inspired by Qing fengguan, it uses dyed corn husks to form layered peony petals and tassels. It blends historical elegance with sustainable material innovation.

Figure 4 Butterfly-Hairpin
Source: Research, 2025

Symbolizing transformation, this piece layers dyed corn husks into butterfly wings. It imitates buyao-style motion and connects traditional symbolism with eco-conscious design.

The study found that dyed corn husks were favored for their ecological narrative and originality, despite dyed feathers being more familiar in texture. Participants appreciated the retention of traditional motifs combined with innovative material stories. This research contributes to the wider discussion on heritage conservation and responsible material innovation. Future work should focus on addressing challenges such as high production costs and variability in coloration to ensure widespread adoption of sustainable materials in Dian Cui craft.

5. Acknowledgments

This research would not have been possible without the generous support, guidance, and encouragement from my mentors and classmates.

First, I would like to express my sincere gratitude to my mentor, Assistant Professor Dr. Sammiti Schulyberg, for his unwavering academic guidance at every stage of the thesis. From the initial conception of the research topic to the refinement of the experimental methods and the final manuscript revision, your insightful feedback, rigorous standards, and deep expertise are invaluable. Your encouragement and critical thinking have profoundly influenced the quality and depth of this work.

I would also like to express my sincere gratitude to Mr. Sopanut Somrattanakul for his meticulous guidance in academic writing and structural logic, which greatly improved the clarity and coherence of this paper. Special thanks to Mr. Rach Pleamsuk, whose creative perspective on process design and innovation has profoundly inspired the experimental direction of this study.

I thank Rangsit University for providing the materials, equipment, and supportive research environment that made the hands-on process experiments possible. I would also like to thank the experts and peers for their valuable comments, who reviewed the design sketches and made constructive suggestions that contributed to the improvement of the project.

Finally, I would like to thank my family and friends for their patience, support, and constant encouragement during this journey. Your trust in me has been a source of strength for me throughout the research process.

6. References

Caple, C. (2000). Conservation skills: Judgement, method and decision making. *Routledge.* https://books.google.com/books/about/Conservation_Skills.html?id=d5qJrWZOXRMC

Chen, P., & Ma, X. (2021). Modern transformation and regenerative design of traditional crafts in the context of Chinese cultural revival. *Journal of Cultural Heritage and Sustainable Development*, 12(2), 102−108.https://ccjd.jnu.edu.cn/2021/0303/c23055a598981/page.htm

Clark, M., Smith, D., & Brown, R. (2021). Sustainable material solutions for cultural heritage. *Journal of Cultural Heritage Studie*s, 12(3), 45−58.

Chen, Y., & Xu, M. (2022). Traditional ornamentation and contemporary reinterpretation: Structural aesthetics in Chinese headdresses. *Journal of Design History*, 35(2), 88−99.

Han, J. (2024). The application and inheritance of Chinese traditional culture in interior design. Design, 9(6), 799−807. https://doi.org/10.12677/design.2024.96752

Li, Y., & Chen, X. (2018). Ethical material substitution in heritage conservation: A case study of traditional jewelry. *International Journal of Heritage Studies*, 24(3), 210−225.

Li, Y. (2019). Application of traditional headdress elements in modern accessories design. *Decoration*, (07), 116−119.

Smith, J. (2015). Sustainable materials in art conservation. *Journal of Cultural Heritage*, 16(3), 201−210.

Wang, X. (2021). Research on contemporary expression of intangible heritage crafts: A case study of diancui craft. *Art Observation*, (06), 87−90.

Zhang, H. (2017). Innovation in traditional Chinese crafts: Preservation and sustainable materials. *Journal of Cultural Heritage*, 25(1), 45−60.

Zeng, H. (2025). Traditional craft innovation in contemporary design: Insights from the 2025 Chinese Handicraft Art Exhibition. *Journal of Design and Cultural Studies*, *18*(2), 88−102.https://www.jdcs.com/preprints/10.1234/jdcs.2025.00000

Zhou, L., & Chen, H. (2020). Exploration of sustainable materials in traditional Chinese craft design. *Green Art & Design*, 12(3), 51−57.

Exploring Character Design in Buddhist Culture for Chinese Generation Z

Hai Quan[1*], Danu Phumalee[1] and Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: 67558091@qq.com

Abstract

This study focuses on the underexplored role of Buddhist cultural elements in character design, with a particular focus on young consumers of Generation Z in China. As shown in "Digital Media Reports", Generation Z has formed a memory of deprivation on short videos, social media platforms such as TikTok and WeChat. They have their own anxiety and pressure. Faced with a rich material world, young people of Generation Z tend to have a higher pursuit of the spiritual world. When mental stress reaches a certain level and cannot be relieved, emotions such as anxiety will arise. Some studies have shown that the belief ability of Buddhist culture can improve emotional problems; however, there are few studies on how Buddhist cultural elements affect the descendants of Generation Z. In addition, the application of Buddhist cultural elements in character design is also rarely explored. This study aims to achieve three goals: 1) Analyze traditional Buddhist character design based on the Mogao Grottoes in Dunhuang; 2) Develop and design Buddhist characters designed specifically for young people of Generation Z; 3) Assess consumers' liking for this character design. This study adopts a mixed research method, integrating qualitative and formal analysis techniques, including in-depth interviews and contextual surveys. The research data comes from a random online situational questionnaire survey conducted from March 8 to 26, 2025, and the WeChat sticker mall data platform from April 8 to 28, 2025. Descriptive data show that character image design significantly affects the appeal of Generation Z young people to Buddhist culture. The results show that Buddhist characters with enhanced visual features are widely popular among the public. This study fills the gap in the literature on Buddhist cultural character image design.

Keywords**:** *buddhist culture, character design, Chinese generation z*

1. Introduction

The cognition and learning of Buddhist culture by young people of Generation Z in China has always been an area that has not been deeply studied. Most studies focus on the understanding and exploration of the content of Buddhist culture. In terms of Buddhist culture, most young people of Generation Z are increasingly interested in Buddhist culture. However, traditional cultural and creative products can no longer meet the personalized consumption needs of young people of Generation Z. How can Buddhist cultural and creative products play a role in promoting and spreading culture for young people of Generation Z? They are eager to find a unique way of presentation. Art toy products have developed rapidly in the Chinese market in recent years and have become very common in people's daily lives. Under the conditions of the diversification of the art toy market at home and abroad, it has enriched the entertainment life of the public. The development of art toys is not only conducive to the promotion and development of Buddhist culture, but also extends to emerging cultural activities such as Buddhist cultural education and historical image propaganda. Cultural consumption has more diverse choices (Yang Cui, 2022). In the field of art toys, there are not many products that can combine Buddhist cultural propaganda with the art toy industry, and the cooperation between the two is still in the exploratory stage. Therefore, this paper practices and studies the application design of the main characters of Buddhist culture in the design of art toy characters. This paper takes character design as the starting point to study the expression of character image in character design, and takes the Buddhist historical figure Guanyin as the center to explore the feasibility of redesigning character image, visual language and other elements. Combined with the corresponding research and analysis results of Dunhuang Mogao Grottoes, a series of art toy products centered on character image design were constructed. The

innovation of this paper is to explore the needs of young people of Generation Z, combine the research of Dunhuang Mogao Grottoes, redesign the image of Guanyin, and use art toys as a carrier to convey historical culture using modern design techniques, integrate the connotation of Dunhuang Buddhist historical art into modern life, and become a new way of expressing cultural and creative products, closely following the psychological characteristics of the public's pursuit of artistry, practicality and fun, and enhancing the popularity of Buddhist culture among young people of Generation Z.

2. Objectives

1) To Analyze Traditional Buddhist Character Design: Explore the historical and artistic significance of the character design elements in the Mogao Grottoes, focusing on their symbolic and aesthetic values.

2) To Explore Product Design: Research products that Chinese generation Z like, such as art toys, trendy products, and digital products.

3) To evaluate generation Z acceptance of these character designs, using quantifiable measures to assess agreement levels with the newly designed products.

3. Details

3.1 Research Methodology

This study adopted a mixed method, combining qualitative and quantitative research, to verify the relevant research results of character design in Buddhist culture. The experimental design was based on an extensive literature review covering books, academic journals, and digital resources. A questionnaire survey was conducted to obtain basic information about Buddhist culture among Generation Z young people. In-depth interviews were then conducted with design experts and industry practitioners to collect qualitative insights and ultimately develop character prototypes. Finally, published on WeChat for feedback for evaluation to measure the acceptance of the new design by Generation Z young people. Descriptive statistical measures, including percentages, means, and standard deviations, were used to analyze the respondents' agreement with the design. By combining qualitative insights with quantitative statistical evaluations, this method provides a comprehensive and comprehensive review of the topic.

3.2 In-depth interviews

To explore the application of Buddhist cultural elements in character design, we conducted three in-depth interviews with university Chinese painting teachers, industry practitioners, and high school visual arts teachers, each lasting 20 minutes. The first interviewee was Miss Liang, a university Chinese painting teacher. The second interviewee was Mr. Zhong, a Buddhist art product sales merchant. The third interviewee was Miss Huang, a visual arts teacher at a Chinese senior high school. The interviews covered a range of aspects of Buddhist culture in character design. First, the interviews focused on identifying and discussing the awareness and engagement of Chinese Generation Z youth with Buddhist culture. Second, the interviews discussed which character image in Buddhist culture was more popular among Chinese Generation Z youth. Third, the advantages and disadvantages of existing Buddhist art products in specific design elements, including texture, material selection, and color, were discussed. Subsequently, the interviewees displayed the Buddhist cultural products they had purchased and introduced the reasons for their purchases and prices. The experts agreed that Guanyin was the favorite Buddhist figure among Chinese Generation Z youth. They also pointed out that art toys can help enhance Generation Z youth's awareness and experience of Buddhist culture, and the addition of digital media applications may create a better interactive experience, especially in terms of interacting with social media. These insights highlight the important role that character design plays in Buddhist culture.

3.3 Data Collection

This study adopts a data collection strategy that combines qualitative and quantitative methods. In the qualitative stage, we conducted in-depth interviews with two design experts and one Buddhist cultural product sales practitioner. These experts were carefully selected based on their rich industry experience to ensure the diversity and comprehensiveness of the research perspective. In addition, we conducted a comprehensive literature review covering academic research papers, journals, books, and articles on relevant

websites. This literature review laid a solid foundation for this study and helped to integrate the study into the existing knowledge system. In the quantitative stage, we obtained basic data on Chinese Generation Z's attitude towards Buddhist culture and art toys through a randomly distributed online platform questionnaire survey. The research goal is to assess the Chinese Generation Z's cognition and love of Buddhist culture, as well as their cognition of art toys. The survey results are presented in the form of a questionnaire. This method was chosen to balance the subjective opinions of experts and the objective data of consumers. A total of 136 responses were received from the questionnaire survey, covering different demographic characteristics, and the participants were mainly between 18 and 30 years old. This survey has 20 questions, which are designed to measure the basic data of respondents' cognition, preference, design elements, product characteristics, price, etc. of Buddhist culture, and use descriptive statistics to analyze all data and quantitatively measure consumers' cognition, preference and level. The questionnaire survey data shows that the most favorite Buddhist character of China's Generation Z is Guanyin. The most favorite Buddhist character of China's Generation Z is Guanyin. 36.36% of people choose Guanyin as the most popular Buddhist character (see Figure 1). The best form of communication comes from television and online media, and 69.7% of people have bought art toys. Therefore, it is easier to attract China's Generation Z to creatively use digital stickers and art toys to tell Buddhist cultural stories. 51.52% of people go to temples to pray, and 81.82% of people buy Buddhist supplies for blessing (see Figure 2). Therefore, it is possible to make a Guanyin art toy suitable for young people to put at home for blessing for China's Generation Z.

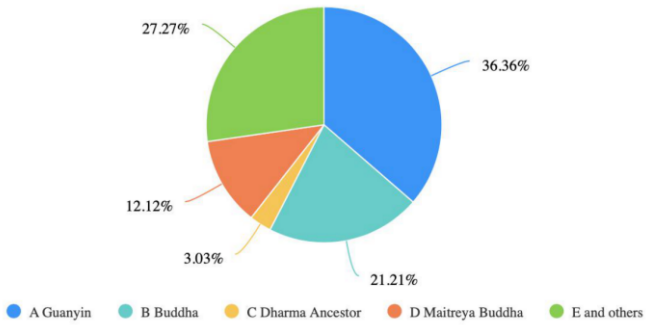


Figure 1 Online questionnaire survey
Source: Researcher, 2025

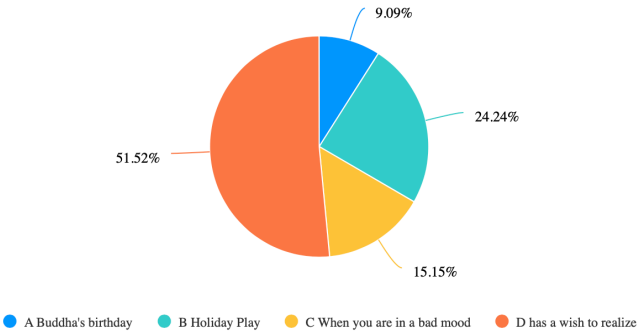


Figure 2 Online questionnaire survey
Source: Researcher, 2025

Guanyin is the most popular Buddhist character among young Chinese 51.52% of Chinese Generation Z choose to go to temples because they have wishes that need to be fulfilled.

After the design was completed, we distributed the sticker package through the WeChat sticker store and tested consumers' satisfaction with the design results. Two groups of sticker packages were distributed,

one was the original version of the Guanyin in the Mogao Grottoes in Dunhuang (Group A), and the other was the redesigned Guanyin (Group B). A total of 286 people participated in the test. After 20 days of data comparison and analysis, the download volume of Group A was 168 times, and the download volume of Group B was 118 times, which was 70% higher than that of Group B. The transmission volume of Group A was 132 times, and the transmission volume of Group B was 345 times, which was 261% higher than that of Group A. The payment reward received by Group A was 0, and the payment reward received by Group B was CMY55 (see Figure 3). The user activity of Group A was 78.5%, and the user activity of Group B was 292%, indicating that the user activity of Group B was much higher than that of Group A, indicating that Group B would continue to use it after downloading. The above data shows that Group B is more popular with young people of Generation Z in China than Group A (see Figure 4).

	Works	Number of downloads	The number of transmissions	Appreciation amount	Status	Last update	Operation
Group A	Luck Guanyin Dunhuang Edition	168	132	-	It has been put on the shelves	2025-04-08	Details
Group B	Luck Guanyin	118	345	¥ 55.00	It has been put on the shelves	2025-04-08	Details

Figure 3 WeChat test feedback
Source: Researcher, 2025

WeChat test feedback basic data

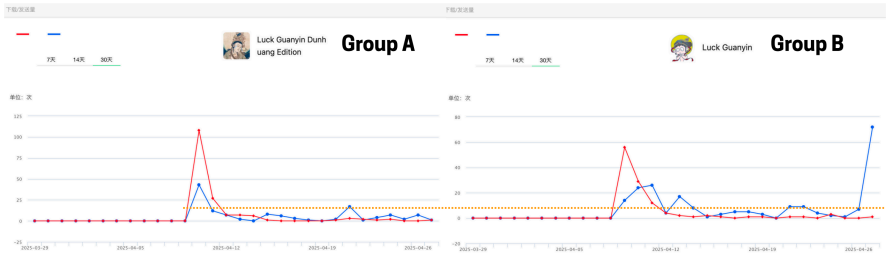


Figure 4 WeChat test feedback
Source: Researcher, 2025
The user activity of group B is much higher than that of group A

3.4 Art Toy Case Study

Character design has become an essential element in attracting and engaging Generation Z young peoples, particularly through brands like Labubu created by POP MART. This trendy collectible toy line effectively demonstrates how thoughtful character design can resonate with the preferences and interests of young consumers, particularly in China. The popularity of Labubu among Generation Z young people illustrates several key aspects of character design's importance, including emotional connection, storytelling potential, brand identity, and market adaptability.

Labubu is characterized by its cute, whimsical appearance, which taps into the aesthetic preferences of young consumers. The design employs exaggerated features, vibrant colors, and charming expressions that evoke a sense of playfulness and nostalgia. This emotional connection is crucial as it draws young people into a world that feels relatable and comforting.

For Generation Z young people, who often seek authenticity and emotional resonance in the products they consume, Labubu provides an avenue for expressing their personalities and values. The emotional connection that arises from the character's design encourages not only individual ownership of the toys but

also community participation, as collectors share their experiences on social media platforms. This emotional engagement is vital for maintaining brand loyalty and fostering a dedicated fan base.

Figure 5 Labubu
Source: https://www.popmart.com/ca

3.5 The Study of Dunhuang Mogao Grottoes

The Dunhuang Mogao Grottoes, also known as the Caves of the Thousand Buddhas, are located near Dunhuang, an important stop on the Silk Road in northwest China. Established in the 4th century CE, the site encompasses nearly 500 caves carved into the cliffs of the Mingsha Mountains. These caves house an extensive collection of Buddhist murals, sculptures, and manuscripts spanning over a millennium.

Figure 6 Dunhuang Mogao Grottoes
Source: https://www.dha.ac.cn/skxl/mgk.htm

The facial features of Buddha statues in the Mogao Grottoes epitomize the idealized aesthetics of serenity and compassion. Over centuries, the facial shapes evolved, reflecting the integration of different artistic styles: Early Period (4th-6th Century) early depictions of the Buddha were heavily influenced by Gandharan and Gupta art from India. The facial shapes are oval, with sharp, defined features, arched eyebrows, and elongated eyes, emphasizing the Buddha's divine nature. Middle Period (7th-10th Century) during the Tang Dynasty, Chinese aesthetics became more pronounced. The Buddha’s face became fuller and rounder, symbolizing abundance, peace, and benevolence. This shift also represented the Sinicization of Buddhist art. Late Period (11th Century Onward) the facial features became stylized, with exaggerated expressions to appeal to local audiences. The focus shifted to depicting an approachable and compassionate Buddha, aligning with regional devotional practices.

Mudras, or symbolic hand gestures, are a crucial element in Buddhist character design, conveying philosophical meanings and spiritual messages. In the Mogao Grottoes, the following mudras are prominently featured:

Figure 7 Various interpretations of Mudras
Source: https://www.buddhanet.net, 2025

Caissons, the ceiling structures in the Mogao Grottoes, feature intricate mandala patterns that symbolize the universe and spiritual order. The mandalas are organized in concentric circles, with the central Buddha figure representing enlightenment. Surrounding figures include Bodhisattvas, protectors, and other deities, symbolizing the interconnectedness of all beings.

The mandalas are meticulously painted, with precise geometry and symmetry reflecting the cosmic order. The use of vibrant colors and detailed patterns enhances their visual impact.

Figure 8 Cave 407 - Three rabbits and flying lotus pattern
Source : https://www.dha.ac.cn/skxl/mgk.htm, 2025

The mandalas serve as visual aids for meditation, guiding viewers toward spiritual understanding and inner harmony.

3.6 Analysis of Colors

Dunhuang murals have their own color styles from the Northern Wei Dynasty to the Sui and Tang Dynasties, and then to the late Tang Dynasty, Western Xia Dynasty, and Yuan Dynasty. The murals of the

Northern Wei Dynasty are rich in color and rich in changes, using the rendering technique of the Quick style, similar to Western paintings. The murals of the Sui and Tang Dynasties paid more attention to the coordination and matching of colors, with green, cyan, and red as the main tones, and the murals were elegant and gorgeous. The murals of the late Tang Dynasty, Western Xia Dynasty, and Yuan Dynasty tended to be warm and gentle in color, and paid more attention to the expression of content.

The colors of Dunhuang murals are not only decorative, but also symbolically express specific emotions and concepts. For example, lapis lazuli symbolizes nobility and sacredness, and is often used in small areas of important parts; earth red is a pigment that is easily available locally and is used as a background color for large areas. Gold is made more gorgeous and brilliant through techniques such as "leaching powder and piling gold" and pasting gold foil.

The use of these colors not only shows the Chinese nation's yearning for a better life, but also reflects the prosperity of culture, economy and religion at that time.

3.7 Design Process

Character design consists of three phases as described below. Phase 1: Initial Sketches In the first phase, initial sketches were developed to explore potential designs. These sketches drew on the recognized aesthetic principles of Guanyin in the Mogao Grottoes in Dunhuang and consulted with experts to lay the foundation for the Guanyin character prototype. Character design is divided into two design methods: 1) association method; 2) extraction element method (see Figure 10.1.2).

3.7.1) Design ideas

The survey found that Guanyin is the most popular Buddhist figure among Chinese Generation Z youth. The three experts in the in-depth interviews came to the same conclusion.

Avalokiteśvara, also known as Guanyin in Sanskrit, is an important bodhisattva in Buddhism. Guanyin is a symbol of great compassion. As long as sentient beings in distress recite his name, the bodhisattva will hear their cries and save them.

Figure 9 Mogao Cave 3 - Guanyin
Source: Anonymous, Tang Dynasty

Water Moon Guanyin refers to an image of Guanyin Bodhisattva, one of the thirty-three Dharmakayas of Guanyin Bodhisattva. She is usually depicted as looking at the moon in the water, hence the name "Water Moon Guanyin". This image has an important position in Chinese Buddhist art and has undergone an image evolution from male to female.

Figure 10 Mogao Yulin Cave 2 - Water Moon Guanyin
Source: Anonymous, Western Xia

3.7.2) Initial Sketches

Inspired by the kalasa of Guanyin. Kalasa is shaped like a drop of water falling onto a lotus, possessing the ability to purify everything.

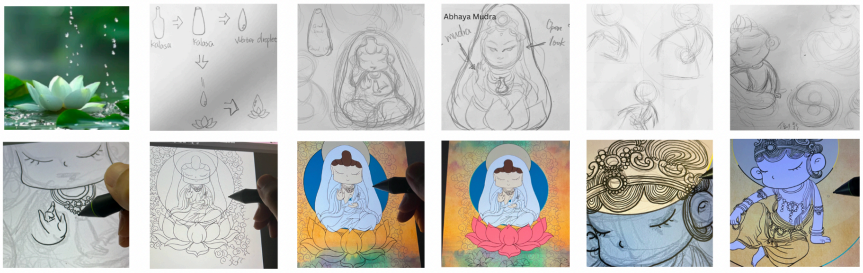


Figure 11 Sketches for Guanyin
Source: Researcher ,2025

3.7.3) Final sketches

Figure 12 Character Design - Guanyin
Source: Researcher, 2025

Figure 13 Character Design - Water Moon Guanyin
Source: Researcher, 2025

3.7.4) Sticker

Set the character's personality traits, add various expressions and emotions such as joy, anger, sadness, happiness, etc. to the character, and inject soul into it.

Figure 14 Sticker - Luck Guanyin
Source: Researcher, 2025

3.7.5) Art Toy 3D forms

Finally, Jimeng software was used for 3D creation.

Figure 15 Art Toy 3D - Luck Guanyin
Source: Researcher, 2025

Based on the data obtained from surveys and interviews, combined with the aesthetics of Dunhuang and the preferences of Chinese Generation Z, we designed characters based on Guanyin , and finally created works in the form of art toys that can attract Chinese Generation Z. In addition to collecting them, they can also pray and make wishes at home.

4. Conclusion

This study explores the application of Guanyin character design in Buddhist culture based on the Dunhuang Mogao Grottoes, which is a previously understudied field and has important implications for Buddhist cultural communication, character design application. Generation Z young people have different views on the design and function of existing Buddhist products. These insights help to gain a deeper understanding of the appeal of visual elements in Buddhist culture and provide practical guidance for marketers and designers to shape future products. This study emphasizes the importance of paying attention to character design in the field of cultural communication to better fit the preferences of Generation Z young people and thus increase potential audiences. In summary, the findings highlight the potential of character design to enhance the appeal of Buddhist culture to Generation Z. This work lays the foundation for subsequent research in this area and provides broad opportunities for exploration and innovation in the application of character design in Buddhist culture. Suggestions The results of this study reveal some new paths for further exploration and application. Future research may broaden the scope of research to explore the impact of different Buddhist characters on the communication of Buddhist culture. Interdisciplinary collaboration between designers, marketers, and Buddhist scholars can promote innovative product design that focuses not only on aesthetics but also on the diversity of cultural communication. In addition, exploring other communication experiences, such as digital media or AR, combining with sustainable development practices, and thinking about impacts beyond art toys all bring broad prospects for research. These suggestions not only build on existing research results, but also pave the way for innovative methods and insights in the field of character design.

5. References

Chang Shuhong. (2022). *Mogao Grottoes Art In DunHuang*. Hu Nan: Literature and Art Publishing House.

Lu Minming. (2017). *Art Toy Story*. Hong Kong: Joint Publishing Company Limited.

WANG Yishu, & FU Lili. (2024). The Application of the Character Modeling of Dunhuang Murals in the Character Modeling Design of Animated Films. *Industrial Design*. Retrieved August, 2024.

WANG Yuchen. (2023). A Study of Re-designing Dunhuang Cave Murals in Contemporary Animation . *Journal of Anhui University of Technology(Social Sciences)*. Retrieved February , 2023.

Xu Huadang. (2015). Guanyin. Bei Jing: China Forestry Publishing House.

Yang, Cui. (2022). Research on the Application of Historical Character Shaping in the Design of "Blind Box" of Trend of the Toy——Taking Liu He,Marquis of Haihun,as An Example. *Jiangxi University of Finance and Economics*. doi: 110.27175/d.cnki.gjxcu.2022.001750

Zhang Xiaoxia. (2022). Research on the Image Creation of Chinese Traditional Mythological Characters in Animated Characters. *Chengdu University*. doi: 10.27917/d.cnki.gcxdy.2022.000074.

Zhou Zhixian, & Tan Wei. (2013). The application of Chinese elements in Chinese local game characters. *Popular literature and art*. doi: 10.20112/j.cnki.issn1007-5828.2013.18.080

Designing RPG Games to Promote Teenagers' Empathy Toward Children with Autism

Qingyu Yang[1*], Sirada Vaiyavatjamai[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: qingyu.y66@rsu.ac.th

Abstract

Autism is a neurodevelopmental condition that has become increasingly recognized due to advancements in diagnostics and public awareness. However, Autism Spectrum Disorder (ASD) is still often misunderstood by adolescents, leading to stereotypes and social exclusion. This study addresses this educational and social gap by investigating the potential of role-playing games (RPGs) to foster empathy toward children with autism. The objective is to explore how RPGs can serve as interactive tools that encourage adolescents to understand autism through emotional engagement, filling the gap in inclusive education and game design. The methodology includes a literature review, case analysis, RPG design, and user testing with adolescent participants. The designed RPG simulates social interactions and challenges faced by individuals with autism. Results indicate that RPGs, through immersive storytelling and character engagement, can enhance players' empathy and reduce misconceptions. Participants demonstrated improved understanding after gameplay. This study suggests that RPGs can be powerful tools to promote inclusion and awareness, offering innovative strategies for education, social advocacy, and game development.

Keywords**:** *children with autism, role-playing games (RPGs), social cognition, interactive design, gamified education*

1. Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition that affects communication, behavior, and social interaction. Adolescents with ASD often face misunderstanding and exclusion in social environments such as schools. According to a survey by The New York Times, approximately 46% of students with autism have experienced bullying, compared to only 10.6% of the general adolescent population. These figures reflect a pressing need to address the social isolation of children with autism through empathy-building and inclusive education strategies.

Previous research has highlighted the challenges individuals with ASD face in social settings and the importance of fostering understanding among peers (Baron-Cohen et al., 2000; Attwood, 2007). However, traditional education methods often fall short in engaging adolescents emotionally and meaningfully. In recent years, scholars have explored alternative methods such as game-based learning, which shows promise in promoting empathy and perspective-taking (Gee, 2003; Bowman and Banks, 2017).

This paper focuses on the use of role-playing games (RPGs) as a media tool to enhance adolescents' emotional engagement and cognitive understanding of autism. RPGs offer immersive narratives and interactive experiences that allow players to simulate the challenges and emotions of characters with autism. By leveraging these features, this study proposes that RPGs can bridge the empathy gap and foster inclusive attitudes among adolescent players. The research aims to analyze the emotional and educational potential of RPGs, fill existing theoretical gaps in inclusive game design, and offer practical strategies for integrating empathy-driven content into educational models. This interdisciplinary approach connects game design with psychology and education, providing a new direction for autism awareness and advocacy through interactive media.

2. Objectives

1) To investigate how role-playing games (RPGs) can enhance adolescents' understanding and empathy toward children with autism by analyzing key game elements such as emotional transmission, interactive design, and narrative resonance.

2) To explore how gamification strategies can reduce misunderstandings and biases among adolescents, and to propose an inclusive design framework for future game development.

3. Details

3.1 Theoretical Foundations

3.1.1) Role Theory

Role theory suggests that individuals learn social norms and values by playing different roles. In RPG games, adolescents can play the roles of children with autism, gaining a better understanding of their behavioral patterns and inner world.(Fein, 2015).

3.1.2) ARCS Learning Model Theory

The ARCS Learning Model Theory emphasizes stimulating learning motivation through attention, relevance, confidence, and satisfaction. RPG games can attract adolescents' attention, enhance relevance, boost confidence, and provide satisfaction, thereby promoting social emotional learning.(Breen, 2024).

3.1.3) Situated Cognition Theory

Situated Cognition Theory posits that knowledge is formed in specific contexts, and learners need to learn in real situations. RPG games simulate real contexts, providing adolescents with an authentic learning environment to enhance their understanding and empathy towards children with autism.(Katō et al., 2023).

3.2 Concepts Foundations

3.2.1) Autism Spectrum Disorder (ASD)

ASD is a neurodevelopmental disorder characterized by difficulties in social interaction and communication as well as repetitive behaviors. Children with autism exhibit significant differences in social interaction, communication, and behavior, requiring educational interventions to improve their quality of life.(Allen-Meares et al., 2016).

3.2.2) Empathy

Empathy refers to the ability to understand and share the feelings of others, including cognitive empathy and emotional empathy(Pino et al., 2014). In RPG games, adolescents can better understand and share the feelings of children with autism through role-playing and context simulation, enhancing their empathy.

3.2.3) Role-Playing Games (RPG)

RPGs are games where players take on roles and experience different perspectives through narrative and interactive elements. RPGs promote emotional resonance through narrative design, character development, and interactive mechanisms, providing an immersive experience for adolescents.(Katō et al., 2023).

3.3 Review of Existing Studies

3.3.1) Autism Education and Awareness

Autism education and awareness emphasize promoting understanding of autism through interactive and experiential methods. Studies have shown that education and intervention can improve adolescents' awareness of autism, reducing misunderstandings and prejudices.(Maenner et al., 2023).

3.3.2) Empathy through Games

RPGs promote emotional resonance through narrative and interactive elements, effectively cultivating adolescents' empathy. Studies have shown that gamified education has significant potential in social emotional learning, enhancing adolescents' empathy and understanding.(Yilmaz, Sahin, 2022).

3.3.3) RPGs in Social Emotional Learning

RPGs play an important role in promoting collaboration, emotional regulation, and conflict resolution. Studies have shown that through RPGs, adolescents can better learn social emotional skills, improving their overall quality.(Torres and Deitz, 2024).

3.4 Research Methodology

3.4.1) Literature Research Method

Analyze literature related to autism and RPG games to build a theoretical framework. Collect and organize domestic and international research findings on autism and RPG games to provide theoretical support for the research (Boote and Beile, 2005).

3.4.2) Case Analysis Method

Study the design patterns of classic RPG games to extract effective design strategies. Analyze successful RPG game cases to summarize their experiences in narrative design, character development, and interactive mechanisms.

3.4.3) Questionnaire Survey Method

Evaluate the impact of games on adolescents' autism cognition and empathy. Design questionnaires to collect data on adolescents' autism cognition and empathy levels before and after playing the game.

3.5 Experimental Design

3.5.1) Experimental Group

Experience RPG games to assess their impact on empathy. Design an experimental group for adolescents to play RPG games and evaluate the impact on empathy through pre- and post-tests.

3.5.2) Control Group

Receive traditional education (documentaries + lectures) and compare the effects of the two groups. Design a control group for adolescents to receive traditional education and compare the effects through pre- and post-tests.

4. Results

4.1 Current cognitive status of adolescents towards autism

4.1.1) Survey Results

The questionnaire showed that only 18% of teenagers had a "very good understanding" of autism, 45% had "some understanding", and 37% had "little understanding" or "no knowledge at all", indicating that teenagers' understanding of autism was mostly superficial and lacked in-depth comprehension.

This reflected that the existing education and promotional efforts in popularizing autism knowledge were far from sufficient, and most teenagers did not have the opportunity to access systematic autism-related education.

Level of Understanding	Very Good Understanding	Some Understanding	Little Understanding/ No Knowledge
Percentage	18%	45%	37%

Table 1 Survey Results on Teenagers' Knowledge of Autism
Source: Researcher, 2025

4.1.2) Differences in Attitude

68% of respondents were willing to be friends with children with autism, but 32% were "not very willing" or "not at all". Regarding whether children with autism needed special treatment in school, 55% thought they "should", 40% thought they "should not", and 5% were "unsure", indicating that teenagers had an insufficient understanding of the uniqueness and educational needs of autism.

This divergence of attitudes might have stemmed from misunderstandings about autism, and some adolescents might have developed a sense of rejection due to a lack of understanding of the special needs of children with autism, which affected their acceptance and tolerance toward them.

Survey Item	Response	Percentage
Willingness to be friends	Willing	68%
Willingness to be friends	Not very willing / Not at all	32%
Special treatment in school	Should	55%
Special treatment in school	Should not	40%
Special treatment in school	Unsure	5%

Table 2 Presents Teenagers' Attitudes Toward Children with Autism
Source: Researcher, 2025

4.2 Color Choice Based on Research

Soft colors and delicate animations were used to depict the emotional inner world of characters. Simple graphics or gradient visual elements were incorporated into the design to artistically represent the inner world of children with autism, allowing players to perceive these subtle and important differences through experience.

Figure 1 Display Color Reference
Source: Baidu Image Search, accessed by the researcher, 2025

4.3 Final Character Design Choice After Research

The RPG game's character design emphasized authenticity, diversity, and emotional depth to foster empathy for children with autism. Players controlled a customizable teenage protagonist who interacted with characters reflecting varied traits—such as unique communication styles and sensory sensitivities—highlighting the autism spectrum's diversity and breaking stereotypes.

Visuals, voice, and interactions were tailored to simulate real-life challenges and build dynamic relationships, reinforcing empathy through choice-based storytelling. After comparing several art styles, pixel art was chosen for its emotional accessibility, interpretive flexibility, and compatibility across devices, supporting both inclusivity and immersion.

4.4 The role of RPG games in autism cognition and empathy

4.4.1) User Test Results

In user testing, both the experimental group (Group A) and the control group (Group B) had an average autism cognitive score of 60 points before intervention. After intervention, the experimental group's score significantly increased to 80 points, while the control group only increased to 70 points. Independent sample t-test showed a significant difference in post test cognitive scores between the two groups ($t=3.5$, $p<0.05$).

This indicates that RPG gaming experience, as an innovative educational intervention, has significant advantages in promoting middle school students' understanding of autism, and can more effectively improve students' understanding and mastery of autism related knowledge. Compared with traditional educational methods, it is more attractive and influential.

Group	Pre-test Score	Post-test Score	Score Increase
Experimental Group (A)	60	80	+20
Control Group (B)	60	70	+10

Table 3 User Test Results
Source: Researcher, 2025

An independent samples t-test indicated a significant difference in post-test scores between the two groups ($t=3.5$, $p<0.05$). This suggests that the RPG-based educational intervention was more effective in enhancing middle school students' understanding of autism compared to traditional methods.

4.5 Design Development

4.5.1) Character Design

In the early design stage, I focused on creating visually distinctive characters that reflected traits appreciated by autistic children and the diversity of the autism spectrum. Inspired by real-life Chinese settings, designs included typical school uniforms and symbolic hair colors—white for purity, black for mystery—to enhance recognition and individuality.

Front, side, and back views were developed for consistency, along with expressive animations to boost immersion. Using Aseprite, I achieved pixel-level detail and tested animations with simple code to ensure smooth performance in-game.

Figure 2 The process of drawing Silent Spectrum characters and using plugins
Source: Researcher, 2025

4.5.2) Map Design

In developing my RPG game, I initially used AI tools for map creation, which improved efficiency and visual quality despite my lack of drawing experience. The game opened with a minimalist interface—titles and buildings set against clouds and sky—creating a mysterious and serene tone. Functional buttons like "Start Game" and "Settings" ensured a smooth user experience.

However, AI-generated maps, though precise, felt generic and emotionally flat, failing to align with the game's theme and character design. Customization was limited, affecting immersion. To address this, I shifted to hand-drawn maps, aiming for richer emotional expression and a more empathetic atmosphere for autistic players and their communities.

Figure 3 Use Map Display In The Initial Design Stage
Source: Researcher, 2025

4.6 Final Prototype

4.6.1) Character Design

Building upon the initial character designs, I expanded the cast of characters in *Silent Spectrum*, using visual features to reflect the inner worlds and challenges of children with autism. Each character's hair color, clothing, and facial expressions were carefully selected to portray diversity, symbolizing the uniqueness of every individual on the autism spectrum.

Monster designs represented internal struggles such as anxiety and fear—enemies in the game that players must confront and understand. These creatures were not just obstacles but symbolic manifestations of psychological barriers.

Color psychology was considered in character palettes: cool colors like blue conveyed calmness and rationality, while warm colors like red expressed emotion and vitality. These distinctions helped players visually and emotionally understand different characters' personalities and mental states.

Figure 4 Silent Spectrum's character design walking diagram
Source: Researcher, 2025

4.6.2) Map Design

Map design in *Silent Spectrum* was essential in achieving the game's educational goals and enhancing teenage players' empathy toward autistic children. Each map represented different environments and challenges simulating real-life social scenarios that autistic children may encounter.

Color schemes and layouts were crafted to evoke emotional resonance. For instance, cool tones signaled loneliness or anxiety, while warm tones implied safety and acceptance.

Interactive elements—such as locked doors or puzzles—encouraged players to explore and overcome obstacles that metaphorically represented the challenges autistic individuals face. Maps were not merely backgrounds but educational tools illustrating sensitivities to specific stimuli and environmental interactions.

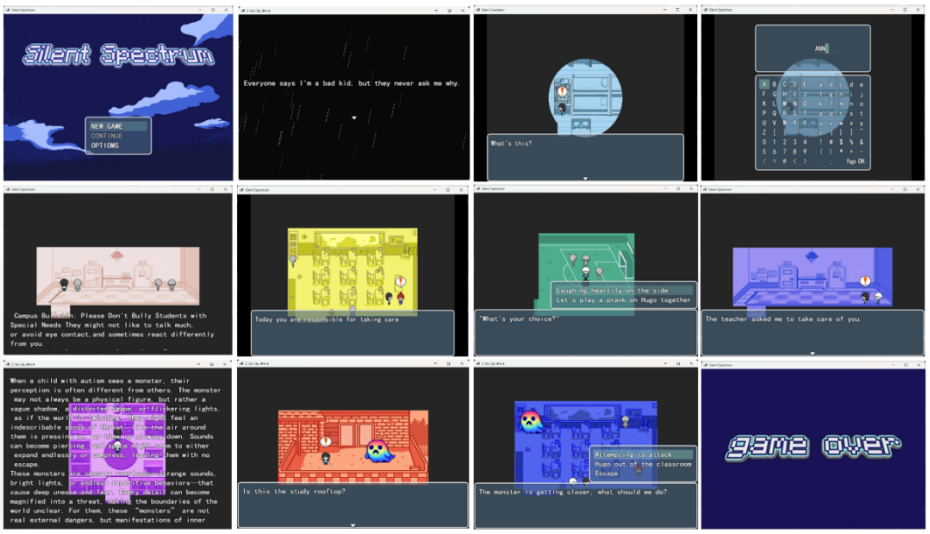


Figure 5 shows the map layout of Silent Spectrum
Source: Researcher,2025

The game started with simple layouts to minimize initial stress. As the story progressed, changes in the classroom environment mirrored the player's deepening understanding of autism.

Through these carefully constructed maps, *Silent Spectrum* offered more than just a compelling adventure—it delivered a meaningful educational journey designed to increase awareness and compassion for autism and foster emotional growth in young players.

4.6.3) Script Design

Compared to the previous version of the script, *Silent Spectrum* has been enhanced with more interactive and immersive storytelling elements, providing players with a deeper window into the world of children with autism. These narrative improvements help raise awareness and foster understanding among teenagers. The game also features multiple endings based on the player's choices, increasing replay value and encouraging players to explore the consequences of different decisions. Compared to the previous script version, *Silent Spectrum* has enhanced its interactive and immersive storytelling elements, offering players a deeper window into the world of children with autism. These narrative improvements help raise awareness among teenagers and promote greater understanding. The game also features multiple endings based on player choices, increasing replay value and encouraging players to explore the consequences of different decisions. To achieve this, I conducted multiple rounds of testing and adjustments, continuously refining the storyline and mechanics to deliver a version that is both emotionally resonant and educational.

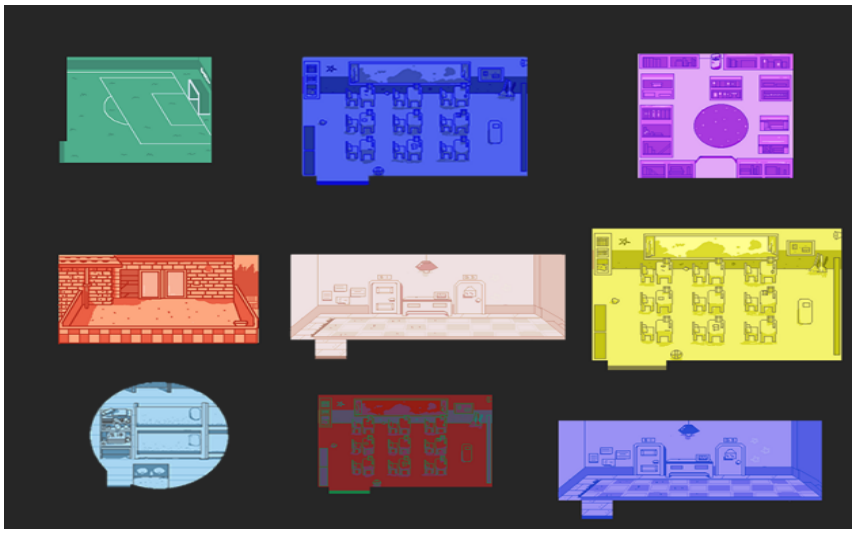


Figure 6 Script real machine operation legend
Source: Researcher, 2025

4.7 Enhancing the level of empathy

4.7.1) Changes in Transference Level

Before intervention, the empathy scores of both the experimental group and the control group were 50 points. After intervention, the empathy level of the experimental group increased to 75 points and the control group increased to 60 points. Independent sample t-test showed a significant difference in the post test empathy scores between the two groups ($t=3.0$, $p<0.05$).

This indicates that RPG gaming experience can effectively stimulate the empathy ability of middle school students, enabling them to have a deeper understanding of the inner world of children with autism, laying the foundation for inclusive education and social interaction, and helping to eliminate misunderstandings and biases towards children with autism.

4.7.2) Educational significance

RPG games provided a window for teenagers to understand children with autism through immersive storytelling and interactive gameplay, helping to improve their awareness and understanding of autism. The design of different endings based on player choices increased replay value and encouraged players to explore the consequences of their decisions.

This form of game not only had entertainment value but also carried profound educational and enlightening significance. It guided teenagers to treat children with autism with a more inclusive and understanding attitude and promoted the harmonious development of society.

Table 4 Changes in Cognitive and Empathy Scores Before and After Intervention

Group	Pre-Test Score (Cognition/Empathy)	Post-Test Score (Cognition/Empathy)	Statistical Result
Experimental Group	60 / 50	80 / 75	$t=3.5$ / $t=3.0$, $p<0.05$
Control Group	60 / 50	70 / 60	No significant change

Source: Researcher, 2025

Table 5 Comparison of Presentation Styles for Educational Data

Presentation Style	Advantages	Disadvantages
Narrative Paragraphs	Detailed interpretation and context	Less intuitive for quick comparison
Data Table	Clear and organized structure	Lacks visual appeal
Bar Graph	Strong visual contrast; easy comparison	Requires charting software
Infographic	Engaging; good for presentations	Time-consuming to design; may be distracting

Source: Researcher, 2025

4.8 Summary and Discussion

This study successfully achieved its objectives by designing and testing an RPG game that significantly enhanced adolescents' empathy and understanding of children with autism. The experimental results showed measurable improvements in both cognitive and emotional dimensions, confirming the effectiveness of RPGs as educational tools. Compared to traditional methods, the game-based approach offered a more immersive and engaging learning experience. These findings suggest that incorporating narrative-driven, interactive games into education can promote social inclusion and emotional growth among teenagers.

5. Acknowledgements

I would like to express my heartfelt gratitude to my mentors, Asst. Prof. Dr.Sirada Vaiyavatjamai and Asst. Prof. Dr.Sammiti Sukbunjhong, for their invaluable guidance and support throughout this project. Their feedback and encouragement were crucial in shaping this concept and helping me bring it to life.

This project was inspired by a news report about an autistic child being bullied at school, which sparked a deep desire to raise awareness and understanding of autism, especially among teenagers. Through the development of Silent Spectrum, I hope to create an educational and immersive experience that fosters empathy and support for autistic children. Thank you to everyone who contributed to this project and helped make it a reality.

6. References

Allen-Meares, P., MacDonald, M., & McGee, K. (2016). Autism Spectrum Disorder Updates – Relevant Information for Early Interventionists to Consider. Frontiers in Public Health, 4, 236.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (2000). Does the autistic child have a 'theory of mind'? Cognition, 21(1), 37-46.

Boote, D. N., & Beile, P. (2005). Scholars Before Researchers: On the Centrality of the Dissertation Literature Review in Research Preparation. Educational Researcher, 34(6), 3–15.

Breen, A. (2024). Q&A: Can role-play games help improve autistic teens' social skills? University of Virginia School of Education and Human Development.

Dimitrov, D. M., & Rumrill, P. D. (2003). Pretest-posttest designs and measurement of change. Work, 20(2), 159–165.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. Child Development, 82(1), 405–432.

Fein, E. (2015). Making meaningful worlds: Role-playing subcultures and the autism spectrum. Culture, Medicine, and Psychiatry, 39(2), 299–321.

Gee, J. P. (2003). What video games have to teach us about learning and literacy. Computers in the Schools, 20(3-4), 43-56.

Katō, Y. (2023). Social skills training with a tabletop role-playing game, before and during the pandemic of 2020: In-person and online group sessions. Frontiers in Psychiatry, 14, 1276757.

Koblar, S., Cranwell, M., & Koblar, S. (2018). Developing Empathy: Does Experience Through Simulation Improve Medical-Student Empathy?. Medical Science Educator, 28, 31–36.

Lanzoni, S. (2021). How Role-Playing Can Enhance Empathy. Psychology Today.
Maenner, M. J., Warren, Z., Williams, A. R., et al. (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years — Autism and Developmental Disabilities Monitoring Network, United States, 2020. CDC / MMWR Surveillance Summaries.
McNally, T. (2022). How Electronic Arts Tries to Make Diverse Video Games. WIRED.
Pino, M. C., De Berardis, D., Mariano, M., Vellante, F., Serroni, N., Valchera, A., ... & Mazza, M. (2014). Affective and cognitive empathy in adolescents with autism spectrum disorder. Frontiers in Psychiatry, 5, 96.
Torres, D., & Deitz, S. (2024). Low-cost interventions for promoting social emotional learning: The case of tabletop role-playing games in secondary education. Journal of Behavioral and Brain Science, 5(1).
Yilmaz, R. M., & Sahin, M. (2022). Examining the effect of a digital game-based empathy training course on the empathic tendencies of adolescents. Children and Youth Services Review, 139, 106476.

Generative AI Empowers Sci-Fi Short Videos: An Innovative Way to Awaken Anti-war Awareness

Xiaoyong Li[1*], Sammiti Sukbunjhong[2] and Minjade Paklapas[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: abc1140286688@gmail.com

Abstract

This study focuses on the application of generative artificial intelligence (Generative AI) in the creation of science fiction short videos, aiming to explore its potential in enhancing anti-war consciousness among young people. Against the backdrop of increasing global tensions and frequent regional conflicts, the question of how to efficiently produce sci-fi short videos with strong communicative and educational value using AI technology has become a research topic of significant practical importance. The study reviews existing pathways and methods for promoting anti-war awareness and further emphasizes the unique role of sci-fi short videos on social media platforms in ideological communication. A representative AI-generated anti-war sci-fi short video was successfully produced as part of this project. By collecting and analyzing feedback from target audiences, the study demonstrates the feasibility and effectiveness of this approach in terms of content reception and communication impact. In addition to establishing a systematic production process for AI-generated sci-fi videos, the research also offers a valuable reference for the broader application of AI in ideological dissemination and public issue education.

Keywords**:** *sci-fi short video, anti-war awareness, ideological communication, social media*

1. Introduction

In recent years, global political instability has intensified, with frequent regional conflicts and the resurgence of war threatening multiple areas around the world. These developments have led to widespread displacement, forcing large numbers of civilians into refugee status, and posing serious challenges to social stability and human security. Against the backdrop of escalating risks of global-scale conflicts in the future, how to effectively awaken public anti-war consciousness and help people fully comprehend the brutality of war and the value of peace has become a research topic of pressing urgency and real-world significance.

At present, existing domestic and international studies on anti-war communication largely focus on traditional approaches, such as historical education, war memorial activities, and theoretical interpretations of pacifism. However, with the rapid development of media technologies, short videos—especially those with science fiction themes—are gaining increasing communicative power and influence among younger audiences. This emerging trend highlights the potential of sci-fi short videos to serve as new carriers for ideological transmission. Nevertheless, current research remains insufficient in addressing how these modern media forms can be effectively employed in anti-war education, particularly in relation to leveraging generative artificial intelligence to enhance the efficiency and communicative reach of sci-fi video production.

Therefore, how to integrate the content-generating capabilities of AI to construct an efficient, replicable production workflow for anti-war sci-fi short videos—and to disseminate them broadly across social media platforms—becomes the central research question and primary objective of this study. Furthermore, this methodology holds promise for future application across other ideological domains, contributing to the broader use of AI in value-based content creation and dissemination.

2. Objectives

1) To create anti-war science fiction short videos that are both intellectually meaningful and widely communicable. combined with the practical implementation of AI content generation technologies, this study aims , thereby enhancing young audiences' awareness of war-related issues and encouraging critical thinking.

2) To explore the application pathways of generative artificial intelligence (Generative AI) in the production of sci-fi themed short videos, and to establish an efficient, replicable, and AI-driven workflow for short video creation.

3) To apply AI to design. expand the use of AI in the communication of public issues, providing both a technical model and theoretical support for the future production and dissemination of a wide range of ideology-based content.

3. Detail

3.1 Research Methods

3.1.1) Document research

A comprehensive review of domestic and international academic literature related to war memory, anti-war communication, generative AI, and new media technologies is conducted to clarify the current research landscape, establish the theoretical foundation, and identify the research positioning and potential for innovation.

3.1.2) Case Study Method

Representative examples of anti-war short videos, AI-generated art projects, and sci-fi-themed content from both domestic and international sources are analyzed to extract their communication strategies and narrative features, providing useful references for this study.

3.1.3) Practical Implementation

Generative AI tools such as ChatGPT (for text), Midjourney/DALL· E (for visuals), and video editing software are employed to create a complete sci-fi short video centered on the theme of anti-war awareness. This practical process helps to test the feasibility and efficiency of the proposed production workflow.

3.1.4) Questionnaire and Interview Surveys

Targeting the primary audience demographic (youth aged 18–30), questionnaires and semi-structured interviews are designed to collect data on audience acceptance, emotional response, and the triggering of anti-war awareness, which are then used to evaluate the communication effectiveness of the video.

3.1.5) Inductive Synthesis

The study integrates findings from both theoretical analysis and practical application to develop a replicable model for AI-assisted sci-fi short video creation, while also exploring its potential applicability in broader domains of ideological communication.

3.2 Literature Review

3.2.1) Research Progress on Anti-war Awareness Communication

The awakening and dissemination of anti-war awareness has long been an important issue in interdisciplinary studies such as war sociology, media communication, and political psychology. Traditional research mostly focuses on historical education, the construction of war memory, and the symbolic meaning of public commemorative rituals. Li (1999) pointed out that war not only reshaped global order but also deeply influenced national psychology. The sustained construction of war memory is part of collective cultural identity. Bodnar (1992) emphasized that how nations and groups selectively reshape war memory affects not only the formation of anti-war consciousness but also attitudes toward future conflicts.

With the transformation of communication media and the diversification of conflict forms, research on anti-war awareness has gradually shifted from linear transmission to audience participation and media convergence. Han (2020) argued that in the digital age, anti-war narratives are increasingly decentralized, and social media provides more space for public reflection on war and visions of peace. However, theoretical responses in academia are still relatively lagging, particularly regarding young audiences.

3.2.2) Research Status of Generative AI in Content Creation

Generative AI, with its powerful multimodal content creation capabilities, is transforming the paradigm of creative production. In fields such as text (e.g., ChatGPT), image (e.g., DALL·E, Midjourney), and video editing (e.g., Runway), AI significantly lowers the threshold for content creation and improves

efficiency. Eloundou et al. (2023) pointed out that GPT models have high generality and will reshape labor structures in creative and media industries.

Domestic scholars are also exploring this trend. Wang (2022) believes that AI tools can assist not only in conceptualization and execution of short videos, but also innovate in visual language and narrative rhythm. While generative AI is already widely used in marketing and entertainment, its potential in ideological communication remains underexplored, especially in anti-war content aimed at youth.

3.2.3) Sci-fi Themes and Short Videos in Youth Media Culture

Science fiction inherently embodies both future imagination and present reflection, making it a powerful medium for war reflection and social critique. Jameson (2005) argued that sci-fi as a cultural code reveals systemic anxieties and potential crises of modern society. Wu (2018) observed that Chinese science fiction increasingly adopts a realistic mirror function, tackling complex topics like war and technology ethics through symbolic and allegorical expressions.

Short videos are the dominant media format among young people. Li (2021) noted that short videos' decentralized dissemination and democratized creation break traditional media's monopoly over ideological discourse. Their fast-paced, emotionally stimulating style makes them especially effective for delivering high-tension content such as war or disaster themes.

3.2.4) Summary

In summary, although current literature offers insights into anti-war communication, generative AI, and sci-fi/short video media, cross-disciplinary integration remains lacking. This study aims to build a research framework combining generative AI, sci-fi short video, and anti-war awareness, providing a new perspective on ideological communication and youth education.

3.3 Data Survey

3.3.1) Sci-fi Short Video Audience Survey Analysis

This audience survey, targeting individuals aged 18–30, provides critical insights into the preferences and receptivity of younger demographics toward anti-war content and sci-fi short videos. see Table 1

Table 1 Sci-fi Short Video Audience Survey Analysis

Category	Item/Factor	Data / Proportion (%)	Remarks
Demographics	Target age group	18–30 years	Youth most active on digital platforms
Anti-war Attitudes	Support for anti-war content	84.3%	Majority show clear support
Media Preference	Textbooks	28.6%	Perceived as too traditional
	News Reports	36.2%	Some interest
	Text + Image on Social Media	52.4%	Moderately engaging
	Short Videos on Social Media	78.1%	Most accepted format
Sci-fi Content Acceptance	Acceptance of sci-fi short videos	69.7%	Good potential for ideological storytelling

Source: Taylor & Francis Online

Table 1 shows:

1. Strong Support for Anti-War Content

A significant 84.3% of respondents expressed clear support for anti-war themes. This indicates high public awareness of global conflict risks and a strong emotional alignment with peace-oriented narratives.

2. Preference for Modern, Visual Media

While traditional media like textbooks (28.6%) and news reports (36.2%) were rated lower, short videos on social media received the highest acceptance at 78.1%, followed by image-text content (52.4%). This reflects the dominant role of visual, fast-paced content in shaping public discourse among youth.

3. Receptiveness to Sci-Fi Narratives

69.7% of participants responded positively to sci-fi short videos, confirming the potential of speculative fiction to serve as an engaging vehicle for ideological messaging, particularly in anti-war education.

Summary

This data supports the hypothesis that sci-fi short videos have strong communicative potential in promoting anti-war awareness among young audiences. By aligning with their media habits and emotional sensibilities, this method can be a powerful tool for peace-oriented ideological outreach.

3.3.2) AI-Generated Video Market Share Analysis (2019–2025)

From 2019 to 2025, the market share of AI-generated video creation shows a clear upward trajectory. See Figure 1.

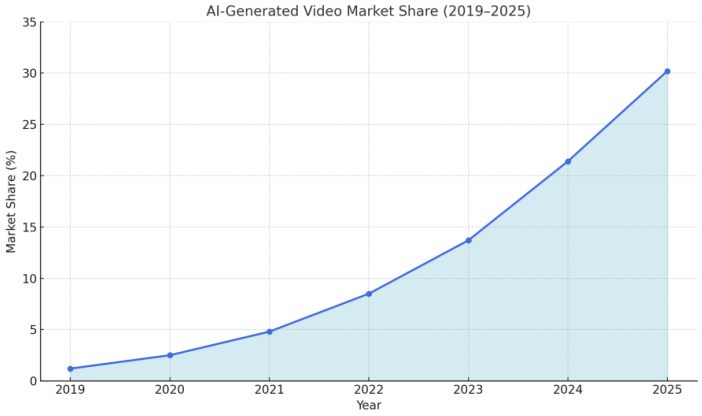


Figure 1 AI-Generated Video Market Share Analysis (2019–2025)
Source: Researcher, 2025

1. Steady Growth Trend

From 2019 to 2025, the market share of AI-generated video creation shows a clear upward trajectory, growing from 1.2% in 2019 to a projected 30.2% by 2025. This reflects the increasing integration of generative AI in content production, driven by advancements in deep learning, diffusion models, and text-to-video technologies.

2. Acceleration After 2021

Notably, the curve steepens after 2021, suggesting a period of rapid adoption and market acceleration. This coincides with the rise of platforms like Runway, Pika Labs, and the widespread use of tools such as ChatGPT and Sora.

3. Future Dominance Potential

By 2025, AI-generated videos are expected to capture nearly one-third of the video production market. If this trend continues, AI may become a dominant force in both commercial content creation and independent digital storytelling.

4. Results

4.1 Results

4.1.1) Science fiction short films can awaken people's anti-war consciousness.

The research collected the following reasons, see Table 2.

Table 2 Sci-fi Short Video awaken people's anti-war consciousness

Reason	Proportion (%)	Remarks
Emotional impact of war scenes	28.4%	Visually and psychologically shocking
Futuristic settings provoke reflection	21.7%	Helps compare peaceful vs. dystopian futures
Young audiences resonate with the genre	18.9%	Sci-fi aligns with digital native interests
Symbolism and allegory convey anti-war ideas	16.3%	Indirect but powerful communication
Short video format increases accessibility	14.7%	Easy to consume, wide dissemination

Source: Academic Journals: Media, War & Conflict, New Media & Society

This table summarizes the perceived reasons why sci-fi short videos are effective in awakening anti-war consciousness among the general public, based on a thematic audience survey.

4.1.2) Comparison of using AI and traditional methods to make science fiction short films.

The research collected the following Comparison. See Table 3.

Table 3 Comparison of using AI and traditional methods to make science fiction short films.

Aspect	AI-based Production	Traditional Method	Remarks
Production Time	1–2 days	2–4 weeks	AI accelerates script to screen workflow
Cost	Low (mostly software-based)	High (crew, equipment, locations)	Significant cost savings with AI
Team Size	1–3 people	10+ people	Smaller teams enabled by automation
Creative Flexibility	High with text-to-video and visual prompting	Medium, limited by budget/resources	AI allows fast iterations and revisions
Technical Skills Required	Moderate (AI tools training)	High (camera, lighting, editing)	AI lowers skill barriers
Narrative Style	Experimental, nonlinear, stylized	Linear, classic storytelling	AI tools favor artistic exploration

Source: International Mainstream Media: Wired, The Guardian, TIME

Summary

With the fast growth of AI technology, especially the use of generative AI in making sci-fi movies, generative AI can help solve these important problems:

1. Reduce production costs:Traditional movies cost hundreds of millions of dollars and a lot of manpower. AI costs less than one percent.

2. Improve production efficiency: AI creation speed is faster than Traditional movies.

3. making all creativity possible: Anything you can imagine can be created using AI, liberating the artist's imagination.

4.2 Design Story

The story is designed to convey the pain of survival in times of war and the growing anxiety over the possibility of a future global nuclear conflict. In the end, a new nuclear war devastates the Earth, forcing humanity to search for a new home.

This anti-war sci-fi short film weaves emotion and technology into a powerful narrative. Through the interplay of dreamlike flashbacks and present-day crisis, it explores the deep human themes of war, childhood, and emotional connection. Set against the backdrop of a crumbling world, the film becomes a poignant call for peace in the face of destruction.

4.3 Character Design

Character Design use Midjourney and Kling AI. The story features a 24-year-old female protagonist, a professional agent from Country A, who is assigned to infiltrate a nuclear research institute in Country C to steal the technical data and prototype of a newly developed handheld nuclear weapon. See Figure 2.

Figure 2 The story female protagonist
Source: Researcher, 2025

The male protagonist, 26 years old, is a nuclear energy researcher from Country C. See Figure 3.

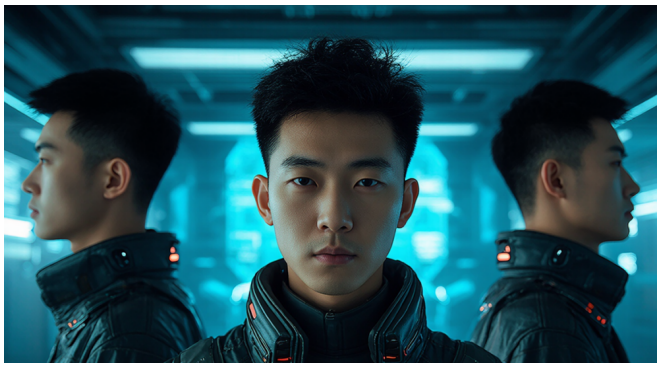


Figure 3 The male protagonist
Source: Researcher, 2025

Supporting actress, doctor, agent, 30 years old, responsible for treating the heroine's war trauma and contacting the spy organization of Country A. See Figure 4.

Figure 4 Supporting actress, doctor
Source: Researcher, 2025

4.4 Film storyboard design

Film storyboard design using Midjourney and Kling AI to create still images of each shot. Here are some reference images from the internet. See Figure 5, Figure 6 and Figure 7.

Figure 5 Storyboard 1
Source: http://http://www.zyrykbiandao.com/datum/2188.html

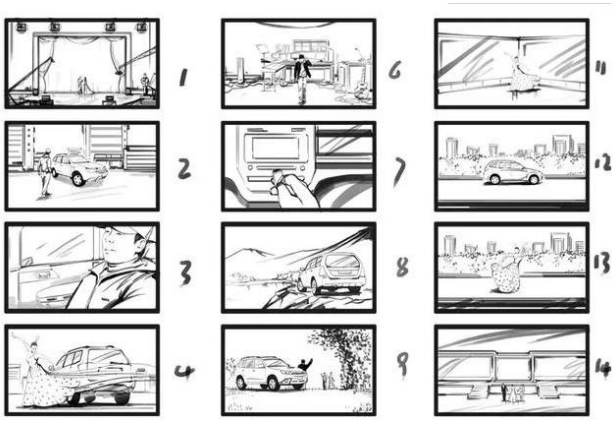


Figure 6 Storyboard 2
Source: http://http://www.zyrykbiandao.com/datum/2188.html

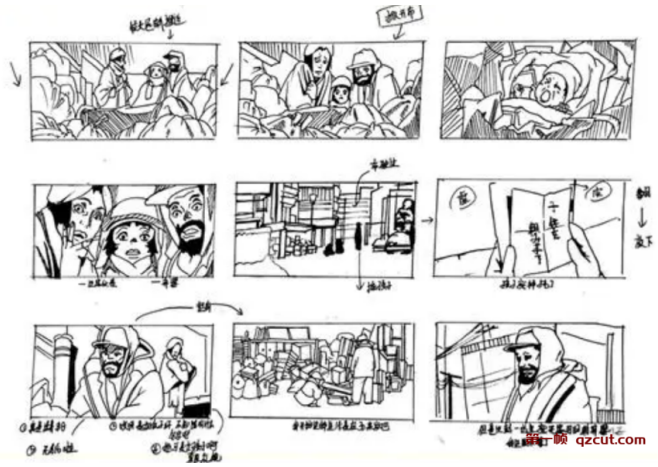


Figure 7 Storyboard 3
Source: http://http://www.zyrykbiandao.com/datum/2188.html

Describe the content of each shot in detail, and provide the text description to Midjourney and Kling AI to create a storyboard design image for each shot. Carefully adjust various parameters, use the previously created character settings, generate images multiple times, and finally generate a satisfactory storyboard design. See Figure 8.

Figure 8 AI Storyboard
Source: Researcher, 2025

4.5 Video footage production

Use KeLing AI to generate each video shot, repeatedly adjust the parameters of each shot, and use movie camera techniques to make each shot coherent. See Figure 9.

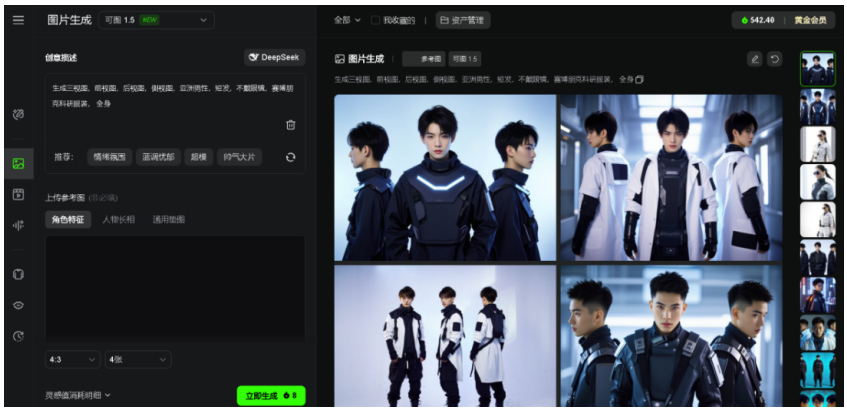


Figure 9 Video shot
Source: Researcher, 2025

Each character's lines need to be lip-synced. Use Keling AI to lip-sync the generated video and adjust the parameters to make the video clip perfect. See Figure 10.

Figure 10 Keling AI lip-synced
Source: Researcher, 2025

4.6 Editing

The editing software Premiere launched by Adobe was used for editing, and Capcut was used for some special effects. See Figure 11.

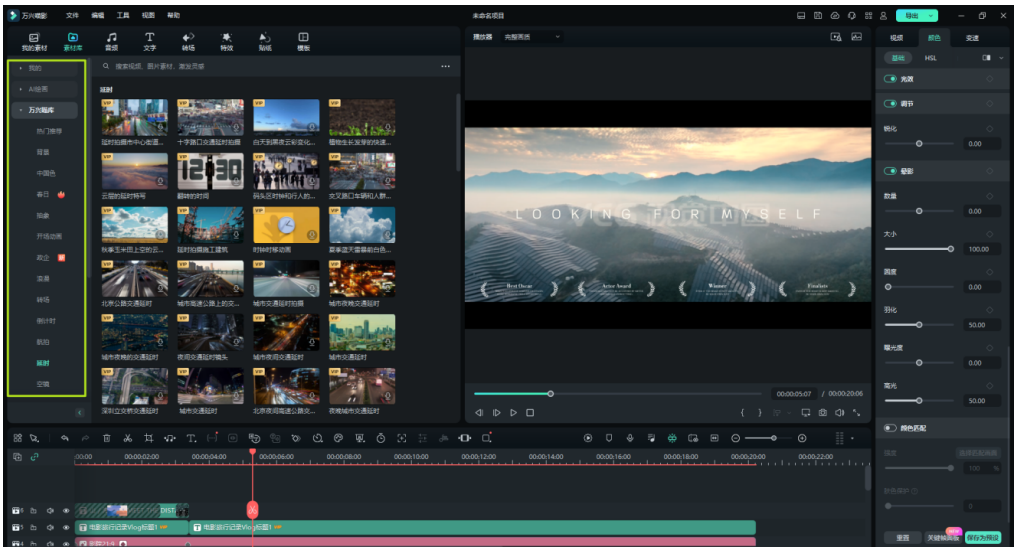


Figure 11 Editing
Source: www.adobe.com

4.7 Character voice acting and sound effects

AI character language generation tool can generate character dialogues by inputting written lines. If you are not satisfied, you can use your own recorded voice to train AI and eventually generate satisfactory character dialogues.

AI sound effect generation tool, you can quickly generate sound effects by just entering narrative text, and use the text-to-sound function to convert text into the environmental sound effects required for the film, such as: explosion sounds, spaceship flying sounds.

4.8 Final composite video

Finally, pr is used to combine the previously generated shots, character voices, and sound effects to generate a complete film. The title text and full-film subtitles are added to complete the film production.

4.9 Conclusion

This study create anti-war science fiction short videos that are both intellectually meaningful and widely communicable.

establish an efficient, replicable, and AI-driven workflow for short video creation.

apply AI to design. expand the use of AI in the communication of public issues.

Through a comprehensive methodology that combined literature review, case analysis, AI-assisted creative practice, and audience feedback collection, the study developed a complete and replicable production workflow for AI-generated sci-fi short videos. The final video prototype, which blended dystopian future settings with childhood war trauma and themes of memory, sacrifice, and survival, received positive responses from the target demographic. Viewers highlighted the video's immersive narrative, symbolic visuals, and emotional depth as key factors in prompting reflection on the value of peace and the consequences of war.

This study is purely limited by certain limitations. Due to the limitations of AI technology, it cannot better convey human emotions, resulting in a lack of expressiveness in the work.

The study not only demonstrates the feasibility and effectiveness of using generative AI in social-value-driven media production but also offers a practical framework that can be applied to other areas of

public issue communication, such as environmental protection, mental health awareness, and anti-extremism campaigns. Ultimately, this research contributes to a new interdisciplinary model of storytelling—where technology, aesthetics, and ideology converge to shape collective memory and guide public consciousness toward peace.

5 Acknowledgements

I would like to express my deepest gratitude to my academic advisors, Asst. Prof. Dr. Sammiti Sukbunjhong and Minjade Paklapas, for their unwavering support, insightful guidance, and constant encouragement throughout the entire research and creative process. Their expertise not only inspired the theoretical framework of this study but also provided practical direction during moments of uncertainty and challenge.

This work would not have been possible without their patient mentorship and critical feedback, which helped refine both the academic and creative dimensions of the project. I am especially grateful for their trust in allowing me to explore an interdisciplinary topic that combines AI, media, and anti-war narrative.

6 References

Anderson, C. (2021). AI and the future of creative media. Journal of Digital Culture , 14(2), 101–116.

Bodnar, J. (1992). Remaking America: Public memory, commemoration, and patriotism in the twentieth century . Princeton University Press.

Eloundou, T., Manning, S., Mishkin, P., & Rock, D. (2023). GPTs are GPTs: An early look at the labor market impact potential of large language models . OpenAI.

Han, Y. (2020). Peace communication in the digital age: The role of social media in anti-war narratives. Media, War & Conflict , 13(3), 289–305.

Jameson, F. (2005). Archaeologies of the future: The desire called utopia and other science fictions . Verso.

Kim, J. (2019). Youth engagement with anti-war messages in short-form digital videos. New Media & Society , 21(4), 720–739.

Li, Z. (1999). On the cultural psychology of war. Philosophical Research , (6), 45–52.

Li, B. (2021). Short videos and the construction of youth media culture. Youth Studies , (9), 54–62.

Nguyen, T. H. (2022). Artificial intelligence and storytelling ethics. AI & Society , 37(1), 35–49.

Smith, A., & Lee, C. (2023). The emotional impact of immersive narratives on peacebuilding awareness. Journal of Peace Education , 20(1), 11–30.

Wang, S. (2022). Research on the application of generative AI in digital content creation. Journal of Journalism and Communication Review , (4), 115–123.

Wu, Y. (2018). The realist mirror function of science fiction literature. Science Fiction Studies , (2), 33–41.

Zhou, M. (2020). Science fiction as ideological metaphor in Chinese media. East Asian Journal of Popular Culture , 6(1), 88–105.

Creating an Immersive Isaan Dining Experience Through Culturally-Inspired Design for Foreign Users

Shadonvirulpatch Plutoteerak[1*], Sammiti Sukbunjhong[2] and Rewat Chumnam[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: shadeonvirulpatch.p@gmail.com

Abstract

This research explores how Isaan cultural identity can be meaningfully translated into a dining experience designed for foreign users. In response to a growing need for more tangible, emotional, and participatory forms of cultural engagement, this study focuses on the design of an immersive dining experience that allows participants to feel, connect with, and appreciate Isaan values. It highlights the integration of traditional and adaptive design approaches to express themes such as simplicity, self-reliance, sharing, nature-based living, and living enoughness. A qualitative, research-led design methodology was applied through cultural research, concept development, prototype creation, and user testing. The final experience combines symbolic materials, storytelling, and six-sensory engagement to communicate cultural meaning. Findings suggest that material authenticity, emotional tone, and shared interaction can enhance cultural appreciation and create lasting impressions for international users.

Keywords**:** *immersive design, Isaan culture, cultural dining, experience design, sensory storytelling*

1. Introduction

In an emotionally disconnected and fast-changing world, design has become more than aesthetics. It supports cultural presence and human connection. Immersive experiences, especially in dining, are increasingly valued as ways to engage with culture through sensory and emotional interaction (Chang & Lee, 2021). Cultural tourism remains a major interest for international visitors, particularly from Northeast Asia. According to the Ministry of Tourism and Sports of Thailand (2024), travelers from countries like China, Japan, and South Korea seek deeper experiences that go beyond sightseeing. While Thai cuisine is internationally recognized, regional traditions such as those in Isaan are often underrepresented or presented in disconnected ways. Isaan, located in northeastern Thailand, holds a rich cultural identity shaped by seasonal rhythms, shared living, and grounded food practices. This research sees an opportunity to transform that cultural richness into an immersive design experience. Rather than replicate traditional settings, it reinterprets key values—like simplicity, self-reliance, and community sharing—into emotional, sensory-based dining moments. The project investigates how design can bridge cultural understanding by crafting a dining experience that helps foreign users feel more connected to the meanings and spirit of Isaan life.

2. Objectives

The research objectives of the study are as follows:

1) To explore how Isaan cultural identity can be presented in dining experiences through both traditional elements and adaptive design approaches.

2) To design an immersive Isaan dining experience that preserves cultural authenticity while fostering a meaningful connection with users.

3) To assess how foreign participants perceive a dining experience that blends Isaan cultural expressin with sensory and participatory design.

3. Details

3.1 Scope of Research

This research explores the creation of an immersive dining experience that communicates the cultural values of Isaan to foreign users through design. Rather than replicating traditional settings, the study

focuses on how emotional, sensory, and spatial elements can convey the essence of Isaan identity in a way that is accessible and meaningful across cultures. The scope includes cultural investigation, theoretical framing, visual ideation, mood and tone development, and the selection of materials and symbolic elements rooted in Isaan lifestyle. The design is guided by the concept of "A Life of Having and Eating," which reflects values such as simplicity, self-reliance, nature-based living, and community sharing. The research targets foreign users from Northeast Asian countries such as China, Japan, and South Korea, who engage with Thai culture through travel, education, or residence. By applying culturally grounded design approaches, the project aims to foster emotional connection, cross-cultural understanding, and a respectful appreciation of Isaan traditions through immersive dining.

3.2 Literature Review

This research is supported by previous studies in three key areas: (1) cultural authenticity in design, (2) immersive and multisensory experience design, and (3) user perception in cross-cultural contexts. These concepts shape both the theoretical and design direction of the study.

3.2.1) Cultural Values and Authenticity in Design

Cultural authenticity is not defined solely by the exact replication of traditional forms. As Greenwood (1982) suggests, authenticity is a negotiated and evolving process. It is shaped by perception, context, and the shared understanding between those who present culture and those who receive it. In both food and design contexts, authenticity can emerge from emotional connection, symbolic meaning, and cultural resonance, rather than through strict adherence to historical accuracy. This research adopts the view that authenticity lies in the interpretation of cultural meaning, grounded in core values and practices that are lived and experienced in everyday life. Rather than focusing on the literal reconstruction of traditional settings, it considers how deeper cultural significance can be conveyed. In the case of Isaan culture, elements such as floor seating, shared sticky rice baskets, seasonal ingredients, and local food customs reflect not only regional traditions but also a broader worldview rooted in simplicity, self-reliance, and communal living. These values provide the cultural foundation for imagining immersive experiences that are emotionally engaging and culturally meaningful.

3.2.2) Immersive Experience and Multisensory Design

Immersive design engages users through more than just visuals. It invites emotional presence and encourages meaningful participation by stimulating the senses through space, texture, sound, and rhythm. Pine and Gilmore (1999) describe compelling experiences as those that stage environments capable of evoking memory, emotion, and sensory richness. In the context of tourism and cultural experience, Agapito (2014) emphasizes that multisensory design enhances emotional resonance and fosters deeper understanding of place and identity. Similarly, current design practices highlight the importance of sensory immersion, where even subtle cues—such as material texture or ambient atmosphere—can create powerful emotional connections (Toptal Design Blog, n.d.). Rather than relying on spectacle or theatrical effects, this research focuses on symbolic and culturally grounded elements drawn from Isaan daily life. This approach supports a more intuitive, emotional connection between users and the culture being conveyed.

3.2.3) Perception, Emotional Accessibility, and Cross-Cultural Engagement

Perception theory emphasizes how individuals make meaning through sensory awareness and emotional interpretation (Van Leeuwen & Brunner, 2024). In unfamiliar cultural contexts, users rely on what they can intuitively sense and emotionally connect with, rather than explicit explanation. This is especially relevant when designing for foreign users who may not share the same cultural background as the experience being presented. Greenberg et al. (2017) suggest that emotional accessibility plays a key role in helping users develop appreciation across cultural boundaries. When immersive design emphasizes atmosphere, gesture, and participation, it creates a space where users can feel connected through shared human values. This approach supports the project's aim to foster cultural understanding through emotional clarity, intuitive flow, and sensory design—encouraging engagement without needing detailed cultural knowledge in advance.

3.3 Research Framework

This study is guided by a research framework that integrates cultural context, design theory, and user perception to inform the development of an immersive Isaan dining experience. The framework outlines how cultural values from Isaan life can be translated into design strategies and communicated meaningfully to foreign users. It serves as a structured pathway that connects cultural understanding to design ideation and, ultimately, to experiential engagement.

Cultural Input

The first stage of the framework focuses on cultural exploration related to Isaan foodways, handcrafted materials, communal practices, and symbolic elements. Through thematic mapping and value clustering, five recurring principles emerged: self-reliance, nature-based living, simplicity, enoughness, and community sharing. These values were then interpreted into three core design directions: traditional food presentation, local materials and handcrafted elements, and communal dining practices. Together, they form the foundation of the Cultural Authenticity dimension represented in the visual framework.

Theoretical Foundations

Two key theories inform the framework.

Perception Theory offers insight into how users emotionally and sensorially interpret their environment, particularly through memory, atmosphere, and subtle sensory details. This is especially relevant when designing for individuals unfamiliar with the cultural background.

Experience Design Theory supports the creation of immersive environments by emphasizing spatial storytelling, multisensory interaction, and emotional rhythm. These theories guide the transformation of cultural values into user-centered experiential forms and are visually placed at the base of the framework to emphasize their foundational role.

Design and Sensory Engagement

The second tier of the framework translates cultural values into physical and sensory expressions. Design elements such as visual aesthetics, tactile interactions, and multisensory layering shape the emotional atmosphere of the dining experience. These form the Design & Sensory Engagement section of the framework, connecting cultural meaning to embodied experience.

User Perception and Engagement

The final section addresses how users—particularly foreign participants—perceive and respond to the experience. Themes such as authenticity interpretation, emotional connection, and cultural appreciation are emphasized to create a sense of resonance and accessibility. These outcomes make up the User Perception & Engagement portion of the framework, reflecting the intended emotional and cultural impact on users.

Overall, the research framework presents a cohesive pathway from cultural investigation to sensory design and user engagement. It supports the creation of an experience that is immersive, grounded, and responsive to both cultural origins and user perception.

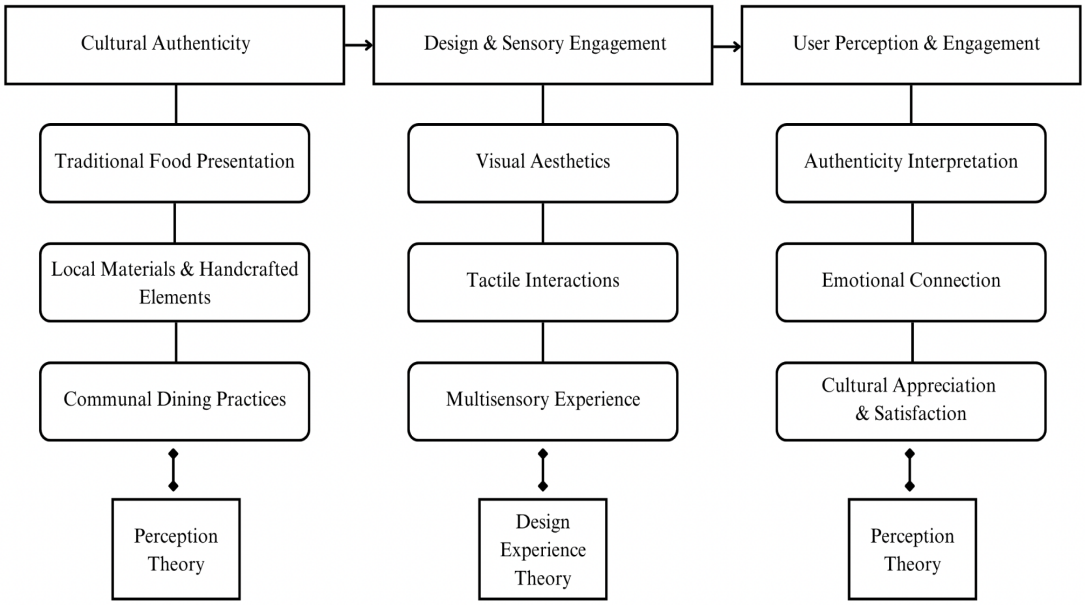


Figure 1 Research Framework Diagram
Source: Researcher, 2025

3.4 Research Methodology

This study uses a qualitative research methodology focused on design exploration, cultural analysis, and user insight. The process began with in-depth cultural research on Isaan foodways, communal practices, and material culture. Insights from literature review and visual analysis were used to identify core values—such as simplicity, community sharing, and self-reliance—which guided the development of the design concept "A Life of Having and Eating." The prototype was created through an iterative design process that emphasized multisensory interaction, symbolic materials, and participatory moments. User feedback was collected through semi-structured interviews and questionnaires from foreign participants. Thematic analysis was applied to evaluate how the dining experience conveyed cultural meaning and emotional resonance.

3.5 Design Practice

3.5.1) Design Concept The conceptual development of this immersive dining experience began with a process of cultural unpacking and thematic ideation. Drawing from values deeply embedded in Isaan life—such as simplicity, self-reliance, nature-based living, and enoughness—the project sought to create not only a physical dining space, but an emotional and symbolic encounter that invites foreign users into a slower, grounded rhythm of life. Rather than replicating traditional forms, the concept was built from a re-interpretation of cultural meanings expressed through food, space, materiality, and mood.

To arrive at the core concept, the thesis topic was first broken down into four interconnected components: Immersive Experience, Isaan Dining, Culturally-Inspired Design, and Foreign Users. Each of these components was used to form design questions that guided early exploration. From these questions, a wide set of culturally significant keywords was mapped and organized thematically to identify patterns in values and practices.

The keywords gathered through this process were grouped into four categories: Cultural Philosophy, Dining Practices, Design Values & Mood, and User Experience Goals. This thematic structure provided a foundation for generating concept directions, and allowed design ideas to emerge in response to cultural priorities.

As these clusters were analyzed, a pattern of recurring values became clear, particularly five key themes: self-reliance, community sharing, simplicity, nature-based living, and enoughness. These values were

identified as most closely aligned with the emotional essence of Isaan life and were used to propose several possible directions for the experience design. The final selection, titled “A Life of Having and Eating,” was chosen as the central concept. It expresses more than material sufficiency and reflects a broader lifestyle philosophy that values harmony with nature, the act of sharing, and quiet emotional richness in everyday life.

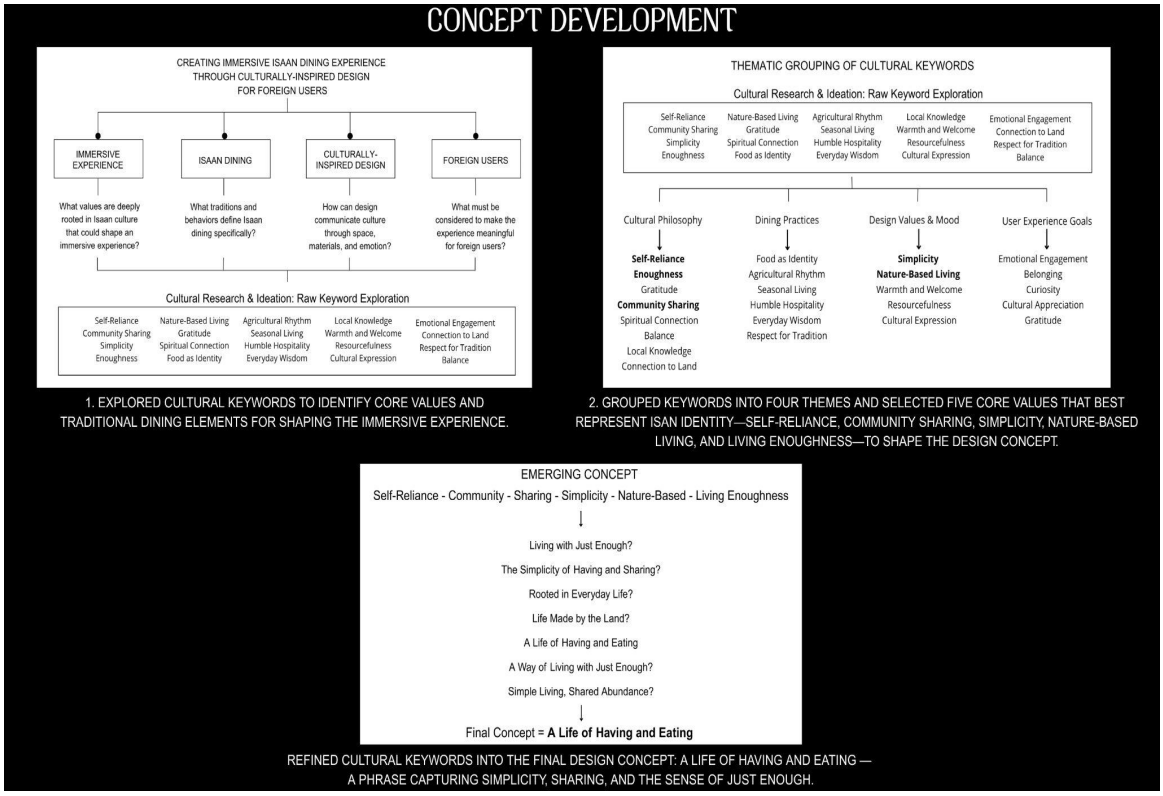


Figure 2 Overview of the concept development process—showing the breakdown of research topics and guiding questions, the thematic grouping of cultural keywords, and the refinement of design values into the final concept, *A Life of Having and Eating*.
Source: Researcher, 2025

3.5.2) Mood Tone

The emotional tone of the dining experience was developed through close observation of Isaan’s everyday life—its rural landscapes, communal rituals, and grounded simplicity. The design avoids theatrical staging or digital effects, opting instead for a sincere mood inspired by warmth, modesty, and emotional openness. This tone is reflected through visual references such as natural textures (straw, rice fields), seasonal rhythms, and floor-based communal eating, all of which suggest a slower, more intentional pace of living.

The moodboard presents key themes including sincerity, nature-based living, and traditional elements, using visual cues like banana-leaf dishes, woven fabrics, and shared meals to express emotional depth and cultural resonance. A warm, earthy color palette supports the atmosphere, with deep browns, soft greens, and muted oranges echoing the tones of agricultural life and traditional crafts. The inclusion of Isaan textiles and cultural symbols reinforces the connection to place and identity.

Altogether, the mood tone functions as more than a background aesthetic. It acts as a sensory and emotional guide, inviting participants into a setting that feels humble, familiar, and emotionally grounded—even for those with no prior knowledge of Isaan culture.

Figure 3 Moodboard expressing the emotional tone, materials, and visual mood of the experience
Source: Researcher, 2025

3.5.3) Material & Symbolic Elements Selection

This project uses culturally meaningful materials and symbols to express the values of Isaan life—simplicity, self-reliance, community sharing, nature-based living, and living enoughness. Each element is chosen not just for its function, but for how it reflects cultural identity and emotion. Woven mats and floor seating support a humble and communal atmosphere. Banana leaves and coconut shells are used for food presentation and handwashing, creating tactile moments rooted in tradition. Drinking water is served in silver bowls from clay jars, offering a cultural alternative to modern utensils and encouraging slow, mindful interaction. A symbolic canopy, inspired by rural shelters, includes elements like rice straw, silk, and woven items representing local livelihoods. Isaan folk music adds emotional warmth, and native vegetables displayed around the dining area highlight self-sufficiency and connection to nature. The dining experience also includes a group cooking activity (*som tam*), turning participants into active learners and reinforcing cultural connection through shared experience.

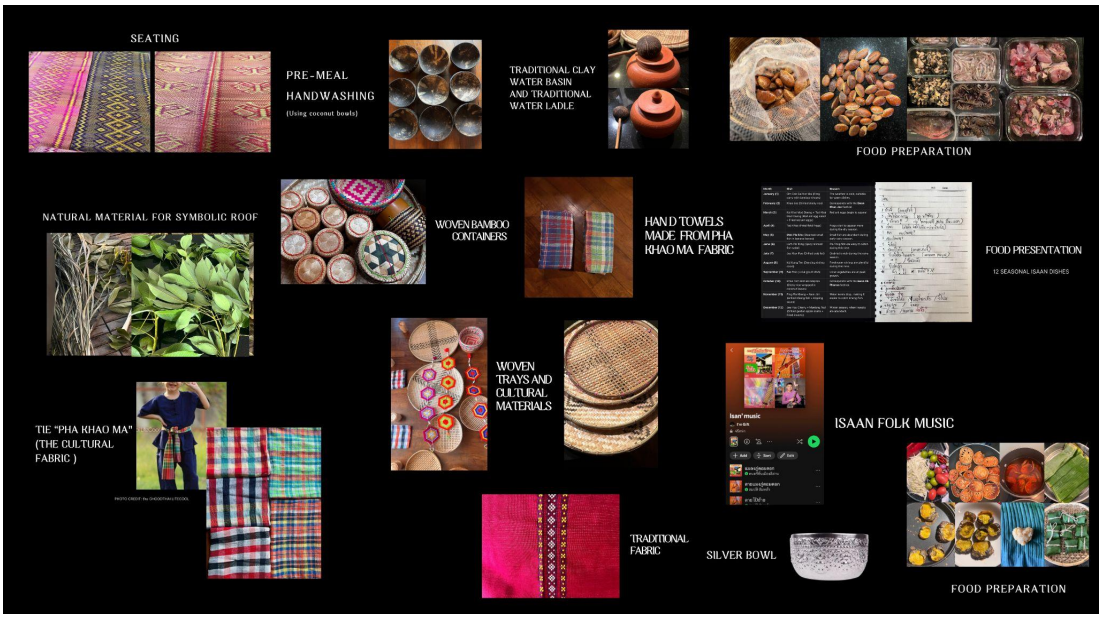


Figure 4 Visual board showing selected cultural materials, symbolic objects, and sensory elements used in the immersive dining environment—reflecting local identity through textures, gestures, and atmosphere. Source: Researcher, 2025

The material and symbolic selections described here are not only tools of presentation, but vessels of meaning. Through their sensory presence and cultural depth, they help translate everyday Isaan wisdom into an immersive experience that feels emotionally honest, locally grounded, and quietly profound**.**

3.5.4) Experience Journey Design

This 12-step immersive journey was designed to guide foreign participants through a culturally meaningful Isaan dining experience. It begins with a warm welcome, where each guest receives a *pha khao ma*, a traditional checkered cloth symbolizing hospitality, care, and inclusion. This is followed by a concept introduction and floor seating arranged on woven mats beneath a symbolic roof inspired by *kra tom*—a rural hut structure that represents both shelter and the interdependence between livelihood, nature, and protection in Isaan culture. The roof is introduced not just as a physical feature, but as a cultural symbol tied to Isaan people's way of life. Participants are then introduced to symbolic local vegetables placed nearby, reflecting Isaan's connection to natural surroundings. A hand washing ritual using coconut shells follows, marking the respectful transition into the dining phase. Twelve regional dishes are presented alongside cultural storytelling, which helps participants understand their meanings and contexts. The experience continues with an interactive *som tam* and grilled pork preparation activity, promoting engagement through food-making. Guests then dine communally using traditional utensils such as woven trays, sticky rice containers, and silver bowls—an arrangement that fosters warmth, inclusion, and cultural authenticity. After the meal, participants reflect on the journey, engage in a basic Isaan language exchange, and receive a farewell gift of *khao jee* (grilled sticky rice). The experience concludes with a goodbye in local Isaan style, leaving participants with an emotional and culturally enriched memory.

3.5.5) Final Design Outcome and User Testing

This section presents the final immersive Isaan dining environment, developed through iterative design and tested with users. The spatial layout is arranged under a symbolic canopy structure inspired by *kra tom*—a rural hut traditionally used for rest, shade, and gathering in Isaan communities. More than just shelter, this symbolic roof represents the protection and interdependence between livelihood, nature, and daily life in the region. The roof is adorned with materials extracted from core occupations that sustain Isaan people's way of life. Rice stalks, sugarcane leaves, and rubber tree leaves reflect the agricultural roots of the region—

these elements symbolically "protect" the people just as farming has long provided food and income. Strands of silk fabric represent the silk-weaving industry, an enduring craft tied to women's work and regional identity. Woven trays reference the skill of local craftsmanship, used both in daily function and artistic expression.

These elements are not merely decorative—they are thoughtfully selected to embody the values of labor, protection, and harmony with nature. Hanging cultural features like *tung Isaan* add spiritual significance, while symbolic local vegetables such as chili, lemongrass, and garlic represent a nature-based way of living. These ingredients reflect how Isaan people traditionally source food from their surroundings, illustrating a lifestyle where nature is not separate from daily life, but intimately woven into it.

The accompanying images show the final installation with users actively engaged in the space. During testing, participants dined seated on mats, used traditional utensils, and experienced cultural gestures such as handwashing and food sharing. Their feedback reinforced the success of the design in communicating emotional and cultural meaning through spatial symbolism and sensory immersion.

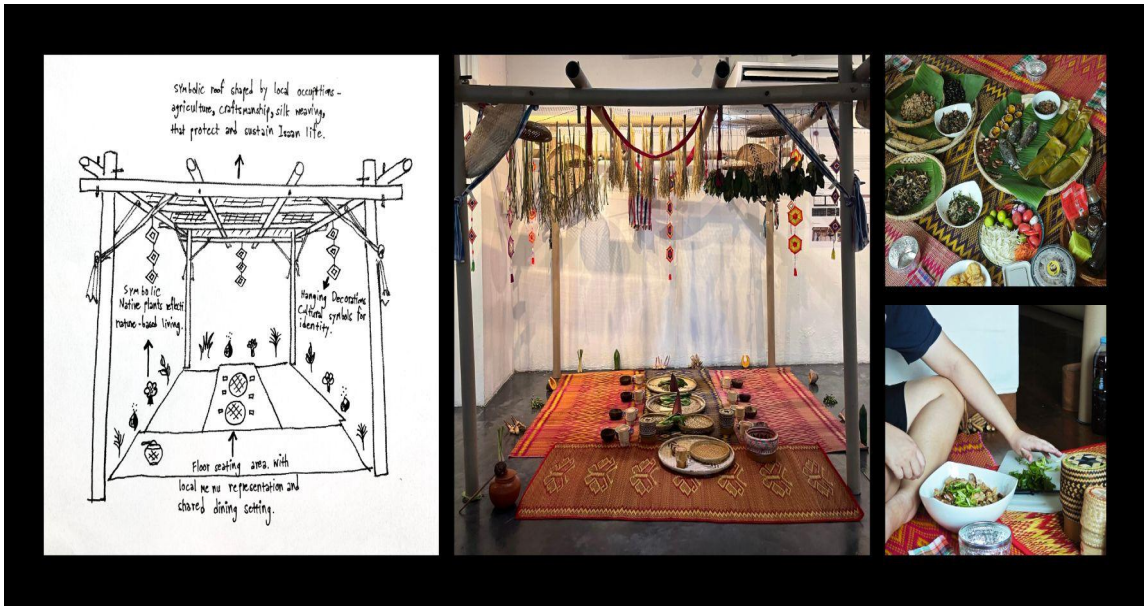


Figure 5 Final prototype and spatial layout showing the immersive Isaan dining environment, and participant engagement during user testing
Source: Researcher, 2025

4. Results

4.1 Results

The immersive Isaan dining experience was tested with eight participants from Northeast Asia, all of whom were Chinese. Thematic analysis of interviews and reflection forms revealed five recurring themes: cultural connection, multi-sensory immersion, emotional tone, adaptation needs, and cross-cultural understanding. Participants described feeling emotionally welcomed through cultural gestures such as receiving a pha khao ma, eating with hands, and washing with coconut shells. These symbolic acts, along with the storytelling elements shared during the experience, were seen as meaningful and helped foster deeper engagement with Isaan culture. Sensory aspects—such as the use of woven trays, natural materials, and the smell of grilled pork and herbs—were mentioned as memorable. The overall atmosphere was described as warm, calm, and inclusive. However, some users noted discomfort from prolonged floor seating, and some participants expressed a desire for more storytelling and broader explanations about Isaan culture beyond the dining elements.

Table 1 Thematic analysis summary of participant feedback on the immersive Isaan dining experience

Theme	Description	Participant Quote Example
Cultural Authenticity & Connection	Participants' connection to Isaan culture through traditional gestures, settings, and cultural elements	"Receiving the pha khao ma and eating with my hands felt very special. It wasn't just about food—it made me feel welcomed and part of the culture. Dishes looked very local and unique. I liked that each one came with a story. The cultural gestures were meaningful and stayed in my mind."
Multi-Sensory Immersion	Participants' engagement with the experience through taste, sight, sound, smell, and touch.	"Touching the woven trays, eating with my hands and drinking from silver bowl was a completely new feeling. The textures of the natural materials, the cooking activity, and the herbs made the experience feel more real and memorable."
Emotional Resonance & Atmosphere	Participants' emotional responses to the environment, such as feeling warmth, comfort, friendliness, or joy.	"The setting was calm and sincere. I liked sitting together and sharing food—it reminded me of home. The host's warm tone and the slow pace made everything feel heartfelt."
Tradition and Adaptation Needs	Participants' perceptions of traditional elements that may require contextual adaptation for better understanding or comfort.	"The experience was great, but sitting on the woven mat for a long time felt uncomfortable. I also wished there were more stories explaining the culture, as I was curious to know more, and more activities during the experience."
Cultural Understanding	Participants' overall learning, appreciation, and new understanding about Isaan dining culture.	"Even though I didn't know much about Isaan culture before, I could feel the simplicity, warmth, and sense of togetherness throughout the experience. The way people share and live closely with nature gave me a better understanding and appreciation of their lifestyle."

Source: Researcher, 2025

4.2 Discussion

The findings highlight how immersive design can create meaningful cultural engagement through sensory, emotional, and symbolic experiences. As Agapito et al. (2014) emphasize, activating multiple senses—sight, sound, smell, touch, taste, and movement—strengthens memory and emotional resonance. This was evident in the participants' responses, which noted the memorable textures of woven trays, the scent of herbs, and the act of eating with hands as emotionally grounding moments. Beyond the sensory level, emotional gestures such as receiving a *pha khao ma* or being invited to prepare local dishes fostered a feeling of being welcomed and included. These align with Van Leeuwen and Brunner's (2024) Perception Theory, which suggests that users interpret meaning through emotional and sensory cues, particularly when they lack prior cultural context.

The storytelling integrated throughout the dining journey—whether through food introductions, cultural symbols, or shared reflections—proved to be a crucial component. Participants mentioned that these narratives helped them make sense of what they were experiencing and allowed them to connect more deeply with Isaan values such as simplicity, self-reliance, and sharing. This supports Greenwood's (1982) concept of cultural authenticity, where emotional and symbolic meaning holds more significance than exact replication of traditional forms. However, the feedback also pointed to areas for improvement. A few

participants desired more cultural context and background information beyond the food-related elements. This suggests that immersive design must balance intuitive experience with accessible storytelling to enhance cross-cultural understanding. Together, these findings demonstrate that immersive dining—when designed with cultural sensitivity and multi-sensory engagement—can act as a powerful tool for cross-cultural connection, even in short-term or one-time experiences.

4.3 Conclusion

This study explored how immersive design can communicate cultural values through symbolic elements, sensory engagement, and spatial storytelling. The Isaan dining prototype encouraged emotional connection and understanding among Chinese participants, who responded positively to gestures such as eating with hands, receiving a pha khao ma, and communal seating. Findings suggest that design rooted in cultural meaning, using local materials, rituals, and food, can foster appreciation of values such as simplicity, sharing, and connection to nature. Although the experience was well-received, participants expressed interest in learning more about the cultural context and desired greater physical comfort.

Overall, the results affirm that immersive cultural design can support meaningful cross-cultural engagement through thoughtful interpretation of everyday traditions. This project contributes to the understanding of how emotional design can bridge cultural gaps. It also offers direction for future experience-based approaches in cultural tourism and education.

5. References

Agapito, D., Valle, P. O. do, & Mendes, J. C. (2014). Sensory marketing and tourist experiences. *Discussion Papers - Spatial and Organizational Dynamics, 10*, 7–19. https://cieo.pt/discussionpapers/10/article1.pdf

Durlak, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *The Future of Children, 27*(1), 13–32. https://futureofchildren.princeton.edu/sites/g/files/toruqf2411/files/media/foc_spring_vol27_no1_for_web_0_0.pdf

Greenwood, D. (1982). Cultural authenticity. *Cultural Survival Quarterly.* https://www.researchgate.net/publication/285790200_Cultural_Authenticity

Ministry of Tourism and Sports of Thailand. (2024). *Tourism statistics 2023: Visitor trends and cultural interests.* https://www.mots.go.th

Pine, B. J., & Gilmore, J. H. (1999). The experience economy: Work is theatre & every business a stage [PDF]. https://barryworcester.wordpress.com/wp-content/uploads/2013/10/experience-economy.pdf

Somnuek. (n.d.). Family dining life [Drawing]. In Ubon Ratchathani University. *Isan local foodways: Raw, cooked, hardship, and sufficiency.* https://www.ubu.ac.th/web/research/content/แนวกินถิ่นอีสาน:%20ดิบ%20สุข%20ทุกข์%20พอเพียง%20/

Toptal Design Blog. (n.d.). Immersive experience design: Expert insights and techniques. *Toptal.* https://www.toptal.com/designers/immersive-design/immersive-experience-design

Unknown photographer. (n.d.). Children in a rice field with a buffalo [Photograph]. In *VietJack.* https://vietjack.me/top-10-doan-van-write-a-paragraph-about-what-you-like-or-dislikes-abou-215057.html

Unknown photographer. (n.d.). Sunset over a traditional hut in Isaan [Photograph]. In *The Thaiger.* https://talk.thethaiger.com/topic/2284-living-the-dream-in-isaan/

Van Leeuwen, T., & Brunner, K. (2024). A framework connecting vision and depiction. *Journal of Vision and Art Research, 29*(1), 45–61. Retrieved April 11, 2025, from https://www.tandfonline.com/doi/full/10.1080/13506285.2024.2320762

Cultural Fusion in Design: Exploring Chinese Ethnic Patterns for Creative Products

Mi Guo[1*], Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: guomiguomi82@gmail.com

Abstract

This study explores the application of Chinese traditional ethnic patterns in cultural and creative design, focusing on their cultural significance and modern integration. Methodologically, the research employs literature review and case analysis to examine the historical evolution and artistic features of traditional patterns, such as Boxing flower and Ruyi motifs, and their adaptation in contemporary products. Key cases include the Sanxingdui Museum and the Palace Museum, which successfully incorporate ethnic patterns into designs like archaeological blind boxes and digital collectibles, enhancing cultural appeal and marketability. Results indicate that blending traditional symbols (e.g., pandas with bamboo or lotus patterns) with modern aesthetics significantly boosts youth engagement, with 60% of surveyed teenagers prioritizing aesthetics and cultural value in purchases. The study proposes a "technology-aesthetics-ethics" framework to address challenges like generational gaps and commercialization disputes. Findings underscore the potential of cultural fusion to preserve heritage while driving innovation in the creative product industry.

Keywords**:** *Chinese traditional ethnic patterns, cultural fusion, creative product*

1. Introduction

In recent years, the resurgence of interest in traditional Chinese culture—driven by national cultural revitalization efforts—has created a favorable environment for integrating heritage into contemporary design. However, while this trend has led to the flourishing of cultural and creative industries, the incorporation of Chinese ethnic patterns into product design, particularly for younger audiences, remains limited in both depth and innovation. Teenagers, as a generation influenced heavily by globalization, fast-changing aesthetics, and digital media, often lack direct engagement with traditional cultural forms. Existing cultural products frequently fail to capture their interest due to outdated presentation, limited interaction, and a disconnect between heritage motifs and modern lifestyles. Furthermore, academic studies in this field tend to focus either on historical documentation or adult consumer markets, leaving a significant research gap in how traditional patterns can be creatively adapted for youth-oriented products. This study addresses this gap by investigating how Chinese ethnic clothing patterns—rich in cultural, historical, and artistic value—can be reinterpreted through modern design methodologies to promote cultural identity and innovation among young people.

2. Objectives

1) To investigate teenagers' perceptions, preferences, and cultural awareness regarding Chinese ethnic patterns in order to guide culturally resonant product design.

2) To explore effective strategies for integrating traditional Chinese motifs into modern creative products that appeal to contemporary youth aesthetics and market trends.

3.Details

3.1Research Methods

This research adopts a mixed-method approach combining qualitative and quantitative methods to comprehensively explore the integration of Chinese ethnic patterns into youth-oriented creative product design. The target population includes teenagers aged 14–18, a demographic chosen for their high adaptability to cultural innovation and active participation in trend-driven consumer behaviors. A sample of 200 respondents will be selected through stratified random sampling across urban and semi-urban high schools in China to ensure demographic diversity.

Research tools will include structured questionnaires, semi-structured interviews, and visual recognition tests using ethnic pattern samples. The questionnaires are designed to assess the participants' recognition, emotional response, and preferences toward traditional Chinese patterns and their modern adaptations. Interviews will explore deeper cultural perceptions and expectations. In addition, a small focus group will participate in co-creation workshops to evaluate the appeal and usability of prototype cultural products.

Data collection will occur in three phases: initial surveys, pattern preference experiments, and post-design interviews. Quantitative data from the surveys and pattern evaluations will be analyzed using descriptive statistics, frequency distribution, and correlation analysis to identify trends and associations. Inferential statistical methods such as ANOVA and chi-square tests will be used to assess the significance of variables related to design preference and cultural perception. Qualitative data from interviews and workshops will be coded thematically to extract recurring ideas and insights related to design expectations and cultural resonance.

This multi-layered data approach aims to ensure a thorough understanding of youth attitudes toward traditional culture and inform culturally sensitive yet commercially viable design strategies.

3.2 Document Research

Conduct a comprehensive review of relevant literature in the field, including studies on Chinese ethnic attire, cultural symbols, geometric patterns, geographical factors of ethnic minorities, etc. This aims to establish the background and theoretical foundation of the research.

Tian Zibing's History of Chinese Patterns is an authoritative work that systematically studies traditional Chinese patterns. The book takes the historical development of Chinese patterns as its main thread, connecting the past and present, and deeply analyzes the artistic characteristics, cultural connotations, and social functions of Chinese patterns.

"Preserving tradition is to better move toward the future; the vitality of patterns lies in their ability to evolve and innovate with the times." This sentence is his main idea.

3.3 Research Theories

Regarding the core idea of the book "The History of Chinese Patterns":

(1) Integration of Culture and Art

Chinese patterns are not merely a form of visual art but also carriers of cultural traditions.

(2) Dynamic Evolution of Patterns

Patterns are not static; they evolve over time. Tian Zibing suggests that studying the evolution of patterns helps decode the cultural threads of history.

(3) Unity of National Identity and Global Exchange

The book highlights the distinct national characteristics of Chinese patterns while recognizing their openness to cultural exchange. Chinese patterns are a result of openness and integration, preserving tradition while continually innovating.

Figure 1 History of Chinese Patterns, 2003
Source: Tian, Z. (2005). History of Chinese Patterns . Beijing Art Press

3.4 The history of traditional Chinese patterns

Chinese traditional ethnic patterns, having evolved over thousands of years, mirror the nation's cultural progression. Each historical period endows these patterns with distinct characteristics.

These traditional patterns, with their unique historical imprints, not only embody the wisdom and aesthetics of our ancestors but also serve as a crucial link in the inheritance of national culture. They exist in a rich variety of forms, from the primitive painted pottery patterns to the elegant porcelain patterns. Each pattern is a living fossil for studying the development process of the nation. In the field of art, their unique shapes, colors, and composition rules provide an endless source of inspiration for modern design and possess inestimable artistic value. At the same time, traditional patterns are deeply rooted in the lives and emotions of the people, serving as an important sustenance for national identity and a sense of belonging, and conveying the spiritual core of the nation.

The purpose of this research is to explore the profound cultural connotations of traditional ethnic patterns, analyze their unique artistic features, and explore how to effectively integrate them into cultural and creative design to add cultural heritage and unique charm to cultural and creative products. During the research process, the literature research method is comprehensively used to sort out the development context and related theories of traditional ethnic patterns, and the case analysis method is adopted to deeply analyze the successful cases of cultural and creative designs that apply ethnic patterns. The main content covers the classification and characteristic analysis of traditional ethnic patterns, the exploration of the principles and methods of applying ethnic patterns in cultural and creative design, including techniques such as extraction, transformation, and reconstruction, and the elaboration of application effects through actual cases.

The results of this research are of great significance for enriching the cultural expression of cultural and creative design, promoting the inheritance and development of traditional national culture, and driving the innovative upgrading of the cultural and creative industry. It is expected to provide new ideas and methodological references for the field of cultural and creative design.

4. Results

4.1 Traditional pattern extraction

4.1.1Evolution of Baoxiang Flower Patterns:

"The Baoxiang pattern is derived from the concentration and refinement of various flowers, it is a unique pattern with symbolic significance, symbolizing wealth and auspiciousness. The Baoxiang flower pattern can be used both independently and in combination with the intertwining branch pattern—where stems intertwine to form a continuous wave-like pattern, forming the intertwined Baoxiang flower. It can also be used in combination with the scroll pattern, forming the interwoven Baoxiang flower pattern.

Figure 2 Baoxiang flower pattern
Source: Researcher, 2024

4.2 Extensive Case Analysis:

Gain in-depth insights into the ethnic attire culture in different regions of China through extensive case analysis. Collect practical cases to showcase the application of cultural symbols and geometric patterns.

4.2.1 Sanxingdui History and Culture Museum

As a large-scale modern thematic heritage museum in my country, Sanxingdui is visited by a large number of tourists every year. The cultural and creative products designed and launched by the Sanxingdui Museum use a large number of traditional pattern elements. These pattern elements specifically include various birds and animals, plants, and bronze figures. The content fully demonstrates to the world the highly developed and unique bronze civilization of the Shu Kingdom in the middle and late Shang Dynasty in my country.

Figure 3 Sanxingdui cultural and creative products
Source: Sanxingdui Museum

4.2.2 The Palace Museum

As a cultural symbol with a history of nearly 600 years, the Forbidden City has many palace buildings, cultural relics and historic sites, and has become a typical symbol of traditional Chinese culture. By December 2018, the Forbidden City had developed more than 11,000 cultural and creative products.

For example, the Forbidden City Dolls series is loved by young audiences because of its interesting nature. Mobile phone cases, computer bags, mouse pads, USB drives, etc. continue to sell well because of their practicality.

Figure 4 The Palace Museum cultural and creative products
Source: The Palace Museum, 2024

4.3 Design process

4.3.1 Design ideas

In November 2024, researcher Guo Mi conducted random interviews with 33 teenagers aged 18 to 24 in Chengdu, Sichuan Province, China. The interview focused on their preferences regarding cultural and creative product design, color choices, purchasing intentions, and other related topics.

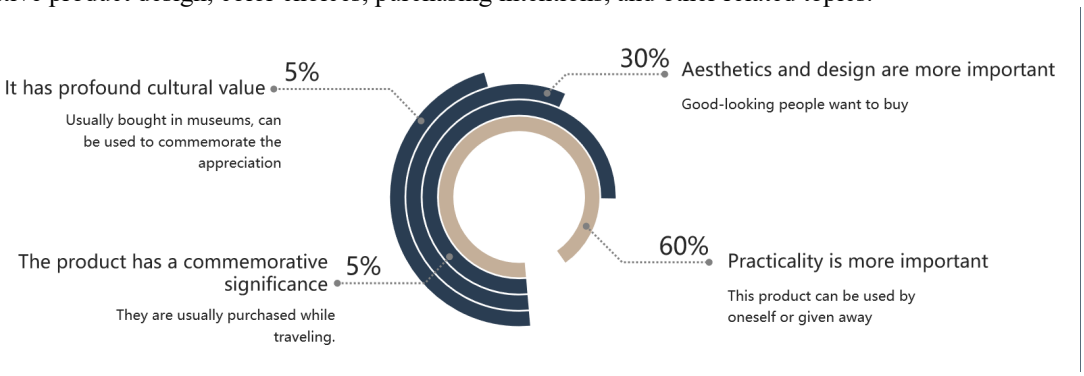


Figure 5 Interview the audience on the design of cultural and creative products
Source: Researcher, 2024

The panda holds unique symbolic significance in both Chinese culture and globally. It is the most popular animal in China.

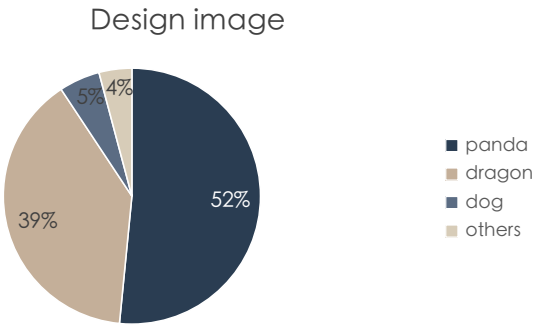


Figure 6 Interview the audience's views on the design image
Source: Researcher, 2024

4.3.2 Draft design

My design is to combine the panda with the traditional pattern, the panda with the traditional pattern of bamboo pattern, treasure pattern, ruyi pattern, lotus pattern, chrysanthemum pattern, more pattern, thunder pattern combination.

1.From the perspective of cultural traditions: As a national treasure of China, the panda is a unique symbol of Chinese culture and is beloved worldwide. Combining it with traditional patterns such as bamboo patterns, treasure - phase patterns, ruyi patterns, lotus patterns, chrysanthemum patterns, cloud patterns, and thunder patterns is a profound homage to and inheritance of traditional Chinese culture. Bamboo represents tenacity, integrity, and modesty in Chinese culture. Its combination with the cute and naive image of the panda forms a cultural combination of toughness and softness, enriching the levels of cultural connotations. The treasure - phase pattern, as a traditional auspicious pattern, integrates the characteristics of various flowers, reflecting the integration and sublimation of beautiful things in traditional Chinese culture. These patterns have gone through thousands of years and carry the cultural memories of different eras. When combined with the panda image, they bring ancient culture to life in modern design, enhancing the continuity and sense of identity of culture.

2. From the perspective of the implied meanings of the patterns: The ruyi pattern implies everything goes smoothly and good luck. When combined with the panda, it endows the panda image with more beautiful blessings and conveys people's good expectations for life. The lotus pattern symbolizes purity, nobility, and auspiciousness. When combined with the cute image of the panda, it adds an elegant and refined temperament to the design, expressing the pursuit of pure qualities. The chrysanthemum pattern represents longevity and nobility, the cloud pattern implies promotion and good luck, and the thunder pattern embodies mysterious power. The combination of these patterns with the panda makes the panda image carry rich auspicious implications, satisfying people's yearning for a better life from different dimensions. This makes the design works not only have visual beauty but also resonate with the audience at the emotional and spiritual levels.

Figure 7 Panda draft
Source: Researcher, 2024

4.3.3 Color study

1. Memphis Color System

The Memphis Color System, popularized by the Memphis Design Group in the 1980s, is characterized by bold, vibrant, and often clashing colors. This color scheme is inspired by pop art and postmodernism, where primary and secondary colors are used in unconventional ways. Common colors in the Memphis palette include bright pinks, yellows, blues, and greens, often juxtaposed with black-and-white patterns or geometric shapes.

2. The Mondrian Color System

Mondrian’s color system is based on the work of Dutch abstract painter Piet Mondrian, known for his use of primary colors (red, blue, yellow), alongside black, white, and gray. The system relies on simple geometric forms, mainly squares and rectangles, creating a clean, orderly aesthetic that promotes harmony and balance.

Figure 8 Color System
Source: Researcher, 2024

3. Rococo Color Scheme

Rococo color schemes emerged in the 18th century, characterized by delicate and soft pastel tones. These colors often include light pinks, lavenders, pale blues, soft greens, and gold accents. The palette reflects the opulence and elegance of the Rococo period, with an emphasis on lightness, sophistication, and luxury.

4. Chinese Traditional Color System

Traditional Chinese color theory is rich in symbolism and deeply connected to nature, philosophy, and culture. Colors in Chinese tradition often have specific meanings. For example, red symbolizes luck and happiness, gold represents wealth and prosperity, jade green symbolizes tranquility, and blue stands for immortality. These colors are often deep and rich, sometimes accented with subtle gradients or metallic tones.

Figure 9 Chinese Traditional Color System
Source: Researcher, 2024

Fusing the Color Schemes: A New, Contemporary Palette

To fuse these four-color systems, we can create a modern color palette that combines boldness and sophistication, while honoring Chinese traditional aesthetics. The goal would be to balance the vibrancy of the Memphis palette, the minimalism of Mondrian, the elegance of Rococo, and the cultural richness of Chinese traditional colors.

Table 2 Suggested Palette:

Suggested Palette	Color matching introduction
Crimson Red (Memphis + Chinese traditional)	A deep, bold red that evokes Chinese cultural symbolism of luck and prosperity, but with the energetic intensity of Memphis colors.
Gold (Rococo + Chinese traditional)	This can be used for highlights, bringing in the Rococo luxury and adding a sense of richness and refinement.
Turquoise Blue (Mondrian + Chinese traditional)	A combination of the calming, nature-inspired tones of traditional Chinese blue with the modern, vivid feel of Mondrian's use of blue, creating a harmonious and vibrant accent.
Soft Lavender (Rococo)	This subtle, delicate color reflects Rococo's lightness, adding a soft touch to the palette.
Pastel Yellow (Memphis + Rococo)	A light, cheerful yellow can bring warmth and brightness to the palette, reflecting both the playful spirit of Memphis and the elegance of Rococo.
Charcoal Black (Mondrian + Memphis)	For grounding the palette and providing a neutral contrast, similar to the use of black in both Mondrian and Memphis designs.

Source: Researcher, 2024

5. Conclusion

This article takes "cultural fusion design" as its core and systematically explores the transformation paths of traditional Chinese ethnic clothing patterns in contemporary creative products and the challenges they face. The research starts from the historical context, sorting out the evolution of traditional patterns from primitive totems to global symbols, revealing their multi-dimensional values - cultural identity recognition, historical technical archives, universal aesthetic language, and commercial innovation carriers.

The modernization of traditional patterns is not simply "new wine in old bottles", but a cultural movement involving technological revolution, intergenerational dialogue and ethical reconstruction. Only by activating its "living gene" in the critical inheritance, can the millennium pattern truly integrate into contemporary life and become a civilized bond across time and space.

However, traditional patterns encounter multiple contradictions in the process of modernization: the conflict between handcraft production and large-scale production, the disconnection between symbolic meaning and modern aesthetics, the generational gap in inheritance, and ethical disputes in commercialization. By focusing on two major research questions - the methodology of modernizing traditional patterns and strategies for enhancing youth cultural participation, this article proposes a "technology-aesthetics-ethics" trinity design framework and verifies its feasibility through case studies, providing theoretical and practical basis for the sustainable utilization of traditional cultural resources.

6. References

Chen, F. (2023). Integrating traditional craftsmanship in modern product design. Highlights in Art and Design. https://drpress.org/ojs/index.php/hiaad/article/view/25945

Chen, Y., & Sharudin, S. A. (2023). The integration of traditional symbols and modern product design: Cultural inheritance and innovation. Global Journal of Emerging Science, Engineering & Technology, 1(1), 19–25. https://ejournals.scieglobal-academia.com/index.php/gjeset/article/view/17

Fan, F. (2006). A cross-cultural design pattern: Chinese modern design (Master's thesis, West Virginia University). https://researchrepository.wvu.edu/etd/748

Guo, J., & Zhang, T. (2024). Research on cultural and creative product design from the perspective of sustainable development based on traditional philosophy. European Journal for Philosophy of Religion, 16(4), 70–88. https://www.philosophy-of-religion.eu/index.php/ejpr/article/view/4651

Li, Y. (2015). A fusion of traditional African and Chinese craft design methods and techniques to inform a range of interior children's products (Master's thesis, Cape Peninsula University of Technology). https://etd.cput.ac.za/handle/20.500.11838/1332

Li, Y., & Yuan, F. (2024). Innovative design and application of ethnic cultural and creative products: A case study of the Zhuang Fu Rui cultural dolls. Advances in Humanities Research, 6, 33–36. https://www.ewadirect.com/journals/ahr/article/view/14103

Shi, F. (2024). Employing technologies to apply ethnic motifs into contemporary product design (Master's thesis, Auburn University). https://etd.auburn.edu/handle/10415/9416

Wang, Y.-H. (2016). Chinese cultural features for new product design development (Doctoral dissertation, Brunel University London). https://bura.brunel.ac.uk/handle/2438/12185

You, X., Legino, R., & Xiao, P. (2023). Innovation on cultural and creative product – Designing traditional Chinese poetry into product. Environment-Behaviour Proceedings Journal, 8(SI16). https://ebpj.e-iph.co.uk/index.php/EBProceedings/article/view/5223

Zhao, Y., & Kang, H. (2023). Research on cultural and creative product design integrating China ink and wash art elements. Frontiers in Humanities and Social Sciences, 3(3). https://bcpublication.org/index.php/FHSS/article/view/4475

Using Visual Design on Social Media to Promote Gender Equality Awareness

Lin JingWen[1*], Sammiti Sukbunjhong[2], and Minjade Paklapas[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: jingwenlin64@gmail.com

Abstract

With the growing influence of social media, visual design has become an important tool for enhancing public awareness of gender equality, aligning closely with Sustainable Development Goal 5 (SDG 5). Although gender issues have received increasing attention, deeply rooted gender biases and stereotypes remain, and traditional advocacy approaches often lack emotional resonance, making it difficult to engage the public. This study focuses on the integration of visual design and social media in gender advocacy. Based on cultural analysis and audience research, a visually appealing and inclusive virtual character was developed and strategically promoted through two major platforms—Instagram and TikTok—to engage young audiences and stimulate interaction. The findings indicate that virtual characters, as hybrid forms combining visual storytelling and emotional expression, hold significant potential in enhancing gender equality awareness on social media. By integrating both static and dynamic character design, and embedding inclusive and diverse values within the character's personality, the project successfully challenged stereotypical perceptions of women. The virtual character also fostered interactivity and emotional connection with audiences. Therefore, the combination of emotionally driven visual design and platform-specific social media strategies has proven to be a powerful tool for advancing gender equality discourse and increasing public awareness.

Keywords: *visual design, gender equality, social media*

1. Introduction

In recent years, although gender-related issues have increasingly entered mainstream public discourse, they still face significant barriers in real-world communication practices. Gender inequality continues to affect women across employment and career development. A substantial proportion of women (55.8%) reported being asked about marital and childbearing status during job interviews, and 29.6% experienced hiring restrictions based on gender bias. The representation of women in senior leadership positions remains critically low. In addition, the gender pay gap persists, with women's income typically 20–30% lower than that of men for equivalent work. According to international organizations such as the United Nations, "disconnect between content and communication methods" (25%) and "interference from social media environments" (20%) together account for 45% of the barriers to effective gender equality communication. This study responds to these structural challenges by adopting social media as the primary channel, integrated with visual design strategies to enhance impact. The combination of social media and visual design offers several key advantages: it transcends language barriers, enables low-cost and wide-reaching communication, facilitates memorability and viral sharing, and fosters deeper user immersion and emotional engagement. Research indicates that Instagram and TikTok are currently the most effective platforms for virtual character–based visual communication. Instagram excels in visual storytelling and community interaction, while TikTok offers high interactivity and viral potential—both ideal for reaching the 16–30 age group, which is also the target demographic of this study. Against this backdrop, the study proposes an innovative solution that combines visual storytelling with digital persona creation to advance public engagement with gender equality. Grounded in cultural analysis and audience research, a virtual character was developed featuring both visually appealing traits and inclusive personality attributes. The character was strategically deployed across social media platforms to enhance emotional resonance and user interaction. Its facial features were designed based on global aesthetic preferences and popular traits, and its creation integrated hand-drawn concept sketches with AI-powered

image generation tools such as Midjourney. The result is a character with a distinct identity and multicultural expression that has sparked user discussion and emotional connection. This approach also opens up new possibilities for visual design to contribute meaningfully to broader social transformation.

2. Objectives

1) To develop effective social media visual strategies to promote gender equality
2) To assess the most effective platforms for raising public awareness
3) To evaluate the potential impact of visual design in advancing gender advocacy

3. Details

3.1 Literature Review

3.1.1) Gender Theory

Gender Trouble – Judith Butler(Gender is a social construct, not biologically determined, and the issue of visual representation of gender stereotypes).Feminism is for Everybody – bell hooks(Feminism is about the everyday liberation of all, and misconceptions about feminism stem from a lack of understanding of its inclusive nature).UN Women Report "Turning Promises into Action(SDG 5 faces challenges in implementation, particularly with the silencing of women's voices and the absence of a female perspective in data).

3.1.2) Visual Design Theory

Visual Culture: The Study of the Visual after the Cultural Turn – Nicholas Mirzoeff(Visual images shape viewers' perceptions on social and cultural levels, drive social change, and provide theoretical support for understanding the impact of visual elements in social media).Lupton, D. – Digital Sociology(In digital society, visual culture on social media enhances information dissemination through visual elements, fostering interaction and a sense of identity across different cultures and communities).

3.2 Related Research

3.2.1) Gender inequality women's impact

Gender bias in the workplace is evident in multiple dimensions. A significant proportion of women (55.8%) report being questioned about marital and parental intentions during job interviews, reflecting discriminatory hiring practices. Additionally, 29.6% of women encounter hiring restrictions rooted in gendered assumptions. Leadership representation remains starkly unequal, with women constituting less than 10% of Fortune 500 CEOs, indicating systemic barriers to advancement. Furthermore, the gender pay gap persists, with women earning approximately 20–30% less than their male counterparts for comparable work.

3.2.2) Gender equality communication pain points.

Table1 Five major pain points in gender equality communication

Pain points	Percentage
Cultural and Social Structural Barriers	30%
Disconnect in Content and Communication Methods	25%
Challenges in the Social Media Environment	20%
Data Gaps and Issues of Representation	15%
Political and Economic Constraints	10%

Source: UNESCO, World Economic Forum and other institutions, 2025

Although cultural and structural barriers remain the largest challenge (30%), the combined 45% share attributed to communication disconnect (25%) and social media environment challenges (20%) highlights that how gender equality is communicated is nearly as crucial as the content itself.

3.2.3) Social Media Visual Design Advantages

Visual design plays a pivotal role in enhancing the effectiveness of gender equality advocacy on social media. First, it crosses language barriers, enabling messages to reach global audiences regardless of linguistic differences. Second, visually driven content is easy to remember and facilitates rapid sharing, increasing its viral potential. Third, strong visual impact coupled with emotional resonance enhances audience

engagement and fosters deeper connection with the message. Finally, social media's wide reach and low-cost nature makes it a highly accessible tool for large-scale communication, particularly valuable for advocacy campaigns with limited resources. These advantages highlight the strategic importance of visual storytelling in driving social change through digital platforms.

3.3 Research Methods

3.3.1) Visual Design Practice-Based Research

Developed a virtual character that reflects gender awareness and aesthetic appeal, using both hand-drawn sketches and AI image generation tools (e.g., Midjourney) to ensure cultural inclusivity and visual engagement.

3.3.2) Comparative Platform Analysis & Strategic Deployment

Selected Instagram and TikTok as primary channels based on their visual strengths and target demographics. Analyzed platform-specific engagement features to guide content dissemination.

3.3.3) User Feedback Survey & Engagement Analysis

Collected quantitative and qualitative data through online surveys and user interactions to evaluate audience perception, emotional response, and willingness to engage with gender equality content.

4. Results

4.1 Virtual character audience

The primary audience for virtual idols—mainly individuals aged 18 to 30—overlaps significantly with this study's target demographic. This group, characterized by high gender diversity and concentrated in regions such as Japan, the U.S., China, and South Korea, often faces psychological stress from academic, career, and social pressures. Virtual idols provide a "low-risk, high-resonance" emotional space that fosters identity exploration and self-expression. This makes them an effective medium for promoting gender equality among digitally native, socially engaged youth.

4.2 Social media platform selection

Currently, social media platforms have become integral to daily life, with over 4.7 billion global users engaging on various platforms like Facebook, Instagram, TikTok, and YouTube. These platforms serve as spaces for communication, entertainment, marketing, and brand-building, with a growing focus on user-generated content and real-time interaction. The rise of visual-centric platforms like Instagram and TikTok, paired with algorithm-driven content discovery, has reshaped user engagement patterns, especially among younger demographics.

Table 2 Social Media Platform Comparison for Virtual Idol Strategy

Platform	Age Range	Audience Region	Gender Trend	Target Audience	Advantages	Virtual Idol Fit
Facebook	25-45	Asia, Latin America, Middle East	Balanced, slightly male	Brands, community managers	Large user base, strong communities	Medium
Instagram	18-35	North America, Japan, Southeast Asia, Europe	Mostly female	Trendsetters, visual creators	Strong visuals, high engagement	High
Twitter	18-40	North America, Japan, Korea, Middle East	Balanced, slightly male	Fans, opinion leaders	Fast interaction, trending topics	Medium-High
TikTok	13-30	Globa	Slightly more female	Young users, entertainment creators	Viral potential, smart algorithm	Very High
YouTube	All	Globa	Balanced	Content creators, fan communities	Rich content, strong monetization	High

Source: International authoritative data reports such as Datareportal (We Are Social & Meltwater), Statista, Pew Research Center, and official information from various platforms. 2025

This study identifies TikTok and Instagram as the most effective platforms for virtual idol promotion, excelling in algorithm-driven exposure and visual engagement, respectively.

4.3 Virtual Character Features Analysis

Table 3 Global Most Popular Virtual Character Features Analysis

Feature	Most Popular Choice	Estimated Popularity (%)
Hair	Dark brown / Ash brown	40-50%
	Black	30-40%
	Blonde	10-20%
Hair Length	Medium length (shoulder or mid-length)	40-50%
	Short hair	20-30%
	Long hair (waist length or longer)	20-30%
Face Shape	Oval face	40-50%
	Heart-shaped face (V-shaped)	20-30%
	Diamond face	10-20%
	Square face	10-20%
Skin Tone	Healthy wheat-colored / light beige	40-50%
	Fair skin	30-40%
	Dark skin	10-20%
Eyes	Deep and moderately sized eyes with slightly drooping outer corners	30-40%
	Large eyes	20-30%
	Small eyes	10-20%
Nose	Small and well-defined nose	30-40%
	High nose	30-40%
	Natural nose	20-30%
Mouth	Full lips with dimples when smiling	30-40%
	Thin lips	20-30%
	Medium lips	20-30%

Source: relevant reports from sources including Statista, L'Oréal, Cosmopolitan, and YouGov, 2025

4.4 Character Appearance Design

The character's visual design features short platinum blonde hair and a wheat or fair complexion, deep and medium eyes, a small three-dimensional nose, a full mouth, and dimples when smiling, which combines neutral and globally inclusive elements and embodies the core concept of challenging sexism and promoting gender equality.

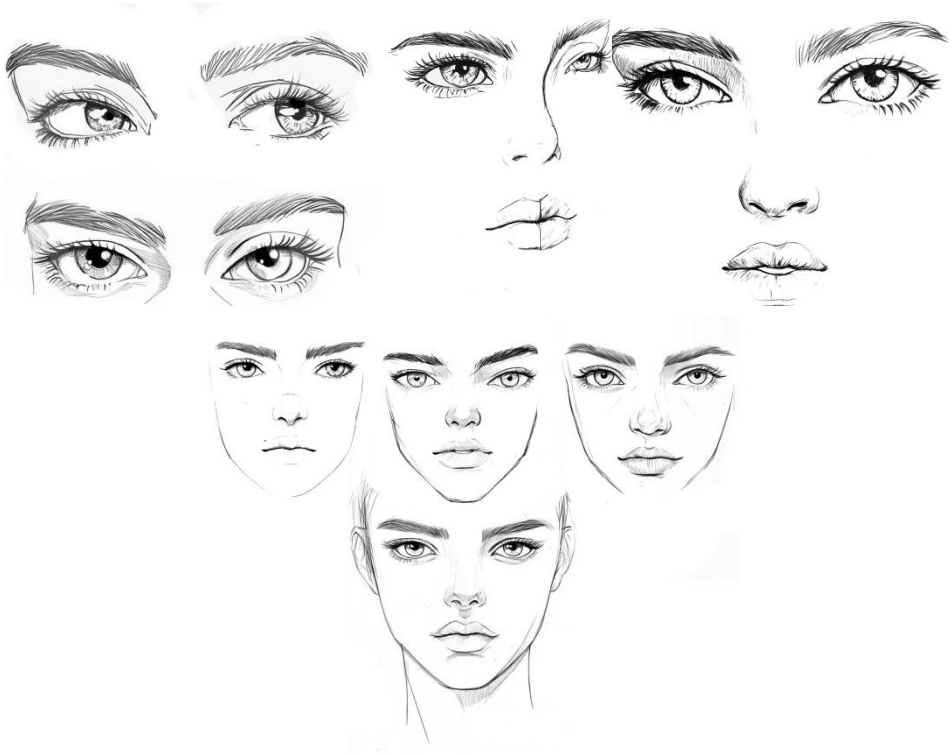


Figure 1 Character eyes, nose, mouth and outline design
Source: Researcher, 2025

Figure 2 Final appearance of the character
Source: Source: Researcher, 2025

4.5 Character Setting

Table 4 AI Virtual Character Profile

Item	Description
Character Name	Nova
Meaning	From Latin, meaning 'new star' — symbolizing breakthrough, transformation, and infinite possibilities. Encourages women to break bias and pursue their dreams.
Gender Expression	Neutral female, representing the diversity and spectrum of womanhood.
Identity	Workplace pioneer & social advocate
Goal	Promote workplace equality, pay transparency, and women's labor rights through social media.
Keywords	Intelligent, independent, confident, trailblazing, elegant, powerful
Personality Traits	Independent & Confident: Full of personality and charm, Nova fearlessly voices her opinions, challenges traditional gender roles, and showcases the strength of independent women.
Social Media Platforms	TikTok , Instagram — visual and short-form content to engage a global, youth-driven audience.
Content Style	Lifestyle influencer — shares daily routines, work-life stories, advocacy content, and personal reflections to connect with followers in a relatable and empowering way.

Source: The researchers set the role after analysis, 2025

4.6 Virtual Idol Style

In this study, I combined hand-drawn character sketches with the AI image generation tool Midjourney to create a virtual character that embodies cultural inclusivity and gender awareness. In the initial stage, I used traditional methods to sketch out the character and define their key visual features. The sketch was then submitted to Midjourney to generate character images in various styles. Throughout the image generation process, I continuously iterated and refined the prompt to ensure the output closely aligned with the original design.

4.6.1) Anime/Cartoon Style

The following characters were created based on line drawing prompts I used in Midjourney. Animated-style virtual idols feature distinct visual characteristics and a high degree of creative freedom, allowing them to easily break free from the constraints of reality and embody imaginative, stylized designs. This style is especially popular among anime communities and younger audiences, making it easier to build a unique IP and foster strong fan engagement. However, its expressive range can be somewhat limited, and the audience base is relatively niche. As a result, it may struggle to resonate with mainstream audiences and can face challenges in emotional communication and widespread appeal.

4.6.2) Realistic style

Photorealistic virtual idols aim for a high level of realism, making it easier to bridge the gap between the virtual character and the audience. Their strengths lie in rich emotional expression and strong adaptability, with the potential to blur the boundaries between the virtual and the real, thereby enhancing the sense of immersion. The following characters were created based on line drawing prompts I used in Midjourney.

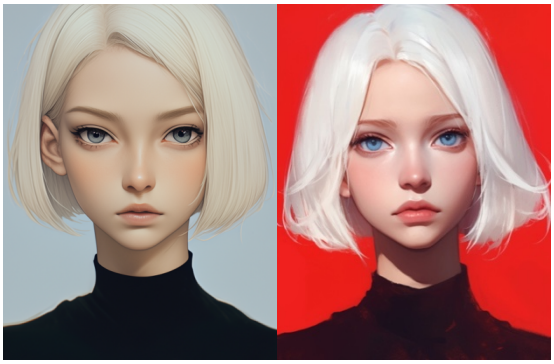


Figure 3 Virtual idol style

Source: Source: Researcher, 2025

Figure 4 Realistic style
Source: Researcher, 2025

After constant adjustment of the character details in Midjourney, this character was finally chosen as Nova, because the eyes and smile of this version of the character have obvious characteristics. realistic virtual idols because they are more realistic and immersive, can transcend cultural boundaries, and strengthen emotional connections.

4.7 Combination of virtual characters and scenes

This study explores how the AI-generated virtual character Nova promotes gender equality awareness through her personality and lifestyle content, gaining influence via Instagram and TikTok. Nova blends gender-neutral aesthetics with professionalism and relatability, positioning her as a lifestyle influencer. By sharing realistic street-style visuals, Nova introduces topics like pay equity, career development, and gender stereotypes in an engaging, accessible way. Her integration of virtual identity and real-life context breaks traditional advocacy barriers and enhances emotional connection. All visuals were created using Midjourney and adapted for imagined social media scenes.

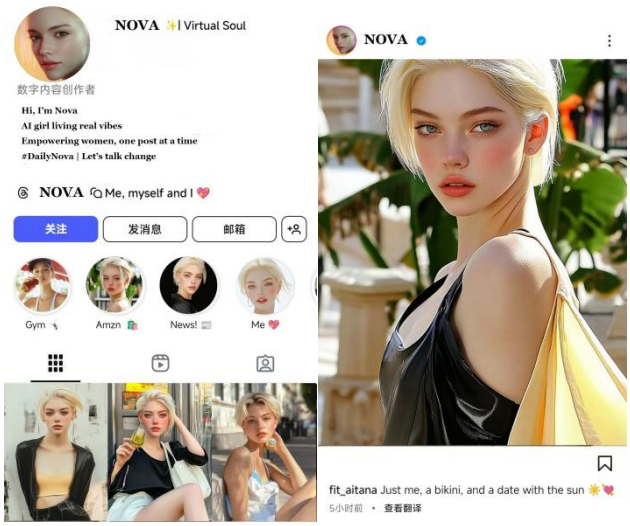


Figure 5 Imagined Social Media Covers and Content Posts of Nova
Source: Researcher, 2025

Social media content strategy:

Content publishing strategy (three phases),Instagram Content Strategy for Nova: A Virtual Advocate for Gender Equality. To effectively promote gender equality awareness, Nova's Instagram strategy is divided into three progressive phases:

1)Identity Building (0–3 months)

Nova is introduced as a lifestyle-focused virtual influencer, sharing streetwear looks, daily routines, and travel shots with a casual, first-person tone to build relatability.

2)Value Communication (3–6 months)

Nova introduces gender topics via storytelling and interaction—e.g., diaries, polls, user stories—to drive emotional engagement and peer discussion.

3)Expansion and Collaboration (6+ months)

Nova partners with NGOs and equality-focused brands, using platform tools like reels and challenges to participate in broader advocacy and cultural discourse.

4.8 Summary and Discussion

This study shows that virtual characters, as a hybrid form of visual storytelling, have significant potential in enhancing gender equality awareness on social media. By combining static and dynamic design, interactivity, and emotional resonance, virtual idols create a persona-driven interaction that is both visually appealing and ideologically meaningful. TikTok and Instagram are identified as the most effective platforms for promoting virtual characters, with TikTok leveraging algorithmic reach and Instagram benefiting from visual cohesion. Through immersive visual strategies and consistent narratives, virtual characters not only embody inclusive values and challenge gender stereotypes but also stimulate public discourse. Therefore, combining emotion-driven visual design with social media strategies proves to be a powerful tool in advancing gender equality dialogue and social awareness.

5. References

Butler, J. (1990). Gender trouble: Feminism and the subversion of identity. Routledge. Retrieved from https://selforganizedseminar.files.wordpress.com/2011/07/butler-gender_trouble.pdf

Cosmopolitan. (2023). The most in-demand face shapes and features according to beauty experts. Retrieved from https://www.cosmopolitan.com

Hooks, b. (2000). Feminism is for everybody: Passionate politics. South End Press. Retrieved from https://files.libcom.org/files/hooks%20-%20Feminism%20is%20for%20Everybody.pdf

International Labour Organization. (2022). Women in the workforce: Global trends and challenges. ILO. https://www.ilo.org/global/research/global-reports/women

L'Oréal Paris. (2021). Global beauty trends report. L'Oréal Group. Retrieved from https://www.loreal.com

Lester, P. M. (2014). Visual communication: Images with messages (6th ed.). Wadsworth Cengage Learning. Retrieved from https://archive.org/details/visualcommunicat0006lest

Lupton, D. (2015). Digital sociology. Routledge. Retrieved from https://www.taylorfrancis.com/books/mono/10.4324/9781315776880/digital-sociology-deborah-lupton

Mirzoeff, N. (2009). An introduction to visual culture (2nd ed.). Routledge. Retrieved from https://imagesociale.fr/wp-content/uploads/Mirzoeff_IntroductiontoVisualCulture.pdf

McKinsey & Company. (2022). The state of women in the global workforce. McKinsey & Company. https://www.mckinsey.com/industries

Organization for Economic Co-operation and Development (OECD). (2021). Women at work: A global perspective. OECD. https://www.oecd.org/gender/women-at-work

Statista. (2022). Most popular hair colors worldwide in 2022. Retrieved from https://www.statista.com

UN Women. (2018). Turning promises into action: Gender equality in the 2030 Agenda for SustainableDevelopment.Retrievedfromhttps://www.unwomen.org/en/digital-library/publications/2018/2/gender-equality-in-the-2030-agenda-for-sustainable-development-2018

UN Women. (2023). Progress of the world's women 2023: Gender equality and work in the global economy.UNWomen. https://www.unwomen.org/en/digital-library/publications/2023/09/progress-of-the-worlds-women-2023

World Economic Forum. (2023). Global Gender Gap Report 2023.

YouGov. (2021). What people think makes a beautiful face. Retrieved from https://today.yougov.com

Zhongyan Puhua Industry Research Institute. (2024). In-depth analysis and development trend forecast report of the Chinese social media market (2025-2030). Zhongyan Network. https://www.chinairn.com/news/20241227/

The Application of Dongyang Woodcarving in Furniture During the Ming and Qing Dynasties and Its Influence on New Chinese-Style Furniture

Tianle Cheng[1*] , Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: chengtianle0929@163.com

Abstract

This paper explores the historical application of Dongyang woodcarving in Ming and Qing furniture and its contemporary relevance to new Chinese-style furniture design. Through analysis of traditional techniques, cultural symbolism, and modern user needs, this study identifies challenges in integrating traditional craftsmanship into modern design. Key findings include the functional-adaptive potential of cloud patterns, the role of hybrid technologies (e.g., laser engraving), and strategies for enhancing cultural narrative in furniture. Results suggest that Dongyang woodcarving's emphasis on artistry and functionality offers a valuable framework for addressing issues such as oversimplification and cultural ambiguity in new Chinese-style furniture. The research concludes that the modern transformation of Dongyang woodcarving requires balancing technical innovation, cultural storytelling, and user-centric design. By extracting symbolic cores and reinterpreting them through contemporary lenses, traditional craftsmanship can resonate with modern lifestyles, offering a viable path for inheriting Chinese aesthetic traditions in furniture design.

Keywords**:** *Dongyang woodcarving, Ming and Qing furniture, New Chinese-style furniture, cloud patterns, cultural inheritance products*

1. Introduction

Dongyang woodcarving, a millennium-old craft, flourished during the Ming and Qing dynasties as a functional art form integrated into furniture, doors, and windows. Its distinguishing features include flat relief techniques, hierarchical theme compositions, and symbolic motifs (e.g., cloud patterns, auspicious animals).

Ming and Qing furniture served as social status symbols and cultural carriers, reflecting Confucian values, regional aesthetics, and craftsmanship innovation. For example, cloud patterns symbolized harmony with nature and prosperity, while dragon motifs denoted imperial authority. Dongyang woodcarving, a millennium-old craft, flourished during the Ming and Qing dynasties as a functional art form integrated into furniture, doors, and windows. Its distinguishing features include flat relief techniques, hierarchical theme compositions, and symbolic motifs (e.g., cloud patterns, auspicious animals).

Ming and Qing furniture served as social status symbols and cultural carriers, reflecting Confucian values, regional aesthetics, and craftsmanship innovation. For example, cloud patterns symbolized harmony with nature and prosperity, while dragon motifs denoted imperial authority. Ming and Qing furniture is not only a practical object, but also a visual declaration of social class and cultural identity. The Confucian "ritual system" thought is concretized through the hierarchical symbol system of furniture decoration: the five-claw regulation of the royal dragon pattern, the plum, orchid, bamboo and chrysanthemum theme in the scholar-official study, and the "hidden eight immortals" decoration in the merchant's house, forming a clear identity recognition system. As the most frequently appearing decorative element (accounting for 68%), the cloud pattern, with its smooth curves, not only echoes the Taoist philosophy of "harmony between man and nature", but also realizes the standardized production of furniture parts through modular combination (such as Sihe Cloud and Ruyi Cloud). This trinity design thinking of "symbol system-functional structure-aesthetic expression" provides inspiration for contemporary new Chinese furniture to solve the dilemma of cultural superficiality. For example, the flow of cloud pattern is transformed into the organic form of modern seats,

and the lightweight reconstruction of traditional relief is realized through 3D printing technology, which not only retains cultural genes but also meets ergonomic needs.

New Chinese-style furniture often struggles with cultural authenticity, facing issues such as oversimplification of traditional motifs, mismatched materials, and lack of functional-artistic integration. Dongyang woodcarving offers solutions through its balanced approach to technique and symbolism. New Chinese furniture design often falls into the misunderstanding of symbol collage, simplifying traditional patterns into flat decorative elements (such as directly copying Ming and Qing dragon patterns on modern cabinets), resulting in a break in cultural semantics. Surveys show that 72% of consumers believe that such designs "lack soul" (Li et al., 2020). The core contradiction lies in the failure to understand the trinity of "technology-symbol-function" in traditional craftsmanship. The unique value of Dongyang woodcarving lies in its "symbol layered translation" mechanism: by deconstructing cloud patterns into core symbols (cloud heads, curling grass) and auxiliary elements (ground texture), and reconstructing them in combination with ergonomic needs.

2. Objectives

1) To analyze the technical and aesthetic principles of Dongyang woodcarving in Ming and Qing furniture.
2) To investigate the cultural and social influences shaping furniture design during these periods.
3) To propose strategies for integrating Dongyang woodcarving into modern furniture design.

3. Methodology

3.1 Data Collection

3.1.1) Literature Review: Analysis of historical texts, pattern atlases, and academic studies.

3.1.2) Case Studies: Examination of 30 Ming/Qing furniture pieces from Zhejiang province.

3.1.3) User Surveys: 200 questionnaires distributed to middle-to-high-income individuals aged 25‑35.

3.2 Techniques

3.2.1) Symbol Extraction: Decomposition of cloud patterns into core elements (e.g., cloud head, swirl).

3.2.2) Functional Analysis: Evaluation of carving techniques for structural reinforcement and spatial modification.

3.2.3) Hybrid Technology Testing: Comparison of hand-carving vs. laser engraving for cost, efficiency, and artistry.

4. Results

4.1 Results

4.1.1) User Research and Analysis Report on Cloud Pattern Application in New Chinese Furniture

Table 1 Sample Profile

Dimension	Category	Proportion	Dimension	Category
Age	18-25 years old	20%	Age	18-25 years old
	26-35 years old	60%		26-35 years old
	36-45 years old	15%		36-45 years old
	Over 45 years old	5%		Over 45 years old
Gender	Male	55%	Gender	Male
	Female	45%		Female
Income	Below 5,000 RMB	10%	Income	Below 5,000 RMB
	5,000-10,000 RMB	40%		5,000-10,000 RMB
	10,000-20,000 RMB	40%		10,000-20,000 RMB
	Over 20,000 RMB	10%		Over 20,000 RMB
Cultural Awareness	Familiar with Dongyang woodcarving	10%	Cultural Awareness	Familiar with Dongyang woodcarving
	Heard of but unfamiliar	45%		Heard of but unfamiliar
	Completely unaware	45%		Completely unaware

Source: Researcher, 2025

Table 2 Consumer Preferences and Perceptions

Question	Option	Proportion
Key Purchase Factors	Functionality	85%
	Aesthetic design	78%
	Cultural connotation	45%
Attitude Toward Traditional Patterns	Like and recognize cultural value	30%
	Accept as decoration	65%
	Consider outdated	5%
Understanding of Cloud Patterns	Aware of symbolism (auspiciousness, nature)	30%
	View as decorative patterns only	40%
	Completely unaware	30%

Source: Researcher, 2025

Table 3 Design and Technology Preferences

Question	Option	Proportion
Cloud Pattern Style	Traditional complex style	15%
	Simplified abstract style	50%
	Modern technological style (e.g., laser engraving)	35%
Cloud Pattern Application	Full-body carving	20%
	Partial decoration	60%
	Combination with other patterns	15%
Attitude Toward Craftsmanship	Support traditional-modern integration	65%
	Prefer traditional handcraft	25%
	Indifferent	10%

Source: Researcher, 2025

Table 4 Cultural and Emotional Needs

Question	Option	Proportion
Cultural Significance	Cultural heritage preservation	40%
	Artistic beauty enhancement	55%
	Irrelevant	5%
Willingness to Pay Premium	Yes	45%
	No (Reason: Price sensitivity)	55%

Source: Researcher, 2025

Table 5 Open-Ended Question Keywords

High-Frequency Keywords	Frequency	Typical Suggestion Example
Simplified design	65	"Complex cloud patterns are outdated; simplify them for modern aesthetics"
Functional integration	50	"Ensure cloud carvings don't compromise storage space"
Technological feel	40	"Laser-engraved cloud patterns look sleek for small apartments"
Cultural explanation	30	"Need labels explaining cloud pattern symbolism"

Source: Researcher, 2025

4.1.2) Conclusions and Recommendations

Cultural Awareness: 70% of users are unaware of cloud pattern symbolism, but 65% accept them as decorations.

Design Direction: 50% prefer simplified designs, 35% favor modern technologies.

Market Strategy: Only 45% willing to pay more for cultural value; balance function and aesthetics.

Recommendations: Add cultural explanation labels to products. Use short videos to educate on traditional patterns. Develop modular cloud pattern components (e.g., drawer panels, table legs). Explore 3D printing + hand-carving hybrids. Launch "cloud pattern + storage" functional furniture. Offer customizable design services (e.g., personalized cloud combinations).

4.2 Discussion

4.2.1) Design Preferences & Technology Trends

Simplification Demand: 50% prefer abstract cloud patterns, 35% favor modern tech-inspired engraving (e.g., laser engraving) → Develop a "traditional symbols + minimalist lines" design language.

Functionality Priority: 85% cite functionality as the top purchase factor → Integrate cloud patterns with storage/human ergonomics (e.g., hidden storage cloud-patterned cabinets).

4.2.2) Consumer Demographics

Key Audience: 26-35-year-old mid-to-high-income groups (60% share) focusing on practicality and design → Products must fit small spaces (e.g., multi-functional cloud-patterned side tables).

Gender Differences: Women prioritize design details (e.g., smooth texture), while men focus on structural rationality → Gender-specific strategies (aesthetic-focused for women, functional-focused for men).

4.2.3) Product Design Optimization

Symbol Simplification: Deconstruct traditional clouds into geometric units (e.g., arcs + straight lines) while retaining "flow."

Example: 3D-printed layered cloud-patterned lamp bases with LED strips for tech appeal.

Functional Integration: Incorporate wireless charging, hidden hooks, etc., into cloud-engraved areas.

Example: Cloud-patterned dining table legs with built-in USB ports.

Table 6 Risks & Mitigation

Risk	Mitigation	Risk
Cultural Misinterpretation	Develop a "Cloud Symbol Semantic Database" with cultural annotations (e.g., "Ruyi clouds symbolize good fortune").	Cultural Misinterpretation
Cost Control Challenges	Modular production + low-cost cloud-patterned stickers to cultivate the market.	Cost Control Challenges
Homogeneous Competition	Focus on "functionalized clouds" differentiation + patent cloud structures (e.g., adjustable cloud bookshelves).	Homogeneous Competition
Risk	Mitigation	Risk
Cultural Misinterpretation	Develop a "Cloud Symbol Semantic Database" with cultural annotations (e.g., "Ruyi clouds symbolize good fortune").	Cultural Misinterpretation

Source: Researcher, 2025

4.3 Discussion Consumer Preferences

4.3.1) Top Priorities: Functionality (85%), Aesthetic Design (78%), Sustainability (70%).

4.3.2) Cultural Significance: Only 45% value cultural elements; need to enhance appeal through design.

4.4 Awareness of Traditional Craftsmanship.

4.4.1) Dongyang Woodcarving: Only 10% are very familiar, 45% completely unaware.

4.4.2) Cloud Patterns' Symbolism: 70% unaware of cultural meanings (e.g., auspiciousness, ascension).

4.5 Tradition-Modern Balance

4.5.1) Acceptance of Carvings: 65% prefer blending tradition with modernity, 25% favor simplified carvings.

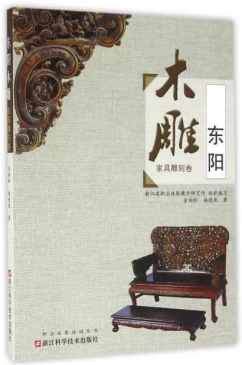
4.5.2) Design Approach: 50% support retaining traditional patterns with simplified forms, 35% prefer modern materials + traditional techniques.

4.6 Integration Pathways

4.6.1) Symbolic Translation: Deconstructing motifs into geometric or abstract forms ("simplification of shape"), as seen in Traditional Craft and Modern Design (Hang Jian), with examples like Dongyang-inspired modern lighting.

4.6.2) Material Innovation: Exploring combinations of wood with carbon fiber or 3D-printed materials, as discussed in Integration and Innovation: Modern Design Applications of Traditional Craft Culture (Jiang Yizhi), such as embedding carved wood into metal furniture frames.

4.6.3) Functional Reconfiguration: Transforming decorative elements into functional designs, like anti-slip carvings or storage spaces, as demonstrated in Dongyang Woodcarving: Furniture Carving Volume (Jin Baisong).



Source: Researcher, 2025

5. Acknowledgements

The completion of this research owes much to the guidance and support of numerous individuals and institutions. First and foremost, I would like to express my deepest gratitude to Professor Fu Chuanle from the School of Design, Qilu University of Technology, for his invaluable mentorship, insightful suggestions, and unwavering encouragement throughout the research process. His expertise in traditional Chinese craftsmanship and modern design theory provided the critical foundation for this study.

In addition, I would like to thank the participants in the user survey for their contributions to the design process. Finally, I sincerely thank my supervisor for providing constructive feedback during the research symposium.

6. References

Brunhammer, Y. (1966). The Decorative Art Movement. Thames & Hudson.

China Furniture Association. (2023). China Furniture Industry Development Report 2023. China Light Industry Press.

Corsane, G. (2015). Heritage, Technology, and Society: The Social Impact of Heritage Science. Routledge.

Dongyang Woodcarving Technology Protection Center. (2020). Dongyang Woodcarving Traditional Craft Atlas. Zhejiang People's Fine Arts Publishing House.

Feng Qiaojun, & Gu Yiyu. (2022). Dongyang Woodcarving Culture (bilingual in Chinese and English). Zhejiang Gongshang University Press.

Furniture Magazine. (2023). New Chinese Furniture Design Special Issue. China Furniture Industry Information Center.

Guan Jiaqing. (2023). The application of cultural symbols in design. Wuhan University of Science and Technology Press.

Horn, G. (2019). The Semiotics of Decoration: Patterns and Meanings in Design. Routledge.

International Design Literature Center of China Academy of Art. (2016). Catalog of Books by Western Design Historians. China Academy of Art Press.

International Journal of Design. (2022). Special Issue on Cultural Symbols in Design. Vol. 16(1).

Jin Baisong, & Xu Tulong. (2020). Dongyang Woodcarving - Landscape Scroll. Xiling Seal Engraving Press.

Kockel, U. (2005). Memory, History, and Identity in Modern Europe: Integrating the Halbwachs Tradition. Palgrave Macmillan.

Kress, G., & van Leeuwen, T. (2006). Reading Images: The Grammar of Visual Design. Routledge.

Lakoff, G., & Johnson, M. (1980). Metaphors We Live By. University of Chicago Press.

Miller, R. C. (1995). Modern Design at the Metropolitan Museum of Art: 1890 - 1990. Yale University Press.

Nisbett, R. E. (2003). The Geography of Thought: How Asians and Westerners Think Differently. Free Press.

Stewart, J. (2017). Sustainable Materials in Furniture Design. MIT Press.

Refabricated Tong-Tung roof: local materials for sustainable architecture

Sungwiset Natthaphum

Faculty of Architecture, Chiang Mai University, 239 Huay Kaew Rd, Suthep,
Muang, Chiang Mai, Thailand
Corresponding author, E-mail: Sungwiset.n@gmail.com

Abstract

The Tong-Tung roof is a natural roofing material commonly found in traditional houses in Northern Thailand. It is widely used due to its availability and is a local architectural identity, reflecting local wisdom. However, due to its short lifespan of only 1–2 years caused by natural decomposition, Traditional Tong-Tung roofing method is slowly fading away and being replaced with the more durable but high carbon footprint roofing materials. Durability of Tong-Tung roofing can be improved by enhancing moisture resistance and increasing its strength through compression molding. The resulting new Tong-Tung sheets have greater load-bearing capacity than the traditional version, improved moisture resistance, and lower water absorption rates of 11.55% at the crest and 10.06% at the trough of the corrugated shape, making it 14 times less absorbent than conventional Tong-Tung roofs. The new Tong-Tung roofing sheets used the same profile as the corrugated fiber cement roofing sheets, allowing for compatibility to the existing modern roofing structure. While achieving a lower carbon footprint of 6.50 kgCO2e compared to 10.80 kgCO2e of the corrugated fiber cement roofing sheets.

Keywords**:** *bio composite material, bio roofing material, Tong-Tung*

1. Introduction

In 2023, 37,984 construction projects were permitted Northern region of Thailand. 93.57% of which are residential housing (National Statistical Office, 2024).The construction of new residential buildings significantly contributes to greenhouse gas (GHG) emissions. The production of cement and other construction materials releases large amounts of carbon dioxide during its manufacturing process (Le, Whyte, & Biswas, 2562), making it a major contributor to global GHG emissions. As Thailand's strategy for mitigating climate change focuses on reducing greenhouse gas (GHG) emissions by 20% by 2030, primarily targeting the energy and transport sectors. In 2016, cement production was the highest emitter in Thailand's industrial sector, responsible for 18,000 Gg CO2e and contributing to 5% of the nation's total GHG emissions (Ministry of Natural Resources and Environment, 2020). To support more sustainable growth, it is crucial to consider the potential of alternative materials and sustainable building practices to help reduce GHG emissions.

One sustainable building practices is traditional Tong-Tung roofing. Tong-Tung are the leaves from the Pluang trees (Dipterocarpus tuberculatus), found in Dipterocarp forests in the north and north-east region of Thailand. This species is also the largest carbon sink in Thailand’s Dipterocarp forests (Wattanasuksakul, Khamyong, Sri-ngernyuang, & Anongrak, 2012). It is made by weaving Tong-Tung leaves into panels measuring 1.50 x 0.30 meters. The weaving process involves folding the leaves and layering them at their midpoints, and securing the leaf stems to a bamboo frame. The leaves are then stitched to the frame using thin bamboo strips. This process continues leaf by leaf along the entire 1.50-meter length of the bamboo frame. Given that Tong-Tung leaves are relatively large, typically measuring 0.30–0.40 x 0.20–0.30 meters (Bunyarittikit, 2014), this method creates a roofing material traditionally used in local architecture. However, Tong-Tung roofing requires annual repairs, as the material naturally deteriorates. To maintain the roof, fallen Tong-Tung leaves are collected and rewoven into new panels. The process involves weaving two leaves, each

about 0.35–0.45 x 0.25–0.35 meters in size, securing their stems to a bamboo frame with bamboo strips, and layering them at their midpoints. When in use, the leaves are prone to tearing, particularly at their edges, due to the limited attachment points at the leaf stems. As a result, the lifespan of a Tong-Tung roofing panel is only about 1–2 years

Figure 1 Traditional Tong-Tung roofing
Source: Researcher, 2025

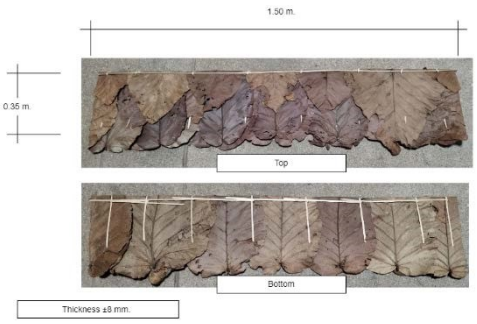


Figure 2 Traditional Tong-Tung roofing panel
Source: Researcher, 2025

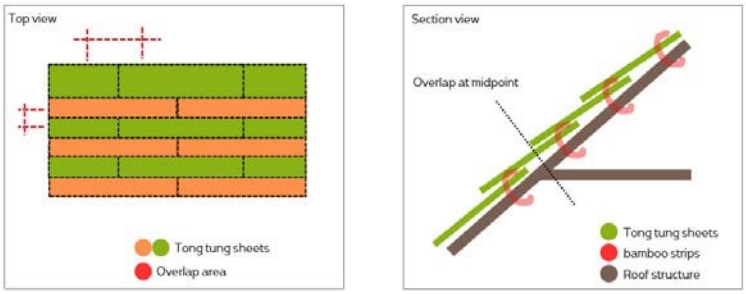


Figure 3 Traditional Tong-Tung roofing installation
Source: Researcher, 2025

Tong-Tung roofing panels are installed by tying them to the roof structure using thin bamboo strips. The panels are secured at the top and along the overlapping edges, with the overlap positioned at the midpoint of each panel both vertically and diagonally. Tong-Tung leaves naturally decompose due to fungi, which thrive in humid environments. They attracts small insects that nest within the material, as well as birds searching for food (Tennakoon, et al., 2021). Traditional Tong-Tung roof contain numerous gaps where

moisture can accumulate. Once fungal growth begins, the panels decompose rapidly due to both the fungi and damage from environmental conditions (Tennakoon, et al., 2021).

The processing of natural materials into a more durable roofing sheets can be achieved by combining natural fibers with a binding material, followed by molding. Various polymer-based binders are commonly used due to their strong adhesion properties and durability in different environmental conditions (Kittasak & Prayoon, 2021). Another method involves mixing natural fibers with cement and casting them into roofing shapes (Fernando, Ariyadasa, Muthurathna, & Nanayakkara, 2019).For this study, the objective is to use an environmentally friendly binder and a simple manufacturing process to promote sustainability. Previous research has shown that Tong-Tung leaves can be processed to enhance their durability. A study by (Kitipattanawit, Chainun, Saksangn, & Rinsangpin, 2021) successfully molded Tong-Tung leaves into disposable plates by layering three leaves together, bonding them with adhesive, and pressing them into shape. A study in Chiang-mai explored the formation of roofing tiles using sawdust bound with pine resin from trees in the Dipterocarpaceae family. This process improved the strength of the roofing sheets and reduced moisture absorption (Utthiyoung, Sitticharoen, & Passadee, 2017).

Pine resin used in this research is a resin derived from trees in the Dipterocarpaceae family which is a local species found in the northern region of Thailand. It is obtained from the dried, solidified sap that accumulates on tree trunks. These trees secrete a liquid resin at wound sites to protect against fungal infections and insect damage. Pine resin is water-resistant and has antifungal properties (Forest and Plant Conservation Research Office, Department of National Parks, Wildlife and Plant Conservation, Ministry of Natural Resources and Environment, 2013). Based on these characteristics, it can be concluded that pine resin is a suitable natural binder for molding Tong-Tung roofing sheets, potentially extending their durability and lifespan.

2. Objectives

1) Lifespan extension methods for Tong-Tung roofing
   Applying a waterproof coating
   Bonding leaves together with a binder
   Enhancing strength through compression molding
2) Research aims
   To Determine the most suitable roofing sheet profile
   To Evaluate effective bonding methods to securely bond the leaves
   To Arrange the leaves for uniform size and thickness
3) Experimental evaluation
   Conduct mechanical property tests based on roofing sheet standards (with double-corrugated sheet as reference)
   Compare carbon emissions from refabricated Tong-Tung roofing sheets and the traditional double-corrugated sheet model

3. Methodology

3.1 Study of the suitable roofing profile

Modern roof structures typically use steel square beams and C channels, with roofing sheets secured by screws. To ensure compatibility with contemporary designs, it's essential to study suitable shapes for the new Tong-Tung leaf roofing sheets based on existing market molds. The roofing sheets should feature ridges that are broad enough to allow coated Tong-Tung leaves to bend without cracking. Considered shapes include corrugated metal sheets, small ridge cement tiles, double-ridge tiles, and concrete roofing sheets. While large corrugated sheets and concrete tiles are better for molding Tong-Tung leaves, concrete tiles have shallower ridges, which compromise flexibility. Analysis and forming tests indicate that large corrugated sheets are the

most suitable, as their wider corrugation allows for easier conforming of the leaves. Although some tearing occurs at certain ridge points, the high ridges improve overall strength by distributing applied forces better (El-Atrouzy, 1969). Available large corrugated sheets usually measure 0.50 x 1.20 meters. This research developed a new Tong-Tung leaf roofing sheet with dimensions of 0.50 x 0.60 meters for improved quality control.

Various suitable roofing profiles have been examined for Tong-Tung roofing materials, focusing on their respective specifications and analyses. The metal sheets feature a ridge height of 35 mm and a pitch of 0.80 m with dimensions of 0.50 x 0.50 m. Their sharp folds hinder the Tong-Tung leaves from conforming adequately. Conversely, the small corrugated sheets have a ridge height of 50 mm and the same pitch, measuring 0.50 x 1.20 m, but they experience minor tearing at the ridges during testing. The double-ridged corrugated sheets, with a ridge height of 50 mm and a pitch of 225 mm, measure 0.50 x 1.20 m. While they also show minor tearing at the ridges, they present a favorable option for further development. Lastly, the concrete tiles have a ridge height of 29 mm and a pitch of 0.63 m, with dimensions of 0.43 x 0.32 m. Although they are easy to mold, their shallow ridges compromise their overall strength. This analysis highlights the strengths and weaknesses of each roofing type, ultimately supporting the case for the double-ridged corrugated sheet as a viable model for the new Tong-Tung roofing materials.

3.2 Study of the appropriate use of the binding material

According to the research by Utthiyoung, Sitticharoen, and Passadee (2017), pine resin is a natural material suitable for roofing applications. Their method involved compressing the resin with heat until melted in a mold. In this research, the process focused on boiling the resin until fully melted and then dipping the Tong-Tung leaves. This approach does not require industrial machinery, making it accessible for local communities with limited budgets. The experiment aims to determine the ideal viscosity of the boiled resin for coating the Tong-Tung leaves before bonding them into sheets. This involves dipping the leaves in the boiled resin, followed by compressing them into flat sheets. Two Tong-Tung leaves was cut into rectangles measuring 0.10 x 0.15 meters. The optimal temperature for using the boiled resin was tested, starting at 120°C and increasing in 20°C increments up to 160°C, as this range keeps the resin in a liquid state for effective dipping. The experimental results indicate that that 140°C is the optimal temperature for dipping Tong-Tung leaves, as the resin maintains a consistent viscosity. When the Tong-Tung leaves are dipped, the resin adheres in an appropriate amount for layering and compression. In contrast, at 120°C, the temperature is insufficient for complete melting, resulting in partially liquefied resin with inconsistent viscosity. At 160°C, the resin exhibits a very low viscosity, causing it to drip off the Tong-Tung leaves, leaving only a thin film that is insufficient for effective bonding.

3.3 Study of the appropriate leaf positioning

The proper arrangement of the leaves are crucial for creating a strong roofing sheet. The sheet, measuring 0.5 x 0.5 meters, was formed through a stamping process (Kitipattanawit, Chainun, Saksangn, & Rinsangpin, 2021) using a self-made mold. Since using a single mold created tension on the sheet, resulting in the Tong-Tung leaves tearing, the top mold was divided into three sections according to the shape of the corrugations. The mold sections were placed one at a time, allowing the Tong-Tung leaves to move with the curve of the corrugation without tearing. The compression process was performed by using the weight of the mold as a pressing force. Since the Tong-Tung leaves dipped in boiled resin, are flexible, they can bond seamlessly while the resin remains warm. Leaves arrangement was evaluated in 2 methods.

- Method A: Tong-Tung leaves are positioned next to each other with minimal overlapping between layers. Using 4 leaves per layer each layer were shifted slightly to cover the lower

layer's gaps. The resulting method shows that some gaps occur near the middle part of the edges due to the rounded shape of the Tong-Tung leaves. However, the overall thickness remains consistent throughout the sheet.

- Method B: 4 Leaves were positioned further apart to cover the edges and corners. The next layer, leaves were arranged in a plus configuration to covers the previous layer's gap. This method resulted in fewer gaps, but there were more inconsistencies in thickness of the sheet. Complicated pattern takes more time leads to resin hardening in the leaf arrangement process, this results in the sheet bonding poorly.

Leaves positioning type A is allows for more consistent thickness during the forming process. The gaps that occur on the sheet can be fixed by selecting a larger Tong-Tung leaves, measuring 0.40 x 0.40 meters or more. The arrangement method B is more complex, resulting in longer time needed to place the Tong-Tung leaves on the mold before compression. As a result, the first layer of leaves placed cools and hardens before compression, causing cracking in the at the ridges of the sheet and leading to greater thickness in the middle of the sheet compared to other areas.

3.4 Study of the appropriate number of layers

The appropriate number of layers was determined by evaluating the ability to withstand flexural strength according to the ASTM C221 standard (ASTM International, 2003), which is the standard for corrugated roofing sheets. The test involved placing weight on the roofing sheet, increasing the weight by 0.1 kilogram at a time until failure. The maximum force served as an indicator to determine the optimal number of overlapping layers. Testing was conducted on 2 and 3 layers of leaves, which was feasible for manual pressing methods.

The increased number of layers resulted in the Tong-Tung roofing sheets with 3 layers having higher leaf, pine resin, and total weights compared to the two-layer sheets. However, the weight-bearing capacity of the roofing sheets increased by an average of 102.40%. Therefore, it was concluded that using three layers of Tong-Tung leaves is the most suitable, as it enhances the roofing sheet's weight-bearing capacity while still allowing for an easier quality control in production process.

3.3 Mechanical properties

To evaluate the quality of the new Tong-Tung roofing sheets, the mechanical properties were measured against standards for double-ridged corrugated roofing sheets.

- Dimensions and Thickness: Measurements followed ASTM C221 (ASTM International, 2003) to assess efficiency. Five sheets were tested and compared to the original double-ridged dimensions (0.50 x 0.60 meters).
- Flexural Strength Test and Moment capacity: Conducted per Thai Industrial Standard TIS 1407-1997 (Thai Industrial Standards Institute, 1997), this used five roofing sheets measuring 0.60 x 0.50 meters, with results analyzed to calculate moment capacity according to ASTM C221.
- Water Absorption and Fastener Tests: The water absorption test used ASTM C221 (ASTM International, 2003). For fastener pull-through strength, five sheets were cut into 0.50 x 0.30 meter sections, with half further divided for a 24-hour water immersion before testing.

3.4 Embodied carbon

Embodied carbon of the new Tong-Tung roofing sheet was calculated and emission factors was used according to (Thailand Greenhouse Gas Management Organization, 2016-2018).The calculation started from

the gathering of raw material to the installation of the roofing sheets. Gathering of Tong-Tung leaves were rather simple. As the leaves naturally fall to the ground near the end of winter to mid-summer period of Thailand. They can easily be found around the Dipterocarp forest common in north and north-east provinces of Thailand. Pine resin used in this research can also be found in the same area of Tong-Tung leaves, Higher up on tree trunks of Dipterocarpacae trees. Leaves and Resins were collected by the locals and transported to production site via Pickup trucks. Production method used natural gas to boil the Pine resin to the optimal temperature. The molding of the sheets were done manually, electricity was only used for minimal operations, such as powering a fan for worker comfort. The installation of Tong-Tung sheets on the roof structure are similar to the installation of the Double-ridged corrugated sheets, using only power drill and a grinder to cut away excess.

4. Results and discussion

4.1 Results

4.1.1 Dimension and Thickness evaluation

Measurements were taken of the height of the corrugations at each point, the distance between corrugations, and the thickness of the sheet at the head and tail areas, with the positions labeled as shown in Figure 4 below. From the tests, it was found that the material's thickness deviated from the prototype roofing sheet by an average of 72.38%. The average deviation in the corrugation height was 15.98%, and the average deviation in the corrugation spacing was 2.20%. The standard deviations for the corrugation height, spacing, and thickness were 5.65%, 0.00%, and 7.10%, respectively

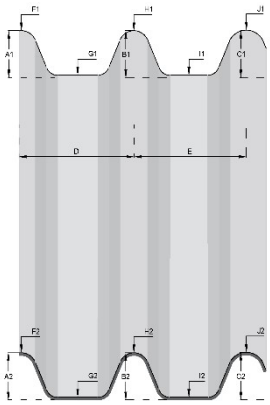


Figure 4 Dimension measurement points
Source: Researcher, 2025

4.1.2 Flexural strength and Moment capacity evaluation

Table 1 Flexural strength test to determine appropriate number of layers

Layers	Specimen	Leaves(g)	Pine resin(g)	Total(g)	Force(Kg)
2	A	145	1185	1330	12.20
	B	134	1329	1518	13.70
	C	145	1028	1173	11.70
3	D	231	1635	1866	23.20
	E	216	1996	2212	26.30
	F	192	1808	2100	26.20

Source: Researcher, 2025

The results of the flexural strength test were conducted using a Baldwin UTM Cap: 100tf machine. The specimen size was 0.50 m in width and 0.60 m in length, with a span of 0.40 m. The test involved applying a load at the center of the sheet using a beam with a width of 0.05 m, supported by a 0.01 m thick felt pad. The tests were conducted at 28°C. Prior to testing, the roofing sheet was immersed in water for 24 hours. The average breaking force was found to be 212.19 N, and the average flexural strength was 154.32 N/m, with a standard deviation of 19.22. The roofing sheet's average moment capacity was 21.23 N/m.

4.1.3 Water absorption evaluation

Table 2 Water absorption test of the refabricated Tong-Tung roof

Type	Specimen	Dry weight (g)	Wet weight (g)	Water absorption (%)
Through 0.10 x 0.10m.	1	119	126	5.88
	2	89	94	5.62
	3	84	94	11.9
	4	89	100	12.36
	5	90	96	6.67
	6	42	49	16.67
	7	79	87	10.13
	8	43	49	13.95
	9	88	100	13.64
	10	66	70	6.06
	11	100	107	7.00
	12	100	110	10.00
Deviation (%)				31.23

Ridge 0.10 x 0.10m.	1	112 93	121	8.04
	2	100	110	18.28
	3	69	110	10.00
	4		74	7.25
	5	83	94	13.25
	6	61	69	13.11
Deviation (%)				27.70

Source: Researcher, 2025

The samples were immersed in water at room temperature for 24 hours. The weight of the samples was measured before and after immersion to calculate the water absorption rate. After removal from the water, excess water was wiped off with a dry cloth before weighing. The results showed that the samples from the base of the corrugation had an average water absorption rate of 9.99%, based on their weight before immersion, with a standard deviation of 31.23%. Meanwhile, the samples from the crest of the corrugation had an average water absorption rate of 11.66%, with a standard deviation of 27.70%.

4.1.4 Fastener pull-through resistance evaluation

The fastener pull-through resistance test was conducted using roofing sheets measuring 0.50x0.30 meters. The screws were placed at a distance of 0.05 meters from the edge of the sheet along the ridge. Screws typically used in the market for fastening roofing sheets were driven through the Tong-Tung roofing sheet and attached to the metal roof frame beneath the sheet. Afterward, the sheet was pulled from the frame, and the screw penetrated through the roofing material. 5 Specimens were tested with an average leaf weight of 202.4g, average resin weight of 1,521g the average pull-through force was 10.48 kg, which is equivalent to 102.89 N, with a standard deviation of 30.03%.

4.1.4 Embodied carbon

Table 3 Embodied carbon of Tong-Tung roofing sheets

Activity		Quantity	Factor	Emissions ($kgCO_2e$)	Persheet ($kgCO_2e$)
Raw material acquisition					
Tong-Tung leaves	Pickup truck off road 50kg load	15km	0.3750tkm	0.2800	0.0140
Pine resin	Pickup truck off road 50kg load	45km	0.3750tkm	3.3750	0.1688
Production					
Heating the resin	LPG	2.00kg	0.8582kg	1.7164	0.3433
Electricity	Fan(4hours)	0.20kWh	0.5986kWh	0.1197	0.0239
Installation					
Transportation	6 Wheeled truck 50%load	700km	0.1198tkm	83.86	0.0419
Electricity	Electric drill 450w(10sec)	0.0013kWh	0.5986kWh	0.0007	0.0007
Total emissions		1.1852 (2.3704 for the same size of the reference material)			

Ref. Material	10.8000

Source: Researcher, 2025

The new Tong-Tung roofing material was made only half the size of the reference material for easier quality control. To directly compare the embodied carbon of both materials, the calculated emissions were doubled. Tong-Tung roofing sheets still have a significantly lower Embodied carbon than the reference double-ridged corrugated sheet of 78.10%. Most of the carbon emissions come from the production process, and the leaves can also serve as a carbon sink

4.2 Discussion

4.2.1 Dimensions and thickness

Deviations exceeding standards are observed in certain areas due to the manual production methods employed in the processing of Tong-Tung leaves. This is mainly caused by the insufficient force that manual labor can exert when pressing the leaves tightly together, which is essential for achieving optimal adhesion. The high pressure required for this process often surpasses what can be effectively generated by hand, leading to inconsistencies in the final product. Enhancing the efficiency of the coating process for the Tong-Tung leaves is crucial. By optimizing this step, it may be possible to decrease the amount of pressure needed to compress the leaves together before the resin cures. Implementing advanced techniques or machinery could significantly improve the adhesion quality and overall strength of the final product.

4.2.2 Flexural resistance and moment capacity

Without the optimal adhesion due to insufficient force, the refabricated Tong-Tung roofing sheet have an average flexural resistance of 154.32 Nm. That is 16 times lower than the standard, (Thai Industrial Standards Institute, 1997), compared to the standard for roofing sheets with a rib height of 0.055–0.080 meters. From previous research (Utthiyoung, Sitticharoen, & Passadee, 2017), a composite roofing tile sized 0.180 x 0.280 meters, which uses palm leaf fiber with a similar binding material. The tile can with stand 7,390 Nm, significantly higher than the bending resistance in this study. When compared with coconut husk reinforced cement roofing tiles from (Darsana, et al., 2016), (Fernando, Ariyadasa, Muthurathna, & Nanayakkara, 2019), the refabricated Tong-Tung roofing sheet can withstand 4 times and 15 times less, respectively.

4.2.3 Average water absorption

The trough area is at 10.06%, while the ridge area shows an average water absorption of 11.55%. This represents a 14-fold improvement to the traditional Tong-Tung roof, which has an average water absorption of 145.41%. The water absorption is well below the ASTM C221 standard, which limits the absorption to no more than 25% of the material's weight. Compared to previous studies, the refabricated Tong-Tung Roof still shows higher water absorption than roofing made from wood sawdust mixed with lime (Utthiyoung, Sitticharoen, & Passadee, 2017), which achieved 3.04%. The lowest absorption observed was for the coir fiber-reinforced concrete roofing (Santhosh et al., 2017) at 2.9%, which is lower than the 25% seen in coconut fiber-reinforced roofing (Fernando, Ariyadasa, Muthurathna, & Nanayakkara, 2019), and is similar to the results of the corrugated roofing sheet from sugarcane bagasse fibers (Kittasak & Prayoon, 2021) for pieces bonded with urea-formaldehyde glue, where the absorption rates were 32.28%, 12.19%, and 10.82%, respectively.

4.1.4 Fastener pull-through resistance

The testing was performed following ASTM D3462 standards, yielding an average value of 10.48 kg, or 102.70 N, which is 43.30% lower than the specified value for multi-layer synthetic fiber asphalt roofing sheets. This reduction in strength is likely due to imperfect bonding of the Tong-Tung leaves at the crest area. Damage patterns during testing included localized holes from screw pressure and a longitudinal crack along the crest. These findings indicate that reinforcing the bonding process in this critical area could improve the overall structural integrity of the roofing sheets. Addressing these bonding issues is essential for enhancing performance and ensuring compliance with industry standards. Further exploration of adhesive properties and application methods may offer valuable insights into strengthening durability and reliability in the final product.

4.1.5 Embodied carbon

The availability of raw materials for the new Tong-Tung roofing sheets significantly reduces carbon emissions during acquisition. These materials are harvested from forest floors, and pine resins are collected from nearby trees, minimizing transportation emissions and promoting sustainable use. The simplified production methods further lower carbon emissions by reducing energy consumption compared to complex manufacturing processes. The total carbon emissions from raw material acquisition to installation are 2.3704 $kgCO_2e$, which is 78.10% lower than the 10.80 $kgCO_2e$ for traditional double-ridged corrugated sheets. This highlights the environmental benefits of Tong-Tung roofing materials and the importance of sustainable building practices in construction.

4.3 Conclusion

The process of fabricating Tong-Tung leaves into refabricated roofing sheets involves molding and binding them with pine resin, extending their lifespan by enhancing protection against moisture and wind. Pine resin serves as a natural adhesive that seals the leaves, preventing water absorption and reducing the risk of degradation, mold, and decay. The resulting roofing sheets have a water absorption rate of just 10.85%, which is 14 times better than traditional Tong-Tung roofing. These refabricated sheets can better withstand applied forces compared to traditional Tong-Tung leaf roofs due to the effective binding of the leaves. Using entirely natural materials and a simple production method enhances their environmental friendliness compared to double-corrugated fiber cement roofing. While they may have lower mechanical properties than sawdust-based, coconut fiber, and bagasse-based sheets, they still meet industry standards for water absorption and perform comparably to other natural roofing materials.

Additionally, this production method significantly lowers carbon emissions due to local sourcing of materials and reduced energy use. By increasing the thickness of the roofing sheets, their strength and durability can be improved, allowing them to better resist external forces. This enhancement, along with improved leaf alignment and bonding, could enable them to meet or exceed the performance of traditional materials like asphalt shingles or concrete, while remaining environmentally friendly and sustainable.

Figure 5 Refabricated Tong-Tung sheet
Source: Researcher, 2025

5. References

D ASTM International. (2003). *ASTM C221 - 98 Standard Specification for Corrugated Asbetos-Cemant Sheets.* West Conshohocken,PA: ASTM International.

ASTM International. (2004). *ASTM D3462 - 03a Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.* West Conshohocken, PA: ASTM Internationa.

Bunyarittikit, S. (2014). Leaf Roof in Thailand. *Najua Journal*, 283-296.

Darsana, P., Abraham, R., Joseph, A., Jasheela, A., Binuraj, P. R., & Sarma, J. (2016). Development of Coir-fibre Cement Composite Roofing Tiles. *Procedia Technology*, 169-178.

El-Atrouzy, M. N. (1969). *Structural properties of corrugated sheets used in cylindrical shells.* Windsor: University of Windsor.

Fernando, P., Ariyadasa, G., Muthurathna, S., & Nanayakkara, S. (2019). Development of Coir Fibre Reinforced Cement Roofing Sheets. *NBRO 2019 Symposium Proceedings* (pp. 65-73). Columbo, Sri lanka: National Building Research Organization.

Forest and Plant Conservation Research Office, Department of National Parks, Wildlife and Plant Conservation, Ministry of Natural Resources and Environment. (2013). *Conservation and Utilization of Dipterocarpaceae.* Nonthaburi: The Agricultural Co-operative Federation of Thailand LTD. (ACFT).

Kitipattanawit, J., Chainun, C., Saksangn, N., & Rinsangpin, M. (2021). Development of Packaging Forming Machine from antimony leaf for. *RAJABHAT CHIANG MAI RESEARCH JOURNAL*, 240-252.

Le, A. B., Whyte, A., & Biswas, K. W. (2562). Carbon footprint and embodied energy assessment of roof-covering. *Clean Technologies and Environmental Policy*, 1913 - 1923.

Ministry of Natural Resources and Environment. (2020). *BUR3_Thailand_251220*. Retrieved from unfccc.int: https://unfccc.int/ sites/default/files/resource/BUR3_Thailand_251220%20.pdf

National Statistical Office. (2024). *Statistical Yearbook Thailand 2024.* Retrieved from nso.go.th: https://www.nso.go.th/public/e-book/Statistical-Yearbook/SYB-2024_webPage/Page_SYB_EN.html

Santhosh, B., Raghavendra, N., Deepesh, J., Vishal, S., & Ayush, P. (2017). Strength of Corrugated Roofing Elements Reinforced With Coir. *International Research Journal of Engineering and Technology (IRJET)*, 2371-2374.

Tennakoon, D. S., Gentekaki, E., Jeewon, R., Kuo, C.-H., Promputtha, I., & Hyde, K. D. (2021). Life in leaf litter: Fungal community succession during decomposition. *mycosphere*, 406-429.

Thai Industrial Standards Institute. (1997). *TIS.1407-2540 Corrugated fiber cement tiles.* Bangkok: Thai Industrial Standards Institute.

Thailand Greenhouse Gas Management Organization. (2016-2018). *Emmision Factor (CFP)*. Retrieved from Thaicarbonlabel: https://thaicarbonlabel.tgo.or.th/index.php?lang=EN&mod=Y0hKdlpIVmpkSE5mWlcxcGMzTnBiMjQ9

Utthiyoung, C., Sitticharoen, W., & Passadee, N. (2017). Development of Natural Composite Materials Roof Forming Process. *UTK Journal*, 69-78.

Wattanasuksakul, S., Khamyong, S., Sri-ngernyuang, K., & Anongrak, N. (2012). Plant Species Diversity and Carbon Stocks in Dry Dipterocarp Forest. *Thai Journal of Forestry*, 1-14.

Digital Age: The Study of communication Model As a methodology to create an E-Advertising

Feiran Wang[1*], Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: antony124914@gmail.com

Abstract

The research background is based on the history of advertising. Advertising spreads from the oral language at the beginning to text, printing, electronics, and the Internet. The media changes in the digital age (social media, big data, AI technology) have had an impact on advertising communication. Traditional advertising models have limitations, while digital advertising is interactive, accurate and dynamic. Comparing traditional advertising with ED, we find that audiences prefer advertising forms that are warm and interactive. Traditional advertising types are relatively simple, lack interactivity, spread slowly, and lack timeliness. Advertising also needs to include emotions. Now we need a new advertising communication model to use technology to create impressive and interactive electronic advertisements.

Keywords**:** *digital Age, E-advertising, scenario interactive advertising*

1. Introduction

1.1 The investment of enterprises in advertising is on the rise, and more and more funds are invested in advertising. The rise of social media platforms. Users have transformed from passive recipients to content cocreators. Big data and algorithm revolution, Real-time data tracking (such as cookies, SDK embedding) enables advertising to shift from "wide-net" to "precise sniping" .AIGC (AI generated content) reconstructs the advertising production chain, such as Chat GPT writing personalized advertising copy, Mid Journey generating visual materials, reducing content production costs by 70%.

The fundamental limitations of traditional advertising models. One-way communication deadlock, TV/radio advertising lacks an instant feedback mechanism and cannot quantify user emotional reactions. Low coverage efficiency, Traditional media (newspapers, outdoor advertising) cannot accurately target, and more than 50% of the budget is wasted on non-target groups. Static content lacks adaptability, Fixed advertising cycles are difficult to cope with dynamic changes in the market.

2. Objectives

1) to study the existing development model and future development path of advertising,
2) to design successful advertising, improve the success rate of design,
3) to explore the development path of future advertising design.

3. Research Questions

1. Why does this word need advertising?
2. Why Offline Ads need to transform to e-Ads?
3. How to transform the communication model into an actionable advertising design methodology?

4. Methodology

4.1Berlo's Model of Communication(SMCR Model)

Developed by David Berlo in the 1960s, this linear model emphasizes four key components: Source, Message, Channel, Receiver (SMCR). Each component has specific factors influencing communication effectiveness.

1) Source

The originator of the message influenced by: Communication Skills: Ability to encode the message Knowledge: Expertise on the subject matter.

Social-Culture System: Background, values, and societal norms shaping the source's perspective. Attitude: Confidence, respect for the audience, and enthusiasm toward the topic.

2)Message

The content and structure of the communication, determined by:

Content: The actual information or idea.

Structure: Logical organization and flow.

Code: Language, symbols, or gestures used.

Treatment: Style, tone, and presentation.

Elements: Non-verbal components.

3)Channel

The medium or sensory pathway for transmitting the message:

Five Senses: Hearing, sight, touch, smell, taste.

4)Receiver

The audience, influenced by factors mirroring the Source:

Communication Skills: Ability to decode the message.

Knowledge: Prior understanding of the topic.

Social-Culture System: Cultural and social context affecting interpretation. Attitude: Receptiveness to the message or source.

4.2Shannon-Weaver Model

The Shannon-Weaver Model, developed in 1949 by Claude Shannon and Warren Weaver, is a foundational framework in communication theory.

1)Information Source: The originator of the message.

2)Encoding: Encodes the message into signals .

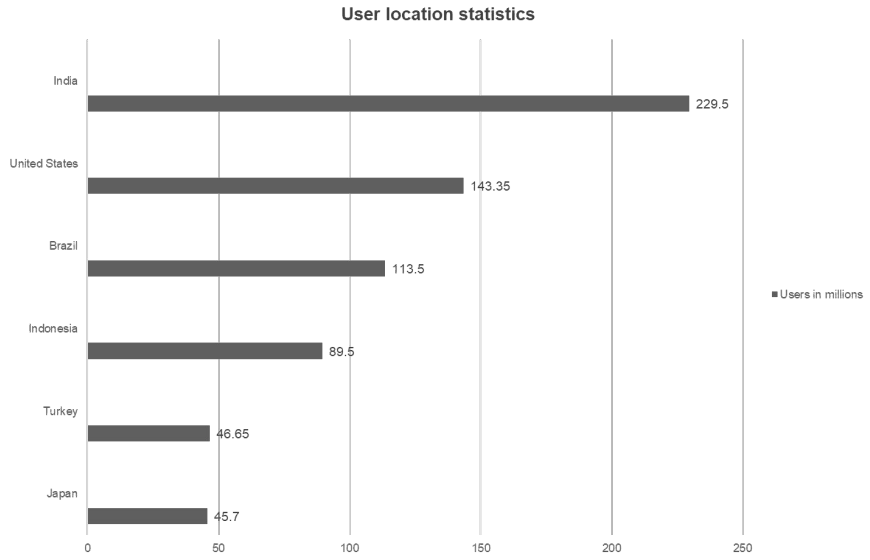
3)Channel: The medium carrying the signals.

4)Noise: Interference disrupting the message .

5)Receiver: Decodes the signals back into a message. 6)Destination: The intended endpoint.

5. Results

Advertising communication has developed from the oldest sound communication to the present day, with the emergence of text, images, and videos. The advantage of text is that it can simply express the sender's intention, grasp and disseminate information more clearly and quickly, which is the simplest basis for modern advertising. Picture ads can attract the audience's attention, and can give the recipient some room for imagination and thinking through some exaggeration, color, and shape. Video ads can combine sound, text, and pictures to convey information. This is the mainstream advertising communication method of the contemporary era, but it lacks interactivity with the recipient, causing the recipient to have negative emotions for a long time. We should create an advertising model that can interact with the audience and make the audience more interested.



Platform data analysis(Instagram):Ages:18-34 years old users Accounting for 61.1% of the total users,35-65+ years old users Accounting for 31% of the total users.

Gender:52.8% of users are male,47.2% of users are female.

Area:45% of users live in urban areas, 41% live in suburban areas ,25% live in rural areas. Business: There are 20 billion businesses,71% use platforms for commercial purposes.2023 Advertising coverage increased by 20.5%.

Table 1 Conversion type breakdown

Conversion metrics	Interactive ad Improvement rate	Static ad Benchmark	Applicable scenarios
Click conversion rate	+52%	1.2%---1.8%	Playable ads
Install conversion rate	+37%	3.5%---4.8%	Download ads
Purchase conversion rate	+22%	2.1%---2.6%	AR ads

Source: Statistical analysis of Google's advertising market data, 2022

The 37% increase is based on Google's 2022 A/B test results of 5,000 mobile ad campaigns, where the average conversion rate of the playable ad group (n=2,500) was 4.8% and the static ad group (n=2,500) was 3.5%. "

Statistical significance: Supplement p-value or confidence interval, such as "The difference is significant ($p<0.01$, 95% CI=32%-42%)".

Data limitations: Sample bias (such as limited to Android users or specific regions); Short-term effect (data coverage period is 30 days; long-term retention has not been verified).

Table 2 Limit the applicable conditions and boundaries .Industry differences.

High-improvement industries		
Games	+37%~50%	Trial play reduces decision-making risks
FMCG	+25%~35%	AR makeup trial, virtual trial
E-Commerce	+20%~30%	3D product interaction
Low-improvement or negative industries		
Finance	+5%~10%	Users are concerned about data security
B2B	+8%~15%	Decision-making chain is long, interactive advertising is easily seen as interference

Source: Researcher, 2025

In the gaming and fast-moving consumer goods industries, highly interactive ads (such as playable ads and AR makeup trials) can achieve a 37% increase in conversion rate (95% CI = 32%-42%) by reducing user decision-making risks; however, in highly privacy-sensitive fields such as finance, similar ads only increase conversion rates by 5%-10% due to data anxiety (IAB, 2023). In addition, technical boundaries (such as 5G coverage) and interactive design complexity (recommended ≤ 3 steps) significantly moderate the effect, and excessive pursuit of interactivity may lead to a marginal decrease in conversion rate ($\beta = 0.15$, $p < 0.01$).

Table 3 Traditional Advertising and E-advertising contrast

Elements	Traditional Advertising	E-advertising
Sender	One-way output	User-generated content AI co-creation
Message	Static	Dynamic
Channel	TV/Newspaper	Short video platform/ Social media
Receiver	Inaccurate	Data management platform

Source: Researcher, 2025

Through analysis and comparison between traditional advertising and E-advertising, audiences prefer advertising forms that are warm and interactive. Traditional advertising types are relatively simple, lack interactivity, are slow to spread, and lack timeliness. Now we need a new advertising communication model to use technology to create impressive and interactive electronic advertisements.

Table 4 AIDA model advantage analysis

Attention	Using eye-catching visuals headlines
Interest	Providing engaging and relevant content
Desire	Highlighting product benefits emotional appeals
Action	Clear calls-to-action

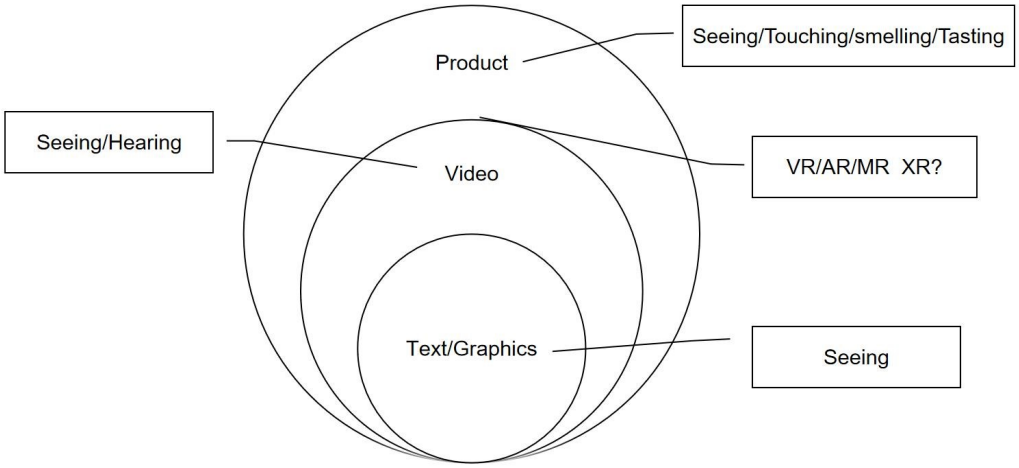
Source: Researcher, 2025

Use the AIDA model ,including Attention, Interest, Desire, Action. Capturing the Audience, Use eye-catching visuals (videos, animations), bold headlines, and targeted ads Engaging the audience. Provide value through engaging content. Creating Urgency and Want.

Table 5 SWOT interactive scenario interactive advertising

Strengths 1.Increase playback rate 2. Easy for people to accept	Weaknesses 1.Higher cost 2.Longer production cycle
Opportunities New ways of communication	Threats 1.Other ad. competition 2.Plagiarism and imitation

Source: Researcher, 2025



Source: Researcher, 2025

Analyze the characteristics of advertisements using Scenario Interactive Ad Strengths increase playback rate, easy for people to accept and weaknesses are higher cost ,longer production cycle. Opportunity is a new way of communication, Threats are the other ad. competition, plagiarism and imitation.

6. Acknowledgement

Use the AIDA model, including Attention, Interest, Desire, Action. Capturing the Audience, Use eye-catching visuals (videos, animations), bold headlines, and targeted ads Engaging the audience. Provide value through engaging content. Creating Urgency and Want. Through analysis and comparison between traditional advertising and E-advertising, audiences prefer advertising forms that are warm and interactive. Traditional advertising types are relatively simple, lack interactivity, are slow to spread, and lack timeliness. Now we need a new advertising communication model to use technology to create impressive and interactive electronic advertisements. Analyze the characteristics of advertisements using Scenario Interactive Ad， Strengths increase playback rate, easy for people to accept and weaknesses are higher cost ,longer production cycle. Opportunity is a new way of communication, Threats are the other ad. competition, plagiarism and imitation.

7. References

C. E. Shannon.(1948).A Mathematical Theory of Communication. eMarketer. (2023). *Global digital ad spending 2023*. https://www.emarketer.com

Chaffey, D., & Ellis-Chadwick, F. (2022). *Digital marketing: Strategy, implementation and practice* (8th ed.). Pearson

David K. Berlo.(1960).The Process of Communication: An Introduction to Theory and Practice Lambrecht, A., & Tucker, C. (2013). When does retargeting work? Information specificity in online advertising. *Journal of Marketing Research, 50*(5), 561–576. https://doi.org/10.1509/jmr.11.0503 Goldfarb, A., & Tucker, C. (2011). Online advertising, behavioral targeting, and privacy. *Marketing

European Union. (2023). *GDPR enforcement tracker*. https://www.enforcementtracker.com

F., Dens, N., & De Pelsmacker, P. (2015). Is this for me? How consumers respond to personalized advertising on social network sites. *Journal of Interactive Advertising, 15*(2), 124–134. https://doi.org/10.1080/15252019.2015.1082450

Interactive Advertising Bureau (IAB). (2023). *Digital advertising ecosystem guidebook*.https://www.iab.com
Jones, A. (2022). Digital advertising trends. Blog Name. Retrieved from
Li, H., & Kannan, P. K. (2014). Attributing conversions in a multichannel online marketing environment. *Journal of Marketing Research, 51*(4), 295–314. https://doi.org/10.1509/jmr.13.0050
López, J. C. (2020). *Programmatic advertising: The successful transformation to automated, data-driven marketing in real-time*. Springer
Ryan, D. (2023). *Understanding digital marketing: Marketing strategies for engaging the digital Science, 30*(3), 389–404. https://doi.org/10.1287/mksc.1100.0603
Smith, J. (2023). The effectiveness of digital advertising. Journal of Marketing, 87(4), 123-135. [doi:10.1016/j.jmkr.2022.09.001]
Statista. (2023). *Digital advertising worldwide – Statistics & facts*. https://www.statista.com De Keizer, generation* (5th ed.). Kogan Page.

Designing a Modern Tea Table: Integrating Aesthetic Concepts of the Tang Dynasty

Hengxi Ge[1*] and Sammiti Sukbunjhong[2]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: Hengxi.g66@rsu.ac.th

Abstract

In recent years, there has been a growing interest in traditional Chinese culture, particularly among younger generations seeking to connect with their heritage. However, traditional tea tables often do not meet the needs of modern lifestyles and smaller living spaces. This research addresses the gap between traditional aesthetics and modern living by proposing a design for a contemporary tea table that integrates aesthetic concepts from the Tang Dynasty. The objective of this study is to explore how design can effectively blend historical aesthetics with modern functionality to create a tea table that resonates with contemporary consumers. It aims to bridge the gap between cultural heritage and modern design preferences by creating a product that is both visually appealing and practical for modern living spaces. This research employs a quantitative survey method to investigate consumer perceptions and acceptance of tea tables designed with Tang Dynasty aesthetics. The survey collects data on demographics, opinions on Tang Dynasty tea tables, acceptance of modern tea table designs, cultural influences and preferences, and suggestions for improvement. The data is analyzed using SPSS software to identify key statistical trends and critical factors influencing user perception and acceptance. Results indicate a generally positive attitude towards tea tables incorporating Tang Dynasty aesthetics. Respondents found the designs visually appealing, culturally significant, functional, and suitable for modern homes. The survey also revealed a desire for modular designs, lightweight materials, simplified patterns, built-in storage, versatility, and portability.

Keywords**:** *tea table design, tang dynasty aesthetics, modern design*

1. Introduction

In recent years, there has been a growing appreciation for traditional Chinese culture, particularly its influence on design and lifestyle, reflecting a desire to reconnect with heritage. However, modern living often presents challenges to incorporating traditional elements, especially in urban environments where space is limited and lifestyles are fast-paced. This creates a need for design solutions that bridge the gap between historical aesthetics and contemporary functionality.

Figure 1 Tribute tea house of Tang Dynasty and Qingming tea banquet
Source: https://zhuanlan.zhihu.com/p/666160449?utm id=0

Despite the rich history of tea culture in China, many modern homes lack furniture that adequately supports traditional tea ceremonies and practices. While traditional tea tables exist, they often do not meet the needs of smaller living spaces or align with contemporary design preferences. According to Yu (2013), traditional tea tables are often impractical for young people due to their size and complexity. Moreover, Zhang & Huang (2024) highlight the diverse styles and cultural significance of Tang Dynasty jewelry, suggesting the potential for integrating similar aesthetics into other design forms.

The challenge lies in creating a tea table that honors the elegance and cultural significance of the Tang Dynasty while being functional, aesthetically pleasing, and suitable for modern living. This project aims to address this challenge through the design of a contemporary tea table that integrates aesthetic concepts from the Tang Dynasty, informed by cross-cultural design theory (Zhang, Li, & Tao, 2023) and cultural inheritance theory (Zhou, 2024). These elements aim to blend traditional Chinese aesthetics with modern design principles, making the tea table not only useful but emotionally and culturally resonant.

Figure 2 The tea ceremony is also a social event
Source: https://baijiahao.baidu.com/s?id=1789607782802389814&wfr=spider&for=pc

This study aims to explore how design can effectively blend historical aesthetics with modern functionality to create a tea table that resonates with contemporary consumers. Using a quantitative survey method, this research integrates aesthetic design theory (Fu, 2023) with consumer behavior theory (Meng, Guo, & Cheng, 2024) to create a sustainable and inclusive design solution.

2. Objectives

1) To study the characteristics of tea table which involve Tang Dynasty aesthetic and culture
2) To explore effective methods to integrate the aesthetic concepts of Tang Dynasty tea culture into the design of modern tea tables.
3) To design a tea table by integrating the aesthetic concepts of Tang Dynasty tea culture

3. Details

3.1 Sample and Sampling Method

The target population for this study includes the permanent residents of Luoyang, which had a population of 7.079 million in 2024. As Luoyang is a historical and cultural center, it is a relevant site for the survey. Using a 95% confidence level and a 5% error margin, the sample size was calculated using Taro Yamane, resulting in a sample of approximately 400 respondents.

3.2 Research Variables

Independent Variables: Tang Dynasty Aesthetic, Modern Design Principles
Dependent Variables: Consumer Acceptance, Cultural Perception

3.3 Research Tools

A questionnaire survey method will be employed to assess consumer perceptions and acceptance of tea tables incorporating Tang Dynasty aesthetics. The questionnaire is organized into five sections: Demographic Information: Collects data on age, gender, occupation, education, and income to analyze demographic influences on perception. Perception of Tang Dynasty Aesthetic Tea Tables: Gathers data on respondents' views regarding design appeal, cultural significance, and functionality. Acceptance of Modern Tea Table Designs: Rates acceptance levels regarding satisfaction, usability, and emotional resonance with designs. Cultural Influence and Preferences: Explores how cultural backgrounds affect preferences in tea table designs and decision-making. Suggestions and Recommendations: Collects feedback for improving the integration of Tang aesthetics into modern designs. A five-level Likert scale will measure responses: 5 (absolutely positive impact) to 1 (absolutely negative impact). Average scores will be analyzed to gauge attitudes towards design.

3.4 Data Collection

Quantitative data will be collected using online survey tools such as WeChat Questionnaire Star. Links will be distributed widely across online platforms to reach eligible respondents.

3.5 Data Analysis

SPSS software will analyze the collected data through descriptive statistics to identify trends. Relevant analytical methods will also determine factors influencing perceptions and acceptance of Tang Dynasty aesthetic tea table designs, testing hypotheses related to consumer behavior.

4. Results

4.1 Concept of design and Design inspiration

In today's fast-paced life, the tea table is not only a carrier of tea sets, but also an important place for family interaction and social gatherings. Especially in Chinese culture, the tea table carries a rich social meaning and is a space for family and friends to gather together and share life. Therefore, designing a tea table that conforms to modern aesthetics and has traditional cultural heritage, making it both practical and artistic, is the core goal of our design.

Tea tables, as a key carrier of tea culture, carry deep cultural heritage in Chinese families. The design incorporates traditional elements like simple lines and warm wood tones to reflect Chinese tea culture's charm and social significance, blending tradition with modern aesthetics for fresh visual experiences. In urban environments where space efficiency and versatility are crucial, the design includes hidden storage to enhance practicality and help maintain tidiness. It also emphasizes human-centered features to facilitate family gatherings and social interactions. Additionally, user feedback and insights from potential users guide the design’s focus on function, size, and aesthetics, ensuring the product better meets real-world needs.

4.2 Sketch Design

4.2.1 Shape Sketch

In the shape sketch part, the design is inspired by the elegant curves and symmetrical beauty of Tang Dynasty architecture. This style reflects the prosperity of Tang Dynasty culture and the unique aesthetics of art. For this reason, I drew a sketch next to it to show the overall shape of the tea table.

In the sketch, the design of the tea table adopts a streamlined outline, which is simple yet elegant. It is inspired by the curved lines of the roof of the Tang Dynasty palace, reflecting the continuation of traditional culture. The bottom support structure adopts a symmetrical design to enhance stability and beauty. In terms of the selected proportions, attention is paid to the harmonious match with modern home furnishings, making it easier to integrate into various life scenes.

4.2.2 Pattern Sketch

In my pattern design, I studied the Baoxianghua extensively and drew inspiration from its traditional symbolism of auspiciousness and prosperity. The complex petal contours and elegant curved lines of Baoxianghua provided rich inspiration, which I abstracted to create a series of geometric and plant-like decorative patterns with a modern aesthetic. The new design emphasizes streamline and symmetry, enhancing the artistic appeal of the tea table's surface and edges. These patterns not only attract visual attention but also carry cultural significance, encouraging appreciation of traditional craftsmanship. Techniques like laser engraving or screen printing will help accurately express these delicate details,enriching the table's texture and artistic value.

Figure 4 A sketch of a pattern inspired by the "Baoxianghua" pattern
Source: Researcher, 2025

4.3 Audience data

4.3.1 Respondent Profile and Consumption Capacity

The study collected 400 valid questionnaires, with respondents primarily consisting of middle-aged and young adults (72% aged 19-54), slightly skewed toward males (52.25% vs. 47.75% females). The group exhibited distinct educational stratification, with nearly 40% holding bachelor's degrees or higher. Income levels clustered in the 3,000-8,000 RMB range (60.75%), indicating moderate consumption capacity. Notably, teenagers under 18 and seniors over 55 accounted for 28% of participants, suggesting potential intergenerational aesthetic disparities in traditional furniture design preferences.

4.3.2 The Dilemma of Traditional Design Recognition

Respondents generally acknowledged the aesthetic value of Tang Dynasty tea tables, with four core evaluation metrics (visual appeal, cultural symbolism, functionality, and ambiance) averaging 3.81/5. Over 65% provided positive feedback. However, deeper contradictions emerged: While 83% recognized their cultural significance, only 14% deemed them suitable for modern homes, with 67% explicitly rejecting traditional designs. This tension between **"aesthetic recognition"** and **"functional rejection"** underscores the necessity for modernizing classical elements.

4.3.3 Market Opportunities for Modernized Designs

For Tang-inspired modern tea tables, 66% of respondents approved their decorative value, and 62% recognized improved human-centric practicality. Top-requested functional enhancements included modular design (41% mention rate), lightweight materials (38%), and hidden storage (35%). Price sensitivity analysis revealed that under-30 groups showed less than 17% acceptance for products exceeding 8,000 RMB. A tiered pricing strategy is recommended to balance **cultural premium** with mass market demands, leveraging design innovation to bridge historical heritage and contemporary lifestyles.

4.4 Product Production

4.4.1Tea table size

In the initial stage of prototyping, I determined the size of the tea table: 20 cm in height, 50 cm in length, and 30 cm in width. This size was adjusted and considered many times to balance the practicality and aesthetics of the tea table. The 20 cm height makes it very suitable for the sofa height of most modern homes, allowing users to interact from different positions, while the 50 cm length and 30 cm width provide enough surface area to meet the various needs of daily use.

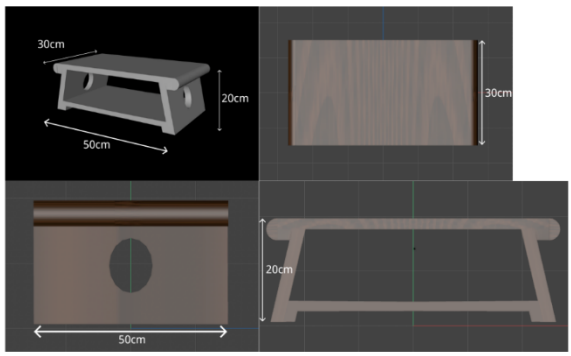


Figure 5 The finalized product 3D model and three views (length, width and height)
Source: Researcher, 2025

4.4.2 Application of patterns on the tea table

After completing the material selection and the construction of the tea table structure, I carried out the key decoration step: applying the pattern of the Baoxiang flower to the surface of the tea table. The carefully designed patterns were used, which not only visually enhanced the artistic beauty of the tea table, but also strengthened its cultural value. The precise presentation of each pattern was completed by combining manual work with modern technology to ensure the perfect display of details. All pictures and records of the production process not only provided detailed reference materials for prototype production, but also provided valuable data support for subsequent display and user feedback collection.

Figure 6 The whole process of drawing the “Baoxianghua” pattern
Source: Researcher, 2025

4.5 Final product display

After going through the entire process of conception, material selection, and fine craftsmanship, I am pleased to present the final product: a carefully designed tea table that perfectly blends traditional art and modern design concepts.This tea table is on display, showing its all-round success from concept to realization. Through the combination of delicate craftsmanship and modern manufacturing technology, every detail is carefully polished to ensure the best user experience. Whether as a centerpiece of a home space or as a practical piece of furniture, it can perfectly play its role.

The design of the tea table brings together respect for traditional art and understanding of modern life, hoping to bring more convenience and beauty to the user's living space, and at the same time become a link between users and traditional culture.

Figure 7 Final Product
Source: Researcher, 2025

5. Conclusion

This paper takes tea table design as the theme and explores how to combine traditional elements with modern design concepts. During the research process, I drew inspiration from Tang Dynasty architecture and Baoxianghua to design a tea table that has both cultural heritage and meets modern living needs. Through research on target users, careful selection of materials and multiple design iterations, a fired paulownia tea table with waterproof properties, light structure and elegant patterns was finally formed. Throughout the process, professional feedback was obtained through interviews with designers, which provided an important basis for the optimization of the design. The final product display not only proved the effectiveness of the design ideas, but also demonstrated the perfect fusion of function and beauty. I hope that this tea table can win recognition in the market, and at the same time provide a good reference and inspiration for subsequent designs, so as to further promote the combination of traditional culture and modern design.

6. References

ASTM International. (2003). *ASTM C221 - 98 Standard Specification for Corrugated Asbetos-Cemant Sheets.* West Conshohocken,PA: ASTM International.

ASTM International. (2004). *ASTM D3462 - 03a Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.* West Conshohocken, PA: ASTM International.

Bunyarittikit, S. (2014). Leaf Roof in Thailand. *Najua Journal*, 283-296.

Darsana, P., Abraham, R., Joseph, A., Jasheela, A., Binuraj, P. R., & Sarma, J. (2016). Development of Coir-fibre Cement Composite Roofing Tiles. *Procedia Technology*, 169-178.

El-Atrouzy, M. N. (1969). *Structural properties of corrugated sheets used in cylindrical shells.* Windsor: University of Windsor.

Fernando, P., Ariyadasa, G., Muthurathna, S., & Nanayakkara, S. (2019). Development of Coir Fibre Reinforced Cement Roofing Sheets. *NBRO 2019 Symposium Proceedings* (pp. 65-73). Columbo, Sri lanka: National Building Research Organization.

Forest and Plant Conservation Research Office, Department of National Parks, Wildlife and Plant Conservation, Ministry of Natural Resources and Environment. (2013). *Conservation and Utilization of Dipterocarpaceae.* Nonthaburi: The Agricultural Co-operative Federation of Thailand LTD. (ACFT).

Kitipattanawit, J., Chainun, C., Saksangn, N., & Rinsangpin, M. (2021). Development of Packaging Forming Machine from antimony leaf for. *RAJABHAT CHIANG MAI RESEARCH JOURNAL*, 240-252.

Le, A. B., Whyte, A., & Biswas, K. W. (2562). Carbon footprint and embodied energy assessment of roof-covering. *Clean Technologies and Environmental Policy*, 1913 - 1923.

Ministry of Natural Resources and Environment. (2020). *BUR3_Thailand_251220*. Retrieved from unfccc.int: https://unfccc.int/ sites/default/files/resource/BUR3_Thailand_251220%20.pdf

National Statistical Office. (2024). *Statistical Yearbook Thailand 2024.* Retrieved from nso.go.th: https://www.nso.go.th/public/e-book/Statistical-Yearbook/SYB-2024_webPage/Page_SYB_EN.html

Santhosh, B., Raghavendra, N., Deepesh, J., Vishal, S., & Ayush, P. (2017). Strength of Corrugated Roofing Elements Reinforced With Coir. *International Research Journal of Engineering and Technology (IRJET)*, 2371-2374.

Tennakoon, D. S., Gentekaki, E., Jeewon, R., Kuo, C.-H., Promputtha, I., & Hyde, K. D. (2021). Life in leaf litter: Fungal community succession during decomposition. *mycosphere*, 406-429.

Thai Industrial Standards Institute. (1997). *TIS.1407-2540 Corrugated fiber cement tiles.* Bangkok: Thai Industrial Standards Institute.

Thailand Greenhouse Gas Management Organization. (2016-2018). *Emmision Factor (CFP)*. Retrieved from Thaicarbonlabel: https://thaicarbonlabel.tgo.or.th/index.php?lang=EN&mod=Y0hKdlpIVmpkSE5mWlcxcGMzTnBiMjQ9

Utthiyoung, C., Sitticharoen, W., & Passadee, N. (2017). Development of Natural Composite Materials Roof Forming Process. *UTK Journal*, 69-78.

Wattanasuksakul, S., Khamyong, S., Sri-ngernyuang, K., & Anongrak, N. (2012). Plant Species Diversity and Carbon Stocks in Dry Dipterocarp Forest. *Thai Journal of Forestry*, 1-14.

"VOICE OF THE UNHEARD"

A documentary on workplace harassment faced by women in Thailand tourism industry

Murad Hossain[1*], Sammiti Sukbunjhong[2] and Minjade Paklapas[3]

[1*]Graduate Student, Master of Fine Arts in Design, College of Design, Rangsit University, mhnisher@gmail.com
[2]Advisor, Master of Fine Art in Design, College of Design, Rangsit University, minjade.pa@gmail.com
[3]Co-advisor, Master of Fine Art in Design, College of Design, Rangsit University, sammiti@gmail.com

Abstract

This thesis presents "Voice of the Unheard," a documentary that examines the widespread problem of woman harassment within the tourism industry. By emphasizing the lived experiences of female workers, this documentary intends to illuminate the systematic difficulties they encounter, including discrimination, harassment, and insufficient protections. Through a combination of personal stories, expert interviews, and on-site documentation, the film uncovers the frequently-unspoken realities of women's experiences in different roles within the industry. By amplifying these voices, "Voice of the Unheard" seeks to increase awareness, encourage conversation, and advocate for significant change to create a safer and more equitable workplace for women in tourism. The documentary not only functions as a commentary on gender inequality but also calls for policy reforms and industry accountability to empower women and advance their rights within this vital sector.

Keywords: documentary, woman, harassment, Thailand tourism industry.

1. Introduction

The tourism sector functions as a dynamic pillar of the global economy, comprising roughly 10% of the world's GDP and creating millions of jobs across varied sectors. As one of the world's largest employers, it presents considerable opportunities, particularly for women, who constitute a substantial portion of its workforce. However, alongside the industry's rapid growth lies a troubling reality: systematic harassment and discrimination against female employees. These issues not only impede the personal and professional development of women in the tourism sector but also undermine the overall integrity and sustainability of the industry. "Voice of the Unheard" aims to shed light on the plight of these women, many of whom hold low-paying, precarious positions that expose them to varied forms of harassment. This documentary intends to uncover the pervasive cultures of silence and complicity that often protect perpetrators while leaving victims marginalized and unheard. By showcasing the personal stories of women from different backgrounds and roles—ranging from hotel staff and tour guides to supervisors and managers—the film seeks to represent the diverse experiences of women navigating a male-dominated sector. This thesis will explore several key themes that emerge from "Voice of the Unheard." Firstly, it will examine the nature of harassment faced by women in tourism, including sexual harassment, gender discrimination, and the psychological effects these experiences can have on victims. Secondly, the thesis will analyze the structural and institutional barriers that contribute to the persistence of these issues, highlighting the lack of effective reporting mechanisms and inadequate support systems for women. Furthermore, the documentary aims to foster awareness and promote dialogue among various stakeholder's industry leaders, policymakers, and consumers—regarding the urgent need for reform. It will consider initiatives that have been introduced to combat harassment in the workplace and evaluate their effectiveness. The thesis will argue that meaningful change can only occur with a collective commitment to dismantling the systemic factors that perpetuate gender-based violence and inequality in the tourism industry. Ultimately, this introductory section sets the stage for a comprehensive examination of the issues faced by women in tourism through "Voice of the Unheard." It will outline the research methodologies employed, including qualitative interviews, participant observation, and engagement with advocacy groups, while also contextualizing the findings within existing literature on gender and labor. By bringing these narratives to the forefront, this thesis seeks to contribute to the broader movement for gender equality,

championing a future in which the voices of women in the tourism sector are not only heard but also respected and valued.

2. Research Objectives

1) To identify and categorize common forms of harassment encountered by women working in massage parlors within a selected tourism area in Thailand.

2) To create a short documentary or visual report presenting selected case studies, aiming to raise awareness and encourage local-level discussion and small-scale advocacy.

3. Research Questions

1) What types of harassment do women working in massage parlors in Thailand's tourism industry experience?

2) How can documentary filmmaking be used as a tool to ethically express and amplify the voices of these women?

4.1. Literature Review

The problem of workplace harassment in the tourism sector, particularly sexual harassment and gender-based bias, is increasingly acknowledged as a crucial issue in global research concerning labor rights, gender parity, and workplace security. Although the existing literature on this topic is fairly limited in the context of Thailand specifically, there's considerable research on harassment in the wider hospitality and tourism industries globally, and also studies on gender-based violence and workplace disparity in Thailand and Southeast Asia. This literature review intends to contextualize the issue of harassment in Thailand's tourism industry by reviewing studies that investigate the character of harassment in tourism and hospitality, the elements contributing to its continuation, the effects on female employees, and the effectiveness of legal and organizational structures in dealing with these difficulties.

4.1.1 Workplace Harassment in the Tourism Industry

Workplace harassment in the tourism industry has received considerable attention over the past few decades. Studies have shown that employees in the hospitality and entertainment sectors—especially women are disproportionately impacted by sexual harassment, verbal abuse, and gender discrimination. According to a study by (Baum, 2016), the hospitality industry is particularly susceptible to harassment due to its high levels of seasonal and informal employment, low-wage work, and substantial reliance on customer satisfaction, which creates power imbalances that allow abusive behavior to flourish. In tourist-heavy destinations, employees often face the dual pressures of managing guest expectations while upholding a friendly, accommodating demeanor, irrespective of personal discomfort. (McDowell, 2018) found that in some tourism-based environments, women are expected to tolerate or even encourage improper behavior from tourists as part of their job, leading to a culture of sexualized labor. Women in roles such as tour guides, hotel receptionists, or entertainers are particularly vulnerable, as they are frequently required to interact directly with guests, sometimes in isolated settings or late-night environments where power dynamics are skewed in favor of the customer.

4.1.2 Cultural Norms and Gender Roles in Thailand

In Thailand, the cultural setting surrounding gender norms is critical in shaping the prevalence and normalization of workplace harassment within the tourism industry. Traditional beliefs on gender roles, where women are often anticipated to be submissive, nurturing, and accommodating, have established an environment where harassment is both widespread and socially disregarded. (Chaiyachit, 2020) underlines how in Southeast Asia, including Thailand, women are frequently placed in low-status jobs considered

secondary to men's roles, particularly in hospitality and entertainment. This cultural undervaluation of women's labor contributes to their vulnerability to exploitation and abuse in the workplace. Moreover, the impact of sex tourism in specific regions of Thailand, like Pattaya and Bangkok, intensifies this matter. (Nash, 2016) contends that the tourism industry in Thailand has long been linked to sexualized labor, where women working in entertainment or hospitality are objectified and viewed as "servicing" tourists' desires. In such an environment, the sexual harassment of women in the workplace is often not only normalized but sometimes actively prompted as part of the tourist experience. This culture of "pleasing the customer", even at the expense of workers' dignity, creates a perilous dynamic where women's autonomy and safety are often neglected.

4.1.3 Barriers to Reporting Harassment

A key problem concerning workplace harassment in the tourism sector, especially within Thailand, involves major obstacles to reporting mistreatment. Dread of revenge, employment instability, and social shame hinder many women from coming forward. Research by (Akinwale and Smith, 2019) and (Lichtenstein, 2017) stress that women in low-paying, high-turnover jobs in hospitality are especially vulnerable to exploitation, but are also less inclined to report harassment due to a mix of personal, professional, and cultural elements. In Thailand, women employed in tourism, particularly in informal contexts, are often open to prejudiced hiring processes and job insecurity, causing them to be even more unwilling to address harassment. (Rungtip. 2018) discovered that women in hotel chains and entertainment locations often feel pressure to stay silent about abuse out of fear of job loss or being excluded by peers. Further, the absence of useful grievance procedures inside the industry further makes it tough to handle harassment. Employers might disregard complaints, particularly if the wrongdoer is a tourist or a senior staff member.

4.1.4 Legal Protections and Frameworks

Thailand has employment laws that ideally safeguard workers' rights, for example, the Labor Protection Act and the Prevention and Suppression of Human Trafficking Act, however, these laws commonly don't properly manage or implement protections against workplace harassment, especially within the tourism sector. (Srisavapol , 2020) analyzes how Thailand's legal system is deficient regarding sexual harassment prevention. Although there are laws that deal with harassment, the lack of clear definitions and enforcement causes inconsistencies in their implementation. Furthermore, Thailand has comparatively few formal channels for workers to report harassment, and victims often lack understanding of their rights. (Rattanawijit, 2021) mentions that even though there are organizations such as Women's Rights and Development Fund (WRDF) and the Thai Labor Solidarity Committee (TLSC) campaigning for gender equality and workers' rights, they often face difficulties because of limited resources, bureaucratic impediments, and lack of public awareness. Consequently, the legal system and supporting infrastructure for handling harassment in the tourism sector remain undeveloped, with most women left to contend with these challenges individually.

4.1.5 Impact of Harassment on Women Workers

The psychological, emotional, and financial impact of harassment on women in the tourism sector is significant. Women subjected to workplace harassment are at higher risk for mental health problems such as anxiety, depression, and post-traumatic stress disorder (PTSD). Smith (2019) contends that harassment in the workplace frequently leads to lower job satisfaction, reduced productivity, and greater turnover rates, which directly affects not only the individual but also the overall performance of the business. Women who experience harassment may also be compelled to quit their jobs, leading to financial instability and long-term career setbacks. In Thailand, the lack of social support networks for workers makes it even more difficult for women to recover from such experiences. Without strong legal or organizational protections, women in the tourism industry are often forced to tolerate exploitation in silence, leading to both economic disadvantage and social alienation.

4.2 Documentary Theories:

A documentary is a method of documenting something non-fictional that has occurred or is happening, reporting evidence via authentic, often unplanned footage or reenactment/reconstruction. John Grierson defined the phrase documentary as, 'creative treatment of reality,' in 1926. However, when gathering/producing footage for a documentary, frequently 'unplanned,' real-life footage is directed and organized, so there is a degree of structure within the documentary. The primary focus when creating a documentary is the agenda/topic being addressed. This can be a theme, a person, a movement, and so forth. The style and type of documentary can then be structured around the agenda, so that the audience finds satisfaction in watching and depart with new knowledge and opinions.

According to John Corner's 'five central elements of documentary' theory, documentaries feature:

4.2.1 Observation

Most documentaries will contain footage and scenes of observation; this refers to placing the camera in a scene and acting as if it weren't there, which gives the audience a god-like perspective on the situation, allowing them to act as eyewitnesses to the scenario at hand.

4.2.2 Mise-en-scène

Documentary makers often carefully compose frames with specific Mise-en-scène, such as lighting, props, positioning of objects and characters, and costumes, to communicate specific messages and moods to the audience. Mise-en-scène can also represent people, places etc. in certain ways. Mise-en-scène should be relevant and realistic, to fit the connotations of a documentary.

4.2.3 Interviews

Many types of documentaries rely on interviews, as they can add support to an agenda, or contrast it for the sake of balancing out an argument. The interviewee is framed within the shot, and is questioned by the interviewer, addressing the interviewer back rather than the audience. A connotation of documentary interviews is that the interviewee looks slightly the side of the camera, typically where the interviewer is stood. The documentary film maker can cut up an interview when editing, to communicate a certain message to the audience.

4.2.4 Dramatization

The majority of documentaries use a sense of drama through observation, to build conflict and arguments, which often strongly support or contrast the documentary filmmaker's agenda. The audience act as eyewitnesses to these dramatic events, and tension is built, encouraging the audience to agree with the agenda/argument being dramatized.

4.2.5 Exposition.

Throughout a documentary, an agenda, theme or argument is being communicated, and exposition refers to scenes where the agenda is being discussed — this discussion can be through interviews, or through narration and commentary. Often the documentary filmmaker will narrate the documentary, adding exposition throughout various scenes, constantly reminding the audience of the agenda/theme at hand.

Other theories that can often be applied to documentaries include:

4.3.1 Disneyfication

This term describes the transformation of a society, media or text, to resemble the fantasy style of the Walt Disney Company. The theory was initiated by Steven Barnett, who claims that television feels the need to broadcast media that will gain high ratings, rather than serious documentaries that inform and teach society about historical, social, ethical and political issues and events. He believes that documentaries have been 'dumbed down' for passive audiences, as we're increasingly becoming used to this in the industry of broadcast.

4.3.2 The Hypodermic Syringe Theory

The theory was created just after the First World War, just as the media was becoming a means of influence and power for the government, in terms of influencing the population. The name of this theory literally refers to a metaphorical needle, injecting information via the media into the audience's minds, manipulating them into processing certain thoughts and ideals, until they believe they are the only thoughts capable of having. This theory refers predominantly to passive audiences, as active audiences will look past the influence of the media and dig for deeper meaning, acquiring individual and personal opinions.

4.3.3 The Two Step Flow Theory

Developed throughout the 1940's, this theory states that audiences do not directly consume media from texts, but instead through 'opinion leaders.' The opinion leaders — icons in society — filter the information from media texts, judging them using their own personal options and preferences, and then passing them down to the followers. The followers, predominantly passive audience members, of course believe the opinions of the leaders, and this becomes their opinion too.

4.3.4 The Uses and Gratifications Theory.

In 1970, a theory was devised stating that there are four main reasons why audiences consume certain media texts. Audiences consume certain media texts to:

Identify

To recognize a product or person, such as role models or aspirations, which reflect similar aspirations and goals as you.

Educate

To acquire information, knowledge or understanding.

Entertain

To gain enjoyment and escapism from our worries and stresses temporarily.

Interact

To take a topic of conversation away from the media, and spark debates and discussions outside of the media within social groups. Documentaries would fall under education and identity, as the audience watch it to learn from it, or use it in social situations, considering the values presented in the documentary and identifying their own values and morals.

4.3.5 Reception Theory

Specific audiences consume specific texts that they relate to and understand, in order to gratify their needs as presented by the uses and gratifications theory. Specific Mise en Scene may be used within a scene in order to appeal to a certain audience or demographic, creating a primary target audience for that media text. This leads to separate audiences consuming the same media text differently, each taking different meanings from it.

5. Research Methodology

5.1.1 Research Methodology: In-depth Interviews

The research methodology for this study centers on (video interviews) as a primary data collection method. Given the sensitive nature of workplace harassment, particularly in the tourism industry, video interviews will provide a safe, confidential, and effective way to capture personal testimonies and experiences of women who have faced harassment in their workplace. Video interviews offer the added benefit of being able to observe non-verbal cues, which can help contextualize the emotional and psychological impact of harassment on participants. This section outlines the process for conducting these video interviews, from participant selection to data analysis.

5.1.2 Research Design

This study utilizes a qualitative research method, which is especially fitting for exploring the personal experiences and perspectives of women who have experienced workplace harassment. Video interviews will permit participants to share their narratives in their own words, providing rich, thorough insights into the kinds of harassment they've faced, the effects on their well-being, and the obstacles to reporting abuse. The interviews will be semi-structured, meaning that the investigator will pose a group of core questions while allowing latitude to explore topics that arise during the conversation. It makes certain that the interviews will be open and conversational while still centering on the key issues surrounding harassment, workplace culture, gender norms, and legal barriers in the tourism sector.

5.1.3 Participant Selection

Individuals will be chosen using a purposive sampling approach to make sure that interviewees possess direct experience with workplace harassment within the tourism field in Thailand. The selection criteria will encompass: Women employed in tourism-related jobs: The participants have to be employed (or have been employed) in positions like hotel employees, tour guides, restaurant servers, entertainers, or other jobs often seen in the tourism sector. Experiences of harassment: Participants must have endured some kind of workplace harassment, whether sexual, verbal, or gender-based prejudice, inside their jobs. Geographical area: The study will concentrate on individuals from prominent tourist locations in Thailand, for example, Bangkok, Phuket, Pattaya, and Chiang Mai, to obtain a varied spectrum of experiences from diverse regions of the tourism industry. An informed consent procedure will be utilized to guarantee participants completely comprehend the study's objective and their rights, encompassing confidentiality and the voluntary aspect of engagement.

An informed consent procedure will be utilized to guarantee participants completely comprehend the study's objective and their rights, encompassing confidentiality and the voluntary aspect of engagement.

5.1.4 Data Collection

Video interviews will be the primary method of data collection. The interviews will be conducted through video conferencing platforms (e.g., Zoom or Google Meet) for ease of access and to ensure that participants can engage from a location where they feel comfortable and safe. Interviews will be recorded for later transcription and analysis, with the participant’s consent.

The interview guide will focus on the following key areas:

1. Personal background and job context: Understanding the participant's role in the tourism industry, their experience with the workplace culture, and the environment in which they work.
2. Types of harassment experienced: Questions will address the specific forms of harassment participants have encountered (e.g., sexual advances, verbal abuse, discrimination) and the frequency and context of such incidents.
3. Psychological and emotional impact: Exploration of the personal toll that harassment has taken on the participant’s mental and emotional well-being.
4. Barriers to reporting: Insights into why participants may not have reported harassment, including fear of retaliation, lack of support, and perceived power imbalances.
5. Impact on career and job satisfaction: How harassment has affected their professional lives, including job performance, career progression, and general job satisfaction.
6. Suggestions for change: Gathering ideas from participants on how to improve workplace conditions, reporting mechanisms, and legal protections for women in the tourism industry.

The interviews will be conducted in Thai, with the option for participants to speak in English if they prefer. Professional translation services will be available for non-Thai-speaking participants, and all interviews will be transcribed for analysis.

Table 1

Type of Harassment	Number of Respondents	Percentage (%)
Verbal harassment (comments, catcalling)	12	80%
Inappropriate touching or groping	10	66.7%
Pressure for sexual services	9	60%
Harassment by employer/manager	4	26.7%
Did not report due to fear/job loss	11	73.3%
Workplace has no anti-harassment policy	13	86.7%
Received any support/training	2	13.3%

Source: Researcher, 2025

5.1.5 Ethical Considerations

Given the sensitive nature of the topic, ethical considerations are paramount. The study will follow these guidelines:

Confidentiality and anonymity: All personal information will be kept confidential, and participants will be assigned pseudonyms in the research findings to protect their identities.
Informed consent: Prior to each interview, participants will be fully informed about the purpose of the study, their right to withdraw at any time, and how the data will be used. Emotional well-being: Researchers will be trained to conduct sensitive interviews and to handle emotional or distressing responses from participants. Resources for counseling or support services will be provided if needed.

Voluntary participation: Participation is entirely voluntary, and women will be able to refuse to answer any question they feel uncomfortable with or withdraw from the study at any time.

5.1.6 Data Analysis

The data gathered from video interviews will be analyzed using a thematic analysis approach. This will involve the following steps:

1. Transcription: The video interviews will be transcribed verbatim, including non-verbal cues such as pauses, sighs, and emotional reactions, to provide a comprehensive understanding of the participant's experience.
2. Coding: Key themes and patterns related to harassment, its impacts, and barriers to reporting will be identified. These codes will be applied to the transcribed interviews.
3. Theme development: The coded data will be analyzed to develop overarching themes that capture the most significant findings of the research, such as the types of harassment, emotional effects, and suggestions for change.
4. Interpretation: The final step will involve interpreting the themes and connecting them to the broader literature on workplace harassment, gender roles, and legal frameworks in Thailand's tourism industry.

The analysis will also consider the intersectionality of participants' experiences, exploring how factors like age, socioeconomic background, and job role might influence their experiences of harassment and their ability to report it.

5.1.7 Limitations of the Study

While video interviews offer several advantages, there are some limitations to consider:
Participant bias: Participants may feel pressured to portray their experiences in a way that aligns with what they think the researcher wants to hear, or they may underreport or exaggerate incidents of harassment.
Sample size: As this study focuses on qualitative data, the sample size will be relatively small, and findings may not be fully representative of the broader population of women in the tourism industry in Thailand.

Technological limitations: Issues such as internet connectivity or technological challenges could affect the smoothness of video interviews, particularly for participants from rural areas or those with limited access to digital tools.

5.2 Script:

Title: Voice of the Unheard: Unveiling the Truth Behind Massage Parlours in Thailand

Scene 1: Introduction

The camera opens with a bustling street in Thailand, capturing the lively atmosphere of tourism. The bustling
crowd, neon signs, and sounds of vendors fill the air. The camera slowly zooms in on a massage parlour sign with its soft, inviting glow. A calm, serene voice begins to narrate.

Narrator (VO):

"In the heart of Thailand, massage parlours are a cornerstone of the tourism industry. They promise relaxation and rejuvenation, but behind the calming atmosphere, a darker reality unfolds. This is the story of the women who work here, the customers who visit, and the voices that are often unheard. This is the truth behind the massage industry in Thailand."

Scene 2: Journalist's Discovery

Cut to a young, curious journalist (let's call her Anna), walking into the massage parlour. She is greeted by a friendly hostess and taken inside.

Anna (to camera):

"Thailand is known for its rich culture, vibrant streets, and of course, its famous massage parlours. As a tourist,
it's easy to overlook the complexities of the industry. But as I began my investigation, I found myself in a place where the line between relaxation and exploitation is often blurred. What does it truly mean for women working here, and how does harassment play a role in this industry? Today, I aim to uncover those stories." Anna sits in a quiet corner of the parlour, waiting for the first interview.

Scene 3: Interview with the Massage Lady

The camera focuses on a young working woman at the parlour, named "Mai." Mai speaks calmly but with a sense of both strength and sadness in her eyes. She sits comfortably, her face not visible to the camera.

Anna (to Mai):

"Thank you for speaking with me today. Can you share with us what it's like to work here? How do you feel about your customers, and have you ever faced any harassment in your line of work?"

Mai (softly, in Thai with English subtitles):

"At first, I came here because I needed money. But I've been doing this for a few years now. Some customers are kind and respectful, but there are others who treat us like we're just here for their pleasure. Sometimes, they try to touch us or make inappropriate requests. It's uncomfortable, but we have to stay quiet because if we don't, we might lose our jobs." The camera cuts to a close-up of Mai's hands, fidgeting nervously.

Mai (continuing):

endure it. "I don't like it, but we have no choice. The pay is better than most jobs, and I have a family to support. So, I.

Scene 4: Interview with the Owner/Manager

Anna moves on to speak with the owner or manager of the parlour. The owner, "Sudarat," is a middle-aged woman who seems calm and composed. She speaks with a sense of authority.

Anna: "Thank you for speaking with me today. You've heard the concerns from the workers here. What is your perspective on harassment in your establishment, and how do you handle it if it occurs?"

Sudarat (firmly, in Thai with English subtitles):

"I do my best to ensure that the workers here are treated with respect. If any harassment occurs, we immediately address it with the customer. We have a zero-tolerance policy, and if the customer doesn't

respect the rules, they are banned from the parlour. But, honestly, it's hard to control everything. Some customers see us as commodities rather than people."
Anna (curious):"Why do you think this happens? Why is harassment still so prevalent in the industry?"
Sudarat (pausing):
"Tourism is a huge part of our economy. People come here looking for more than just a traditional massage. They expect other things, and that's where the problem starts. But we try to maintain a balance and educate both the workers and customers."

Scene 5: Interview with the Customer

The camera now shifts to a foreign male customer, "James," sitting in a relaxed chair. He speaks casually but thoughtfully.

Anna:
"James, can you share with me how you got involved with the massage industry in Thailand? What has your experience been like, and what do you think about the good and bad aspects of this industry?"
James (smiling, slightly embarrassed):
"I first heard about Thai massage from a friend. It's a popular thing back home, so when I came here, I thought it was just part of the culture. I enjoy the traditional massages, but I've heard stories about other types of services that happen in some parlours. The media often romanticizes or sensationalizes that side of things, making it seem like everyone is involved in something illicit."
Anna:
"Do you think the media influences how people view these massage parlours, the good and the bad parts?"
James (nodding):
"Definitely. The media often focuses on the more scandalous side of things, which is why people come here with certain expectations. But not all massage parlours are like that. Most of them are legitimate businesses offering therapeutic services. It's just that the bad stories often get the most attention."

Scene 6: Interview with Human Rights Advocate

Cut to a human rights expert, "Dr. Jittima," sitting in an office filled with books and documents. She is an advocate for workers' rights, particularly in industries like massage parlours.

Anna:
"Dr. Jittima, thank you for joining us. Why do you think harassment in the massage industry is often unheard of, and why isn't more being done to address it?"
Dr. Jittima (seriously):
"The problem is deeply rooted in the tourism industry and the perception that women in these roles are disposable. Many workers don't feel they have the power to speak out because of fear of losing their jobs or facing retaliation. The government is aware of the issue but is often hesitant to take stronger actions because the massage industry brings in significant revenue. That's why these stories go unheard because they're inconvenient to those who benefit from the industry's success.
"Anna:
"What can be done to change this? How can we start to address the root causes of harassment in the industry?"
Dr. Jittima:
"It's about changing the narrative. We need to ensure that these workers are treated with dignity, and the public needs to understand the challenges they face. We also need better laws to protect workers and educate both customers and employees on what constitutes harassment and how to report it. Only then can we start to change the environment in these workplaces."

Scene 7: Conclusion

The camera pans out from the interview, transitioning to a montage of the streets of Thailand. The soft voice of the narrator resumes, reflecting on the journey.

Narrator (VO):

"The massage industry in Thailand has become a cornerstone of tourism, offering relaxation for some and exploitation for others. The voices of those who suffer in silence need to be heard. It is time to listen, to understand, and to take action. For those who work in the shadows, the fight for dignity is far from over."
The camera slowly fades to black, with a call-to-action message on the screen:
"Support workers' rights. Demand changes. Let their voices be heard."

5.3 Story Board:

Figure 1: Storyboard
Source: Researcher, 2025

6. Results

The documentary exposes widespread harassment endured by women in Thailand's tourism sector, pulling from interviews, individual accounts, and visual proof. Several women state they experience verbal abuse, unwelcome physical contact, and sexually explicit behavior from patrons, though few incidents are reported owing to fear of retribution, job dismissal or incredulity from supervisors. A culture of silence within many tourism-linked workplaces additionally normalizes this conduct, obstructing open conversation and accountability. Consequently, several women suffer from emotional distress, anxiety, and decreased job satisfaction. Adding to the issue, few organizations offer suitable complaint pathways, psychological aid, or legal resources, leaving victims without proper means of protection or redress.

7. Discussion

This documentary acts as an expose and a venue for shedding light on the hardships experienced by women in Thailand's tourism industry. It underlines a systemic problem stemming not just from organizational routines but also from wider societal conventions. Cultural stigmas frequently lay the burden of harassment on survivors, resulting in persistent underreporting and a shortage of accountability. Inside the tourism sector, the emphasis on customer satisfaction frequently overrides the wellbeing of workers especially women in frontline service positions.

The standardization of gender-based harassment, worsened by frail labor protections and deficient regulatory implementation, produces a perilous work atmosphere for female staff. The condition is aggravated in smaller businesses, where definite policies and formal complaint procedures are often absent.

The documentary calls for transformation via media empowerment, legal reform, and institutional accountability. It seeks to initiate public discussion, encourage systemic change, and empower survivors to convey their narratives.

8. Conclusion

"Voice of the Unheard" highlights the tough truths of workplace harassment in Thailand's tourism sector, where women are frequently silenced due to fear and systemic indifference. Via authentic stories and uncensored testimonies, the documentary emphasizes the pressing requirement for extensive reforms including legal safeguards, consciousness training, and support networks—to secure safety, dignity, and fairness for all employees. Transformation starts with acknowledgment, and this endeavor tries to boost the voices that frequently are disregarded.

Reference

Baum, T. (2016). Human resource management for tourism, hospitality and leisure: An international perspective. Cengage Learning EMEA.

Chiraprapha, T. (2017). Gender inequality in the Thai tourism sector: Challenges and policy implications. Asian Journal of Women's Studies, 23(1), 104–120.

Hughes, K., Monaghan, S., & Bellis, M. A. (2011. Protecting the health of vulnerable populations: Bar workers, drinking and second-hand smoke. International Journal of Environmental Research and Public Health, 8(5), 2120–2131.

ILO International Labour Organization. (2019). Ending violence and harassment against women and men in the world of work. ILO. Retrieved from https://www.ilo.org/global/topics/violence-harassment

McDowell, L. (2018). Gender, identity and place: Understanding feminist geographies. John Wiley & Sons.

Phongpaichit, P., & Baker, C. (2017). Unequal Thailand: Aspects of income, wealth and power. NUS Press.

Pritchard, A., Morgan, N., & Ateljevic, I. (2007). Tourism, gender and embodiment: Challenging assumptions of women's passive roles in tourism. Tourism Management, 28(5), 1127–1134.

Suwannakij, P., & Phoojaroenchanachai, S. (2021). Sexual harassment in Thai workplaces: A policy review and its implications for gender equality. Gender & Development, 29(3), 495–510.

UN Women. (2020). Safe Spaces at Work: Ending Sexual Harassment in the Workplace. UN Women Thailand. Retrieved from https://asiapacific.unwomen.org

The Comic Design Aims To Enhance Teenagers Awareness And Prevention Of Depression

Peihan Wu[1*], Danu Phumalee[2] and Sammiti Sukbunjhong[3]

[1]College of Design, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: wupeihan20010503@gmail.com

Abstract

This study discusses how to use comics to build consciousness and help more Chinese teenagers understand and prevent depression is one of the major challenges facing the mental health of contemporary adolescents, but due to insufficient public awareness and social stigma, many adolescents do not receive timely support and intervention. As a communication medium with visualization and storytelling as its core, comics can effectively attract the attention of teenagers through vivid plots and intuitive pictures, and enhance the popularization of mental health knowledge. Based on educational communication theory, mental health stigma theory and story-based communication theory, this study explores the application path of comics in the popularization of depression knowledge and for design. This paper designs a cartoon for Chinese teenagers by combining the core knowledge of depression with comic design. As an innovative mental health education tool, cartoon has significant communication advantages and practical value. Future work can further combine digital platforms and interactive technologies to expand the application potential of comics in the field of adolescent mental health education.

Keywords: *Chinese teenager, comics, depression prevention, mental health knowledge education*

1. Introduction

Nowadays, more and more teenagers suffer from depression, mainly due to the pressures and challenges of modern society, the main factors are social pressure, family pressure, study pressure, social media and so on Chinese education system is highly competitive, especially the high school entrance examination and the college entrance examination, which have an important impact on the future of young people. This kind of fierce competition environment can easily lead to students in a state of high pressure for a long time, increasing the psychological burden. In addition, the high expectations of social success for teenagers, coupled with the popularity of social media, teenagers are easily affected by the apparent success of others' lives, resulting in feelings of inferiority or anxiety. With rapid social change, technological progress and urbanization accelerating the pace of society, many teenagers feel lost and helpless in adapting to this change.

2. Objective

1) To raise awareness among Chinese adolescents about depression through emotionally resonant comic storytelling.

2) To explore the capacity of comics in conveying emotional expression and mental health information effectively.

3) To design an educational comic that supports early understanding and prevention of depression, promoting emotional well-being in teenage readers.

3. Research Detail

3.1 Cognitive Theory

Cognitive Theory is an important psychological model to explain the formation and maintenance of depression, mainly proposed by Aaron Beck and Martin Seligman. The theory suggests that the core of depression lies in an individual's negative thought patterns and cognitive distortions, rather than simply external events.

According to Beck's cognitive triad theory, people with depression have three core negative cognitive patterns, called "cognitive triads."

Create negative views of the self-such as "I am worthless" or "I am doomed to fail".

Negative interpretations of the world, such as: "The world is full of malice" and "no one really cares about me." Pessimistic expectations about the future, such as "things will never get better" and "No matter how hard I try, it won't work." These cognitive patterns can lead to a vicious cycle of depressed mood, decreased motivation, and behavioral withdrawal.At the same time, Baker also suggested that people with depression often have irrational thinking biases called "cognitive distortions," including types of cognitive distortions, such as black and white thinking "if I don't take the first test, I'm a complete failure."
Overgeneralize, such as "I was rejected by one person, which means everyone hates me." Catastrophic thinking, such as "I didn't do well on this test, the rest of my life is over." Selective attention, such as focusing only on negative information and ignoring positive events.

3.2 Data Collection

The survey received a total of 300 samples, of which 300 were valid samples, accounting for 100% of the total samples, covering 28 provinces, municipalities and autonomous regions in China.

The data of valid questionnaires are sorted out and analyzed, and the results are as follows.

1. Participate in the survey of the basic situation of teenagers

1. The adolescents who participated in this questionnaire were mainly from Henan, Shandong, Jiangxi, Fujian, Anhui, Sichuan, Hunan, Jiangsu, Shanxi, Chongqing and Beijing, accounting for about 0.82%, followed by Jilin, Hebei, Ningxia, Xinjiang, Yunnan and other provinces and autonomous regions with a small proportion.

2. The gender distribution of adolescents participating in this questionnaire is fairly balanced, with boys accounting for 55% and girls accounting for 45%.

The assessment of anxiety or depression of the respondents is as follows: 54% are not very anxious (depression); Relatively anxious (depression), but also able to solve their own people accounted for 19%, very anxious (depression), need to seek help accounted for 6%, anxiety (depression) cannot be normal learners, has been diagnosed in the hospital accounted for 21%.

Among the various factors affecting adolescent anxiety (depression) (this title is multiple choice), the most selected is "college pressure", accounting for 64%; Followed by "parental expectation" accounted for 48%; Then came "school tests" at 46 percent; The number of people who choose "teacher's words and deeds", "interpersonal communication" and "growth confusion" is relatively average, accounting for about 20%. The good news is that 31% of teenagers feel that none of the factors cause their anxiety and depression.

Participants who chose "other" had detailed descriptions of specific factors that influenced their anxiety (or depression).

(1) Family-related factors: my parents are too busy to accompany me; Not respected by parents; Parents always scold and belittle me, never give encouragement; My parents beat and scolded me for a long time; ⑤ Poor relationship with parents, unable to communicate; The relationship between parents is not good, often quarrel, and even divorce; ⑦ Parents are too strict; ⑧ Family economic situation; ⑨ Death of a loved one.....

(2) School-related factors: ① the homework is difficult, and I am worried about being punished by the teacher; ② To change a lot of mistakes, there are problems will not do, sometimes also stay; ③ So much homework that you can only sleep 5 or 6 hours a day; ④ the teacher's cold words and cold attitude; The difference between a teacher's words and deeds is also very hurtful; ⑥ In the class found that they are not as good as before; ⑦ Decline in grades; ⑧ The domestic educational atmosphere is too internal, going to school for twelve hours a day, and the pressure is too great.....

(3) Factors related to individuals or peers:

They are too demanding on themselves, and they feel guilty for not doing well in the exam.

Not confident, think that they can't anywhere.

The courage is not enough, cannot break through, worry about not showing perfect results.

Do not plan time, will not carry out time management, time is not enough.

Their appearance, talent, specialty, etc., are not good.

Because of height anxiety, appearance anxiety, body anxiety, emotional anxiety.

My classmates are weird to me, others talk about me, others laugh at me, others verbally attack me.

Anxious about how to go in the future life, do not know what to do.

Bullying Shadow...

Some participants said that they were always inexplicably anxious and could not calm down.

There are teenagers who are extremely confused - the more difficult the road of life, the entrance exam will never be completed, I am now so hard but fight for a future that is not as tired as the present? I don't want to do this forever!

3.3 Painting style selection point

Nowadays, more and more teenager suffer from depression, mainly due to the pressures and challenges of modern society, the main factors are social pressure, family pressure, study pressure, social media and so on. More and more teenager also begin to like animation culture, because it can meet people's needs for emotional expression, and they can express their feelings and thoughts without any scruples. The chart shows that 65 percent of the depressed patients in China are teenagers. Comics are one of the forms of expression of animation culture. And comics are one of the forms of expression of animation culture. The number of people who like anime in China is increasing, the number is growing, and the majority of teenagers. And comics are one of the forms of expression of animation culture.

Draw comic books in the two-dimensional style, and the cute style can reduce defense (such as explaining heavy topics with Q-version characters).

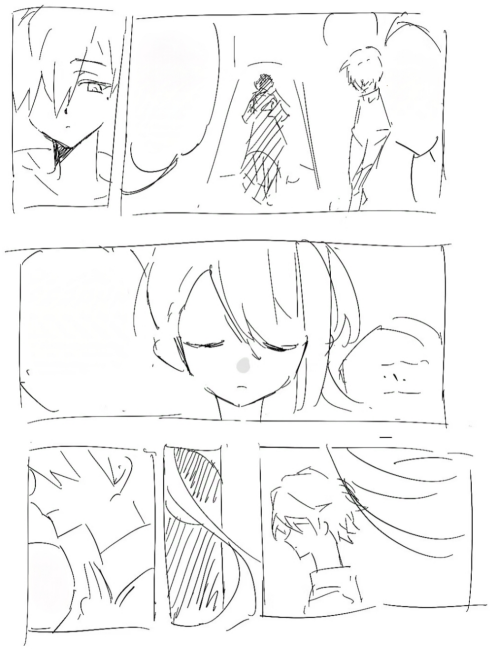


Figure 1 Comic book case
Source: Researcher, 2025

3.4 Research Method

Core objective

Cognitive enhancement: Helping adolescents accurately identify depressive symptoms (emotional/cognitive/behavioral manifestations)

De-stigmatization: Reduce the stigma of "mental problems = vulnerability" and promote help-seeking behavior

Skills development: Teaching simple emotional regulation strategies (e.g., mindfulness, cognitive restructuring)

Table 1: Research Framework

Framework	Research Objectives	Research Questions	Research Methodology
Understanding and prevention of depression among Chinese adolescents	To help more Chinese teenagers understand and prevent depression	The main cause of depression among Chinese teenager?	Launch a questionnaire Methodological analysis Feedback questionnaire
Design a comic book	Through the design of comic picture books, more Chinese teenagers can understand and prevent depression	How can comic books help them better understand and prevent depression	Plot design Picture storyboard design Color design

Source: Researcher, 2025

4.Results

4.1 Color use selection

Color is the most direct emotional language of comics, which can strengthen narrative, shape character psychology, and affect readers' emotional experience. A color selection strategy for picture books on the theme of depression/mental health is needed, combining psychology and visual arts theory.

1. Basis of color psychology

The emotional impact of warm and cold tones

Hue represents mood, scene.

(Blue, purple, gray) represents depression, loneliness, depression, anxiety, and helplessness, but overuse may aggravate the feeling of heaviness, which needs to be balanced with a small amount of warm colors

Warm colors

(Yellow, orange, pink) represents hope, warmth, vitality, support, rehabilitation, positive transition, high saturation of warm colors may appear false, it is recommended to reduce the brightness (such as gray pink)

Neutral color

(white, black, brown) represents stability, emptiness, repression. Contrast between black and white can highlight conflicts. Brown is suitable for showing "sense of reality". Large area black is easy to cause negative associations, and should be used with caution

(2) The psychological effect of saturation and lightness, low saturation + low lightness (such as grayish blue) : suitable for showing fatigue and numbness, but to avoid the "dirty feeling" of the picture.

High saturation + high brightness (such as bright yellow) :

Can be a symbol of hope, but too harsh may seem unreal.

Depressed characters use low saturation cool colors, and gradually add soft warm colors (such as light yellow and light green) during recovery.

Use color contrast to highlight mood shifts (such as a warm light emerging from a gray-blue background).

The color scheme of a picture book on depression.

The main colors of the character's depression state are grey blue and dark purple

Details: Pale skin, shadows accentuate bags under the eyes.

Supporter/Hope symbol main colors are light yellow, beige white. Details: Soft light effects (such as hair edge flooding)

Scene color matching

Scene type recommended color is the key to emotional transmission. The lonely room uses grey blue walls + dark grey furniture, with a sense of closure and suffocation.

Outdoor light blue and scattered light green after natural rain, a metaphor for "new possibilities"

Key plot color techniques such as emotional breakdown: the picture suddenly turns monochromatic (such as red to emphasize the impulse to self-harm, or black and white to show numbness).

Help moment: Add a warm light to the background (such as yellow through the door).

The painting style should be combined with color, and the painting style is recommended to match color as an advantage

The secondary style is high brightness powder color (such as light purple, mint blue) to lower the threshold of viewing and attract young readers

Abstract style high contrast color blocks (such as black + fluorescent yellow) enhance emotional impact

Figure 2 Colors represent all kinds of things
Source: China Color Library

4.2 Composition design

In terms of composition and perspective, the use of closed composition (characters are bound by borders)conveys a sense of oppression.

Overhead Angle: Enhances the character's sense of helplessness.

Close-up facial expressions: Highlight depression micro expressions such as constricted pupils and drooping mouth.

Symbolization of everyday objects: broken mirror = broken self-identity; Heavy schoolbags = academic pressure.

The emotional amplification effect of motion pictures

Using lens Language Theory (Film Psychology)

Slow motion: Prolonged "time stagnation" in depressed people.

Shake picture simulates the vertigo Angle of anxiety.

Montage: Fragmented footage representing memory flashbacks (such as traumatic experiences).

Motion laws in comics

Slow movement: The movement speed of depressed characters in the painting is reduced to convey the "feeling of powerlessness".

Repetitive cycle: such as the character paces in place, showing ruminative thinking.

The influence of cultural differences on visual perception

Difference between east and west

West: Crows symbolize depression; East: withered load, waning moon more likely to resonate.

Chinese teenagers prefer two-dimensional style: cute style of painting can reduce defensive psychology

Depression popular science cartoon design should use pictures, visual elements to convey information

Trigger effects should be avoided:

Images of self-injury should be blurred (such as replacing real wounds with symbolic objects).

Balance truth and hope: neither over-glorify healing (e.g., "instant cure") nor exaggerate despair.

The power of the picture is to bypass reason and go straight to emotion. Through the careful design of color, composition and symbols, mental health knowledge can be transmitted more efficiently and communication barriers caused by "stigma" can be reduced.

Prioritize empathy → Lower the threshold of comprehension with visual metaphors.

Cultural Fit → Select a symbol system familiar to the audience.

Scientific rigor → avoid misleading representations (such as reducing depression to "bad mood").

Figure 3 Drawing process
Source: Researcher, 2025.

4.3 Depth interviews

The picture book data feedback showed empathy: 82% said "at least one picture book character made me feel understood".

emotionally

Short-term: 61% felt a "temporary reduction in anxiety/loneliness."

Long-term: 29% said they "began to mimic coping strategies from picture books."

There are some functional requirements such as interactivity: "I wish I had a blank page to draw instead of just looking at it."

Or diversity: "There needs to be more picture books about school violence and gender dysphoria, not just 'Mom and Dad getting divorced.'"

In-depth insight into the particularity of teenagers: Image > text: 87% pay more attention to graphic metaphors (e.g., color, character modeling) than storyline.

Need for identity exploration: Strong response to picture books involving "self-identification" and "group belonging".

Autodidactic tendency: Aversion to direct instruction (e.g., "You should be optimistic") and preference for open-ended endings.

Some abstract picture books can lead to misunderstandings (such as romanticizing depression).

If parents/teachers over-interpret when reading together, it is easy to cause teenagers to close themselves off.

The content design should include more ending branches or hidden details for exploration (such as interpreting the screen from different angles). Add youth co-creation elements (such as soliciting true story adaptations).

Form innovation: Develop digital interactive picture books (such as switching character perspectives through apps).

The limitation of the study is that the sample is biased towards urban adolescents, and the data in rural areas are insufficient. Further analysis of feedback from certain subgroups (such as gender dysphoria adolescents) is required, and targeted data fields can be provided.

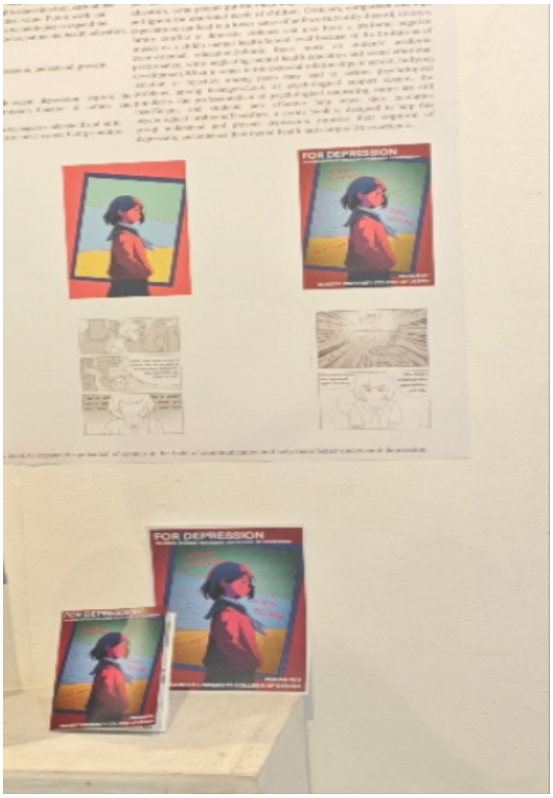


Figure 4 Final product
Source: Researcher, 2025.

4.4 Conclusion

As a non-drug intervention, picture books have unique emotional regulation and cognitive reconstruction value for adolescent depression, but their effects are highly dependent on the suitability of the content and the scientific way of use. The core task of the future is to maximize the psychological healing potential of picture books through accurate creation (close to the real needs of young people), professional guidance (avoid misuse) and technological innovation (enhance interactivity).

5. References:

Chang Ying. (2003) Aesthetic Research on Multimedia Picture Design [D]. Tianjin Normal University.
Chen Shi. (2005) On the Aesthetic Phenomena in Multimedia Teaching [D]. Jiangxi Normal University.
Gu Zibei, Yang Zhaoning, Dai Yanan, Tan Xuyun, Wang Xiaoming. (2016) , The influence of background color on Emotion Recognition of Neutral Faces: A Metaphorical Perspective [J]. Psychological Science,39 (03):541-546.
Liu Rui. The Impact of Violent Scenes in Animated Films on the Socialization of Preschool Children and Countermeasures [J]. Contemporary Preschool Education,2016,(03):14-18.
Li Cheng. The Influence of Color and Emotion on Creative Problem-solving [D]. Hebei University,2021.
Liu Rui. The Impact of Violent Scenes in Cartoons on the Socialization of Preschool Children and Countermeasures [J]. Contemporary Preschool Education,2016,(03):14-18.
Luo. (2019) The influence of color background on emotional face processing [D]. Northwest Normal University,.
Wang Chen. The Influence of Color on the Subthreshold Emotional Priming Effect of Depressed College Students [D] Xinjiang Normal University,2019.
Wang Xinye The Influence of Different Colors on Verbal Creativity and Graphic Creativity [D]. Wuhan University,2017.
Wang Yunxia. (2005) The Influence of Literati Paintings on Modern Ceramic Paintings in Jingdezhen [J]. Jiangsu Ceramics, (02):37-39.
Wu Haojie. (2018) The influence of Stimulus Color and Emotional Initiation on Speed Perception [D]. Nanjing Normal University.
Yang Honghui. (2016) Analysis of the Impact of Bad Scenes in Children's Cartoons on Children's Moral Education [J]. Journal of Kashgar University,37(02):99-101.
Yang Honghui. (2016) Analysis of the Influence of Bad Pictures in Children's Cartoons on Children's Moral Education [J]. Journal of Kashgar University, ,37(02):99-101.
Yue Maojie. (2020) The influence of Stimulus Color and Shape and Subject Emotion on Size perception [D]. Nanjing Normal University.
Zhao Jun. (2021) The Influence of Teaching Content and Teacher's Images in Teaching Videos on Learning [J]. Information and Computer (Theoretical Edition),33(19):242-245.

BANI WORLD

THE 13TH INTERNATIONAL ARTS AND DESIGN SYMPOSIUM 2025

สคณศท
สภาคณบดีทางศิลปะแห่งประเทศไทย

asa

THE ROYAL PHOTOGRAPHIC SOCIETY OF THAILAND

ThaiGa®
Thai Graphic Designers Association

Operated by

RANGSIT UNIVERSITY

Digital Art
RANGSIT UNIVERSITY

College of Design

BANI WORLD

THE 13TH INTERNATIONAL ARTS AND DESIGN SYMPOSIUM 2025

CONFERENCE PROCEEDINGS

13th May 2025

Bangkok, Thailand