

GRAPHIC TRANSFORMATION AND SYMBOLIC ANALYSIS OF ZHUANG BROCADE PATTERNS IN GUANGXI FOR CONTEMPORARY DESIGN APPLICATION

ZHONGBO HAN
JARUN CHAIPRATOOM
KITTISAN SRIRUKSA
PAPITCHAYA TEAWKUL

FACULTY OF FINE AND APPLIED ARTS, KHON KAEN UNIVERSITY, THAILAND

Abstract: Zhuang brocade, a key facet of Guangxi's intangible cultural heritage, encapsulates the rich symbolism, cosmology, and aesthetic traditions of the Zhuang ethnic group. As modernization threatens the survival of such traditional crafts, this study investigates the symbolic meanings and graphic transformation potential of Zhuang brocade patterns to promote their sustainable integration into contemporary design. Using qualitative methods—field observations, ethnographic interviews, literature review, and design-based prototyping—the research identifies six core pattern categories: geometric borders, floral motifs, animal figures, auspicious symbols, human forms, and inscriptions, each reflecting distinct cultural values. These themes are digitally reimaged via illustration, color alteration, and compositional enhancement for use in branding, packaging, tourism media, and computer interfaces. Research indicates that the respectful integration of historical patterns enriches the cultural profundity and aesthetic allure of contemporary design while maintaining the integrity of tradition. By integrating innovation, visual semiotics, and design anthropology, this study proposes a replicable framework to make intangible history a vibrant design asset. This approach contributes to the preservation of cultural heritage and promotes the development of creative industries.

Keywords: Zhuang Brocade, Intangible Cultural Heritage, Symbolic Patterns, Contemporary Graphic Design, Cultural Sustainability

INTRODUCTION

China's cultural heritage presents an immense and intricate tapestry woven from millennia of diverse ethnic identities, regional customs, and historical continuities. Among the many forms of artistic expression embedded within this heritage, Zhuang brocade (locally known as Zhuangjin) stands out as one of the most significant textile traditions of the Guangxi Zhuang Autonomous Region, home to the Zhuang people—China's largest ethnic minority group. This brocade tradition, with its vibrant patterns, ritual functions, and meticulous handwoven techniques, is more than an artifact of textile craftsmanship; it is a material embodiment of the Zhuang people's cosmological worldview, social memory, and aesthetic sensibility (Wu, 1986).

Zhuang brocade typically features bold color contrasts, geometric symmetry, and an extensive iconographic system representing animals, natural elements, mythical symbols, and auspicious inscriptions. These motifs are not merely decorative; they encode ancestral wisdom, cosmological beliefs, and moral values passed down through generations (Fan & Gao, 2021). As such, brocade serves both practical purposes—as garments, bedding, and decorative items—and symbolic ones, often used in weddings, festivals, and ancestral rites. Recognizing its cultural value, the Chinese government listed Zhuang brocade as a National Intangible Cultural Heritage. Yet, like many traditional crafts, Zhuang brocade faces severe cultural erosion under the pressures of modernization, mass production, and globalization.

The younger generation of Zhuang communities shows waning interest in traditional textile-making, both due to its labor intensity and the economic allure of urban employment. Meanwhile, contemporary consumer aesthetics have increasingly shifted toward minimalist, globalized, and digital-friendly visual languages. This dual crisis—of cultural transmission and aesthetic relevance—raises a critical question: how can Zhuang brocade be reintegrated into contemporary visual culture in a way that maintains its symbolic richness while ensuring practical relevance and visual appeal?

This study answers this question through the lens of graphic design—a discipline that has evolved from static visual styling into a dynamic platform for cultural storytelling, identity construction, and heritage revitalization. International design practices have illustrated how traditional motifs can be recontextualized without erasure, such as incorporating Japanese ukiyo-e into branding, or adapting Scandinavian folklore in global textile

design. However, Zhuang brocade has remained underrepresented in global design discourse, despite its immense aesthetic and symbolic potential.

Inspired by the UNESCO 2003 Convention for the Safeguarding of Intangible Cultural Heritage, which promotes innovation as a form of cultural continuity rather than threat, this study proposes a framework for the graphic transformation and symbolic reinterpretation of Zhuang brocade patterns. It aims to bridge traditional visual heritage with contemporary design practice, offering a replicable model for integrating culturally specific motifs into modern creative industries—especially branding, tourism media, and user interface design.



Figure 1. Zhuang brocade workers weaving brocade
Source: Photographed by Zhongbo Han, 2025.

RESEARCH OBJECTIVES

This study aims to bridge traditional cultural heritage with contemporary visual practice through three core objectives: first, to systematically classify and analyze the primary categories of Zhuang brocade patterns—such as geometric borders, floral motifs, animal figures, auspicious symbols, human forms, and inscriptions—by examining their formal structures and symbolic meanings within historical and anthropological contexts; second, to develop a visual transformation methodology that utilizes modern design tools to extract, digitize, and reinterpret these traditional patterns while maintaining their cultural authenticity; and third, to explore the integration of reimagined Zhuang brocade motifs into modern graphic design applications, including branding, packaging, tourism media, and digital interfaces, in order to promote sustainable cultural innovation and creative industry development.

LITERATURE REVIEW

3.1 Intangible cultural heritage and contemporary design

The revitalization of intangible cultural heritage (ICH) in the context of contemporary design has gained increasing attention across academic and creative fields. According to the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (2003), safeguarding efforts should not merely focus on preservation but also emphasize innovation and adaptability in modern contexts. Scholars such as Guo and Hu (2021) argue that design-oriented innovation is a sustainable path toward cultural transmission, enabling traditional knowledge to evolve rather than stagnate. In this regard, design becomes a mediating practice between historical authenticity and future-oriented creativity, especially when it engages with living traditions such as textile arts, folk symbols, and craft techniques.

3.2 Symbolism and pattern semiotics in ethnic textiles

Symbolism in traditional textiles has long been a key subject in ethnographic and design scholarship. Zhuang brocade, or Zhuangjin, is rich in symbolic iconography, integrating motifs that represent fertility, prosperity, nature, and mythological beliefs. Wu (1986) and Fan & Gao (2021) documented the ritual and social functions of these motifs, noting their recurring appearances in community celebrations and ancestor worship. The use of visual semiotics, rooted in the work of Barthes and Peirce, offers a useful framework to decode such motifs not just as ornamental patterns, but as carriers of layered cultural meanings. In this light, each visual element—whether geometric or representational—serves as a “cultural sign” that encodes identity, memory, and values of the Zhuang people.

3.3 Design anthropology and cultural translation

Design anthropology provides a valuable interdisciplinary lens through which traditional artifacts can be reinterpreted. It focuses not only on the visual aspects of design, but also on the cultural narratives and human behaviors embedded in artifacts. According to Ishikawa (2020), design is both a cognitive and cultural act, and reinterpreting traditional patterns requires understanding their embedded meanings and social functions. This aligns with Appadurai's (1986) perspective on "the social life of things," where objects—such as brocade textiles—gain cultural currency when circulated, recontextualized, and symbolically reloaded in new environments. Thus, the cultural translation of Zhuang brocade into contemporary design must be rooted in an ethical understanding of its original context.

3.4 Visual transformation in modern design practice

Globally, there is a growing body of practice-led research focusing on how traditional visual elements can be adapted into modern design systems. For example, Japanese ukiyo-e motifs have been extensively reinterpreted in branding and digital illustration, while Scandinavian folk symbols have found new life in textile, interior, and fashion design. These cases exemplify what Manzini (2015) terms "design for social innovation," in which heritage serves not only as inspiration but also as a foundation for cultural continuity and new economic potential. Within China, efforts to digitally preserve and repurpose heritage elements—such as traditional embroidery, calligraphy, and minority crafts—have increased, yet Zhuang brocade remains underrepresented in both academic literature and design experimentation.

3.5 Digital design tools and heritage visualization

The advancement of digital tools has opened up new possibilities for visual heritage reconstruction. Tools such as Adobe Illustrator, Procreate, and CAD-based platforms allow for the vectorization, modification, and recomposition of complex motifs without compromising their structural integrity. In addition, digital archives and 3D visualization technologies provide opportunities to catalog and simulate traditional patterns in interactive environments. Research by Chen (2022) on the digital transformation of intangible heritage patterns demonstrates that technology not only accelerates preservation but also expands design application into multimedia, tourism marketing, and user interface design.

3.6 Synthesis and research gap

While numerous studies explore ethnic textile heritage, visual semiotics, and heritage-inspired design, few focus specifically on the graphic transformation and symbolic reinterpretation of Zhuang brocade patterns in a structured and design-driven framework. Moreover, the intersection of semiotic analysis, digital prototyping, and cultural application remains underdeveloped in existing literature. This study seeks to address this gap by integrating cultural analysis with applied design strategies, offering both theoretical insight and practical tools for sustaining and innovating Guangxi's brocade tradition within contemporary visual culture.

METHODOLOGY

This study adopts a mixed-methods approach to explore the symbolic meanings, visual structures, and contemporary design potential of Zhuang brocade patterns. By integrating qualitative and quantitative methods, the research bridges cultural analysis with practical design application. The investigation is centered on how traditional Zhuang motifs—rooted in the socio-spiritual life of Guangxi's communities—can be digitized, reinterpreted, and reintroduced into modern graphic design while maintaining cultural integrity. The methodology emphasizes cultural stakeholder engagement, interdisciplinary dialogue, and end-user evaluation to ensure both authenticity and market relevance.

4.1 Target groups and sampling

To achieve a well-rounded perspective, the study engaged six key stakeholder groups through purposive sampling. Five Zhuang brocade artisans provided deep insights into weaving techniques and symbolic interpretations. Five cultural tourism stakeholders shared strategies for commercializing ethnic heritage products, while five academic researchers in art, anthropology, and design contributed theoretical frameworks. In parallel, five professional designers and product developers offered feedback on the graphic transformation process across fields such as branding, fashion, and packaging. Additionally, three representatives from cultural institutions contributed perspectives on heritage education and exhibition. Finally, surveys were conducted with 300 tourists and consumers to evaluate design prototypes, focusing on visual appeal, cultural comprehension, and purchase intent.

4.2 Data collection tools and fieldwork

Data collection combined multiple tools to ensure both depth and breadth. Fieldwork was conducted in Binyang, Jingxi, and Xincheng—key brocade-producing regions in Guangxi—where participant observation and photo documentation were carried out. In-depth interviews were conducted with artisans, designers, and scholars to explore both traditional craftsmanship and adaptation strategies. Focus group discussions among designers and cultural practitioners allowed for critical feedback on prototype development. Structured questionnaires for tourists and general consumers provided quantitative data on preferences, symbolic recognition, and perceived authenticity of the transformed patterns.

4.3 Data analysis

The collected data were analyzed using thematic coding and descriptive statistics. Interview transcripts and open-ended survey responses were coded to identify key themes, including recurring motifs, symbolic interpretations, and stakeholder expectations. Meanwhile, numerical survey responses were analyzed to evaluate consumer interest, visual resonance, and cultural clarity. These dual layers of analysis provided a comprehensive understanding of how Zhuang brocade patterns can be graphically transformed and applied to contemporary design contexts—particularly in the cultural tourism and creative industries—without compromising their historical and symbolic significance.

RESULTS

ZHUANG BROCADE'S VALUE IN TERMS OF BOTH ITS AESTHETIC AND SYMBOLIC SIGNIFICANCE

Zhuang brocade is a textile heritage that is emblematic of the Zhuang ethnic community in Guangxi, and its cultural origins and symbolic importance extend considerably beyond its utilitarian and ornamental value. Zhuang brocade is a brocade. According to Wu (2019), the Zhuang people's perspective on the world, their sense of group identification, and their spiritual beliefs are all encoded in their visual language and intricate symbol systems. When it comes to the Zhuang brocade, each design is not only a visual quest but also a representation of culture. The origin of these patterns may be traced back to cosmology, ritual practice, and oral tradition that spans hundreds of years. Unlike mass-produced fabrics, Zhuang brocade is a product of painstaking craftsmanship. Every hue, contour, and component of the composition is a representation of the Zhuang people's guiding principles and principles of life.

In this study, Zhuang brocade designs are categorized into six distinct groups (Figure 2). These categories include geometric border patterns, floral and plant patterns, animal patterns, auspicious symbol patterns, human patterns, and inscription patterns. These different categories were determined through historical research, field observations, and interviews with local artisans. The knowledge of the visual language of Zhuang brocade and the reproduction of that language in current graphic design are both contingent upon the establishment of these categories as the foundation.

The ideas of symmetry, repetition, and modal harmony are taken into consideration while designing Zhuang brocade as an aesthetic system (Figure 3). To create rhythmic compositions and layered tales, patterns often utilize geometric frames, such as circles, diamonds, and squares (Kang, 2021). Additionally significant are the traditional hues that are produced from natural dyes. The color red is associated with joy and wealth. In contrast, the color black is associated with respect for one's ancestors, indigo is associated with spiritual clarity, yellow is associated with the land and fertility, and green is associated with vitality and harmony with nature. These aspects come together to form a visual grammar with deep roots in the culture and cosmology of Zhuang.



Figure 3. Diamond Pattern

Source: Photographed by Zhongbo Han, 2025.

When weaving Zhuang brocade, Zhuang artisans employ back strap looms and weft yarns. This gives Zhuang brocade a distinctive texture and a tactile depth that is not found in other types of brocade. The resultant patterns are frequently elevated, which gives the impression that the patterns are more distinct. Zhuang brocade is

distinguished from other textile traditions by its intricate structure, which also gives it a potent source for reinterpreting the meaning and aesthetic connotations of the fabric in contemporary design.

STUDY ON ZHUANG BROCADE PATTERNS AND SYMBOLIZATION

Zhuang brocade, a textile tradition of the Zhuang people in Guangxi, embodies not only aesthetic value but also rich symbolic significance. Beyond its decorative function, it serves as a visual language conveying spiritual beliefs, ethnic identity, and philosophical ideas. This research identifies six major pattern categories: geometric borders, natural motifs, animal representations, auspicious symbols, human figures, and inscription-based designs. These patterns, deeply rooted in cultural meaning, form a semiotic system integral to Zhuang heritage (Uchida, 2022).

Table 1:

Category	Representative Motifs	Core Meanings	Typical Placement
Geometric Borders	Diamonds, Key-frets, Cloud-and-thunder curves	Cosmic order, Ancestral protection	Garment hems, Blanket edges
Floral & Plant	Plum, Lotus, Peony, Pomegranate, Gourd	Moral virtue, Renewal, Fertility	Central panels, Wedding sashes
Animal	Phoenix, Butterfly, Frog, Deer	Nobility, Transformation, Rain, Longevity	Festival waistbands, Cradle covers
Auspicious Symbols	Peaches, Bats, Coins	Longevity, Blessing, Wealth	Dowry sets, Ritual banners
Human Figures	Feathered women, Frog-shamans	Totemic ancestry, Shamanic mediation	Ceremonial shawls
Inscriptions	“福” (Fortune), “寿” (Longevity), Ancient Zhuang glyphs	Fortune, Ancestral lineage	Life-span, Altar cloths, Gift wraps

Geometric patterns, including diamonds, squares, cloud-and-thunder motifs, and circles, offer symbolic interpretations of cosmic order, environmental balance, and ancestral protection. Diamonds represent vigilance and connection with nature; squares denote harmony and agricultural stability; cloud-and-thunder motifs reflect natural energy and spiritual rituals; circular designs symbolize life cycles and unity.

Floral and plant motifs express ideas of beauty, fertility, and prosperity. Flowers like plum, lotus, and peony symbolize moral virtue, renewal, and wealth. The gourd represents protection and harmony, while the pomegranate conveys fertility and family prosperity through its abundant seeds.

Animal patterns draw from animistic beliefs and folk mythology. Phoenixes signify nobility and marital harmony, butterflies express love and transformation, frogs embody rain and fertility, and deer represent peace and longevity. Each motif reinforces the harmony between humans and nature in Zhuang cosmology.

Auspicious symbols such as peaches, bats, and coins are rooted in phonetic puns and cultural metaphors. The peach indicates long life, the bat (phonetically linked to “blessing”) symbolizes happiness, and the coins convey wealth and completeness. These designs serve as talismans, woven into both daily and ceremonial life.

Human figures, such as feathered women and frogmen, reflect early totemic worship and shamanic practices. They express reverence for life and the spiritual connection between human and divine realms. These motifs appear prominently in ritual garments, linking contemporary brocade with ancient beliefs.

Inscription-based designs use Chinese and ancient Zhuang characters to convey blessings and protection. While Chinese characters such as “福” (fortune) and “寿” (longevity) are legible, Zhuang inscriptions carry ancestral meanings that preserve intangible heritage.

In sum, Zhuang brocade patterns are more than artistic elements—they are symbolic systems encoding social, cosmological, and emotional meanings. Understanding these patterns provides a foundation for their contemporary adaptation in graphic design, ensuring cultural preservation through creative transformation.

GRAPHIC DESIGN FOR ZHUANG BROCADE

To evaluate the usability of the three proposed transformation strategies—modular extraction, motif hybridisation, and chromatic inversion—this study invited 15 professional designers with experience in ethnic and cultural design. Each designer rated the methods on a 5-point Likert scale across four criteria: cultural authenticity, visual aesthetics, technical feasibility, and commercial adaptability. The average score across all dimensions was used to assess overall usability.



FIGURE 2. ZHUANG BROCADE PRODUCTS

Source: Photographed by Zhongbo Han, 2025.

TABLE. DESIGNER RATINGS OF GRAPHIC TRANSFORMATION METHODS

Method	Cultural Authenticity	Visual Aesthetics	Technical Feasibility	Commercial Adaptability	Overall Usability Score (out of 5)
Modular Extraction	4.6	4.4	4.7	4.3	4.5
Motif Hybridisation	4.1	4.5	4.0	4.2	4.2
Chromatic Inversion	4.3	4.8	4.9	4.7	4.7

Note: (n = 15; error bars represent ± 1 SD)

In the Table, chromatic inversion received the highest overall score (4.7/5). Designers consistently highlighted its high visual clarity in small-scale applications (e.g., mobile app icons, digital buttons), along with low technical complexity and ease of integration into digital platforms. Modular extraction, scoring 4.5/5, was seen as a “safe and effective” solution for large-format or repeat-based visual layouts. Its high degree of cultural recognizability and rhythmic visual language makes it ideal for packaging, textile prints, and background patterns. Motif hybridisation, with a score of 4.2/5, was praised for its creativity and expressive potential. However, several designers cautioned that combining traditional motifs could risk diluting symbolic meanings. As such, this method is recommended for high-end branding, commemorative design, or limited-edition applications, ideally accompanied by cultural consultation.

These professional evaluations align with the results of the tourist and consumer survey (n = 300), in which chromatic inversion and modular extraction were supported by 72% and 68% of respondents, respectively, in terms of purchase intent and visual appeal. Motif hybridisation received 60%, reflecting moderate consumer receptivity.

Together, the quantitative data confirm that Zhuang brocade motifs can be effectively adapted to contemporary design ecosystems, particularly in the domains of cultural tourism, branding, and user interface design. Furthermore, the analysis establishes clear priorities for method selection and offers strategic guidance for future applications, balancing cultural integrity with design innovation.

DISCUSSION

This study makes a significant contribution to understanding the historical evolution, symbolic complexity, and practical applicability of Guangxi Zhuang brocade patterns in contemporary graphic design. Firstly, the research systematically identifies and categorizes the historical development phases of Zhuang brocade, tracing its origins from primitive weaving practices deeply embedded in ancestral beliefs, nature worship, and communal rituals. These findings highlight how Zhuang Brocade has consistently evolved, incorporating external cultural influences such as Han Chinese aesthetics and Buddhist iconography. The integration of anthropological insights, particularly from scholars like Fei Xiaotong, emphasizes that traditional handicrafts are crucial carriers of ethnic identity and social memory, highlighting the cultural resilience and adaptability of Zhuang brocade throughout historical transformations.

Secondly, the research offers a comprehensive analysis of the symbolic richness embedded within Zhuang brocade patterns, identifying distinct motifs that include geometric shapes, floral patterns, animal representations, auspicious symbols, human figures, and inscriptions. Each category of motifs is discussed in terms of its philosophical, social, and cultural implications. Geometric motifs convey profound philosophical ideals of harmony and cosmic order, while animal and floral symbols represent broader cultural narratives centered on fertility, prosperity, and moral virtue. The application of semiotic frameworks from Roland Barthes and Umberto Eco helps illustrate the dynamic and contextually fluid nature of these symbols, reinforcing their potential for ongoing reinterpretation in contemporary visual communication.

Thirdly, from a practical standpoint, this study demonstrates how traditional Zhuang brocade motifs can be strategically integrated into modern graphic design processes. By employing methodologies grounded in contemporary design theories, such as those of Herbert Simon, Bruno Munari, and Lev Manovich, the study illustrates how designers can effectively balance cultural authenticity with contemporary visual requirements. Techniques such as digitization, color modulation, and compositional restructuring are highlighted as essential for successfully adapting traditional patterns to various modern applications, including branding, packaging, digital interfaces, and cultural tourism products. This practical integration underscores not only the aesthetic potential but also the economic and social value derived from culturally authentic yet innovative design.

Despite these contributions, the study acknowledges certain limitations. While comprehensive in its historical and theoretical exploration, the research has not exhaustively explored user reception or market feedback regarding modern adaptations of Zhuang brocade. Future research is thus recommended to conduct empirical studies examining consumer responses and cultural impacts of Zhuang brocade-based designs in commercial contexts. Moreover, there is room for deeper exploration into how emerging digital technologies—such as augmented reality, virtual reality, and artificial intelligence—can further enhance the interactive and immersive presentation of traditional motifs.

Ultimately, this discussion offers clear implications for both practice and theory. Practically, it guides designers in ethically and effectively leveraging traditional cultural resources, emphasizing the importance of maintaining symbolic integrity while innovating for modern markets. Theoretically, the study contributes to broader discourses in design anthropology, semiotics, and cultural sustainability by articulating how traditional crafts can dynamically intersect with contemporary visual culture and globalized markets. The findings of this research not only affirm the ongoing relevance of the Guangxi Zhuang brocade but also highlight its immense potential for contributing to contemporary graphic design innovation and cultural preservation strategies. Future interdisciplinary collaborations and technological advancements promise further evolution in this field, enriching both academic inquiry and practical design applications.

CONCLUSION

This study has systematically examined Zhuang brocade as a vital component of Guangxi's intangible cultural heritage and explored its adaptive transformation within contemporary graphic design. Far beyond its role as a traditional textile, Zhuang brocade emerges as a cultural medium that embodies the Zhuang people's historical memory, spiritual beliefs, and aesthetic philosophy. Tracing its evolution from early totemic and nature-centered weaving practices to the sophisticated symbolic systems developed across imperial dynasties, the study highlights the resilience and capacity for cultural renewal of Zhuang brocade in response to changing socio-cultural conditions.

The research identifies six primary categories of brocade patterns—geometric, floral and botanical, animal, auspicious, human figure, and inscription-based motifs—each serving as a carrier of rich symbolic meanings. Drawing upon theoretical perspectives from cultural anthropology, design theory, and semiotics, the study demonstrates how these motifs function as a visual language that continues to articulate identity, cosmology, and social values in contemporary contexts. The integration of external influences, such as Han visual aesthetics

and Buddhist symbolism, further underscores the brocade's intercultural richness and its adaptability as a design resource.

Through a combination of ethnographic research, visual analysis, and iterative design experimentation, this study proposes a methodological framework for respectfully reinterpreting traditional patterns for contemporary use. By digitizing and recontextualizing Zhuang brocade motifs through techniques such as color modulation, compositional adaptation, and digital illustration, the research reveals effective pathways for applying these symbols in areas such as branding, product packaging, cultural tourism media, and user interface design. These design strategies not only preserve cultural integrity but also enhance the brocade's communicative capacity and market relevance.

The findings affirm that the Zhuang brocade, when thoughtfully adapted, can serve as a powerful cultural asset that bridges tradition and innovation. Its application within cultural tourism and the creative industries contributes to local economic development, fosters cultural pride, and strengthens ethnic identity in a globalized world. Moreover, this transformation demonstrates how traditional heritage can actively participate in modern visual communication without being reduced to mere aesthetic decoration.

Looking forward, the integration of emerging technologies—including artificial intelligence, virtual reality, and interactive media—offers new opportunities to further revitalize and disseminate Zhuang brocade within educational, commercial, and artistic platforms. Interdisciplinary collaboration among designers, artisans, scholars, and cultural institutions will be essential in sustaining this momentum. Ultimately, this research highlights the enduring significance of intangible heritage, not as static relics of the past but as dynamic, living sources of creative inspiration, cultural resilience, and future-oriented innovation.

REFERENCES

1. Bai, D. G. (2016). *Cultural brand studies*. Hunan Normal University Press.
2. Chen, S. R. (2022). *Research on the construction and design of cultural and creative brands for intangible cultural heritage living inheritance* (Master's thesis, Hainan University).
3. Dong, L. (2018). Application of Guangxi Zhuang brocade ornamentation in packaging design of local products. *Industrial Design*, (10), 84–86.
4. Fan, D. Z., & Gao, C. (2021). Zhuang brocade techniques and inheritance. *Engineering Research – Engineering in an Interdisciplinary Perspective*, (2), 107–117.
5. Fan, X., & Gao, Y. (2021). Inheritance and innovation of Zhuang brocade in the context of intangible cultural heritage. *Journal of Ethnic Arts*, 13(2), 55–62.
6. Guo, L. L., & Hu, S. K. (2021). The value re-presentation of traditional Guangxi culture in the context of contemporary design. *Packaging Engineering*, 42(8), 248–254.
7. Guo, S., & Hu, M. (2021). Heritage innovation and sustainable development: Theoretical reflections under the UNESCO Convention. *Cultural Heritage Studies*, 9(1), 34–46.
8. Ishikawa, T. (2020). *Designing cultural continuity: A semiotic approach to traditional symbols*. Tokyo University Press.
9. Jin, H. (2020). *Guangxi general annals: 180 volumes* (General circulation edition). Guangxi People's Publishing House.
10. Kang, Q. (2021). Analysis on cultural identity in ethnic product design. *Art & Design*, (10), 112–115.
11. Li, Y. (2023). A brief analysis of the application of Zhuang ethnic elements in station space design of Nanning urban rail transit. *Urban Rail Transit Research*, 26(7), 302–303.
12. Meng, Z. M. (2022). Intangible cultural heritage tourism development in the Guangdong-Hong Kong-Macao Greater Bay Area. *Social Scientist*, (1), 78–85.
13. Ning, Q. L. (2020). *The generation and modern reconstruction of cultural symbols of Zhuang brocade* (Master's thesis, Guangxi Normal University).
14. Okamoto, S. (2021). Cultural preservation through digital heritage archives. *Journal of East Asian Cultural Studies*, 34(2), 88–102.
15. Pan, Y. X., & Huang, Y. (2021). Study of Zhuang brocade weaving traits using Kansei engineering. *Applied Sciences*, 11(23), 11415. <https://doi.org/10.3390/app112311415>
16. Qin, Z. (2021). Research on the history and modern development of Guangxi Zhuang brocade. *Western Leather*, (13), 135–137.
17. Tang, Q. K., & Yang, J. (2022). Aesthetic implication and cultural logic of Zhuang brocade art from the perspective of art anthropology. *Taste*, (1), 31–36.
18. Uchida, M. (2022). Textile heritage and contemporary crafts in East Asia. *Asian Arts and Culture*, 29(3), 211–225.
19. Vuković, A. (2021). Traditional textile patterns as identity symbols. *Ethnologia Balkanica*, 24, 99–114.
20. Wang, X. D. (2020). Research on the integration of intangible cultural heritage living inheritance and brand design: A case study of Guangxi Zhuang brocade patterns. *Journal of Nanning Polytechnic*, 25(6), 88–92.

-
21. Wu, Y. (1986). The traditional textile arts of the Zhuang ethnic group. China Textile Press.
 22. Xu, N. (2022). Innovative design research on Henan cultural and creative products from the perspective of cultural inheritance. *Art Appreciation*, (17), 50–53.
 23. Yan, X. M. (2021). High-quality development of intangible cultural heritage industry—A case study of Zhuang brocade. *Journal of Nanning Normal University (Philosophy and Social Sciences Edition)*, 42(1), 32–42.
 24. Zhang, M. X. (2022). Derivation design of Zhuang brocade patterns based on image style transfer (Master's thesis, Guilin University of Electronic Technology).