



Integrating Digital Innovation and Ethnic Identity in Tai Lue Craftsmanship: A Co-creation Approach for Cultural Preservation and Tourism

Somkeit Noamna and Manissaward Jintapitak*

College of Arts, Media and Technology, Chiang Mai University, Chiang Mai, Thailand

*Corresponding author. E-mail address: manissaward.j@cmu.ac.th

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Abstract

This study investigates the integration of digital innovation and co-creation approaches to transform Tai Lue craftsmanship, focusing on cultural preservation, ethnic identity expression, and economic sustainability. Using a qualitative research methodology, the project engaged the Tai Lue community of Ban Luang Nuea, Doi Saket, Chiang Mai, through participatory design thinking workshops. Artisans collaborated with designers to create modern lifestyle products, including fashion accessories and home décor, by incorporating traditional Tai Lue cultural motifs enhanced through digital design and printing technologies. The study addressed the challenges of appealing to younger and international markets while empowering aging artisans to develop value-added products for the tourism sector. Findings reveal that blending modern digital tools with traditional craftsmanship can effectively preserve cultural heritage, stimulate community pride, and generate new economic opportunities. The research demonstrates that co-creation not only sustains cultural authenticity but also enhances the commercial viability of traditional crafts, contributing significantly to the development of creative economies.

Keywords: Digital Innovation, Co-creation, Cultural Preservation, Tai Lue Craftsmanship, Design Thinking, Community Participation, Tourism Souvenirs

Introduction

In the era of globalization, preserving cultural identity has become increasingly challenging for indigenous communities whose heritage is closely tied to traditional craftsmanship (Bendix, 2008; Gronlund, 2017). The Tai Lue community of Ban Luang Nuea, located in Doi Saket District, Chiang Mai, Thailand, exemplifies this struggle. Renowned for their intricate textile weaving and handicrafts, Tai Lue artisans create works that are deeply symbolic, reflecting their ethnic identity, social values, and spiritual beliefs (Matanboon, 2017; Prangwattanakul, 2008). However, the static nature of their traditional designs has limited their appeal in contemporary markets, especially among younger and international consumers (Zhou & Hu, 2021).

This study aims to explore how digital innovation—the application of digital tools such as graphic design software and digital textile printing (Jintapitak, 2023; Jintapitak, 2024)—and co-creation approaches can modernize Tai Lue craftsmanship while preserving its cultural authenticity. In this context, digital innovation refers to the integration of technology to enhance design, production, and marketability, whereas ethnic identity encompasses the unique cultural expressions embedded in traditional Tai Lue crafts (Luo et al., 2021).

The primary research objectives are threefold:

1. to modernize Tai Lue craft designs using participatory design thinking methods (Brown, 2009; Liedtka, 2018);
2. to integrate digital technologies to enhance both cultural expression and market appeal (Yang, 2024); and
3. to assess the socio-economic impacts of this integration on the Tai Lue community (Utara & Rattananungsikul, 2024).



By applying a co-creation framework based on design thinking, this research investigates how artisans and designers collaboratively develop contemporary products that maintain the symbolic essence of Tai Lue culture (Jarmai & Vogel-Pöschl, 2020). Furthermore, the study addresses ethical considerations in balancing innovation with cultural authenticity, ensuring that modernization does not erode the traditional values that define Tai Lue heritage (Norman, 2023).

This research contributes to broader discussions on cultural preservation, sustainable economic development, and creative industries by demonstrating a model that integrates tradition with innovation (Manzini, 2015). It emphasizes the potential of combining digital technologies with indigenous knowledge systems to foster resilience and pride within local communities, while simultaneously expanding their economic opportunities in the globalized market.

Background on Tai Lue Culture and Craft

The Tai Lue people, originating from southern China, are an ethnic group that has preserved their traditional customs and craftsmanship across various regions in Southeast Asia, including northern Thailand (Prangwattanakul, 2008). Their migration history and settlement patterns have significantly influenced the cultural landscape of communities such as Ban Luang Nuea in Doi Saket District, Chiang Mai Province.



Figure 1 A Group of The Tai Lue, Community of Ban Luang Nuea in Doi Saket, Chiang Mai, Thailand.

Tai Lue craftsmanship, particularly textile weaving, plays a central role in expressing ethnic identity. Their traditional attire, characterized by black garments adorned with vibrant red, yellow, and white bands, reflects social status, religious beliefs, and community solidarity (Matanboon, 2017). Beyond textiles, Tai Lue artisans create jewelry, household items, and ceremonial objects, each embedding symbolic meanings passed down through generations (Gronlund, 2017).

Preserving Tai Lue craftsmanship is crucial not only for maintaining cultural heritage but also for sustaining economic livelihoods. Traditional crafts offer a tangible connection to ancestral knowledge and serve as a means of community pride and resilience (Bendix, 2008). However, modernization and globalization pose significant challenges. Younger generations are increasingly disengaged from traditional practices, and the static nature of traditional designs struggles to compete with contemporary consumer preferences (Zhou & Hu, 2021).

These challenges necessitate the integration of innovation strategies, particularly through digital tools and participatory design processes, to revitalize Tai Lue crafts while safeguarding their cultural authenticity.

Understanding the historical and socio-economic significance of Tai Lue craftsmanship forms a critical foundation for exploring sustainable pathways to cultural preservation and economic development.

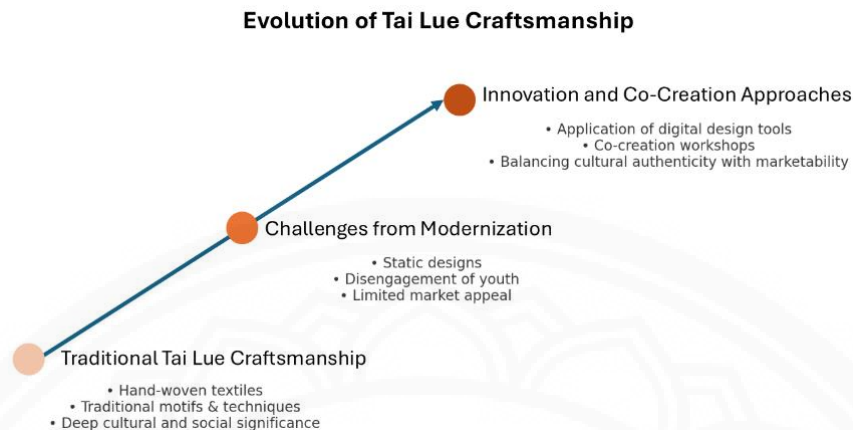


Figure 2 Evolution of Tai Lue Craftsmanship.

Importance of Cultural Preservation through Craft

Craftsmanship serves as a tangible manifestation of cultural heritage, transmitting traditions, social values, and local wisdom across generations (Bendix, 2008). For the Tai Lue community, traditional crafts such as textiles, jewelry, and ceremonial objects not only reflect aesthetic and utilitarian functions but also embody a deep-seated connection to ethnic identity and communal resilience (Prangwattanakul, 2008).

In the context of globalization, the role of crafts in preserving cultural uniqueness becomes even more critical. Modernization and external cultural influences threaten the continuity of indigenous knowledge systems, leading to a potential erosion of cultural distinctiveness (Gronlund, 2017). Sustaining Tai Lue craftsmanship is therefore vital not only for cultural preservation but also for promoting sustainable community development through creative economic pathways.

However, traditional crafts must evolve to remain relevant to contemporary markets while maintaining their cultural integrity. This necessity underscores the importance of developing innovative approaches that balance modernization with the preservation of cultural heritage (Norman, 2023).

Identification of Problems in the Original Products

Despite the rich cultural value embedded in Tai Lue craftsmanship, the traditional products face significant barriers to marketability and economic viability. Two primary challenges have been identified:

1. Outdated Designs

Traditional Tai Lue crafts have remained stylistically static over decades, focusing heavily on preserving authenticity. While these designs hold deep cultural meaning, they often fail to align with the aesthetic preferences of modern consumers, particularly the younger demographic seeking contemporary and multifunctional products (Zhou & Hu, 2021).

2. Lack of Marketability

Limited innovation in product design, combined with insufficient branding and marketing strategies, restricts the appeal of Tai Lue crafts in broader, competitive markets (Chunthone, 2019). Moreover, technological constraints and restricted access to modern production resources further hinder the community's ability to scale their products for tourism and export sectors (Jin & Peng, 2009).



Figure 3 These Products Reflect the Community's Efforts to Express Tai Lue Identity of the Tai Lue Community of Ban Luang Nuea in Doi Saket, Chiang Mai, Thailand.

Consequently, while Tai Lue crafts remain highly significant within local cultural contexts, they struggle to meet the dynamic demands of global markets. Without strategic interventions, the community risks losing both cultural relevance and economic opportunities.

Transition to Innovation Needs

Addressing these challenges requires a strategic transformation that integrates modern design thinking and digital innovation into traditional craft practices. By adopting participatory co-creation approaches, Tai Lue artisans can develop culturally authentic yet market-responsive products, bridging the gap between heritage preservation and contemporary consumer demands (Jarmai & Vogel-Pöschl, 2020).

The following literature review explores theoretical frameworks and best practices that inform the intersection of traditional craftsmanship, design thinking, and digital innovation. It lays the groundwork for understanding how indigenous crafts can evolve sustainably within the creative economy while safeguarding cultural identity.

Literature Review

This section reviews relevant studies and theoretical frameworks that explore the intersection of traditional craftsmanship, design thinking, and digital innovation, which are central to the sustainable modernization of indigenous crafts.

Design Thinking and Digital Innovation in Product Development

Design thinking is widely recognized as a user-centered, iterative approach that facilitates the development of innovative products by empathizing with end-users, ideating solutions (Pressman, 2019), and prototyping iteratively (Brown, 2009; Cross, 2011). It emphasizes balancing functionality, aesthetic appeal, and cultural relevance, making it particularly effective for revitalizing traditional crafts.

In the context of cultural preservation, design thinking enables collaboration between artisans and designers to create products that retain traditional value while satisfying contemporary consumer preferences (Liedtka, 2018; Jarmai & Vogel-Pöschl, 2020). Digital innovation—particularly through the use of digital drawing software, textile printing technologies, and rapid prototyping—further enhances the possibilities of preserving intricate cultural patterns while adapting designs to modern lifestyles (Jintapitak, 2023; Jintapitak, 2024).

Research by Chunthone (2019) demonstrated that participatory design processes helped rural Indian textile artisans modernize their products without compromising their cultural identity. Similarly, the Tai Lue case study

seeks to leverage digital innovation alongside traditional knowledge to create sustainable and culturally resonant product lines.

Cultural Identity in Product Design

Cultural identity plays a crucial role in the design of souvenirs and lifestyle products, providing unique value propositions that connect consumers emotionally to a community's heritage (Norman, 2023). Souvenirs that integrate authentic cultural motifs offer consumers not just a product, but a meaningful experience tied to specific cultural narratives (Jansen-Verbeke, 1991).

Maintaining cultural authenticity while adapting to modern market needs requires careful balancing (Ulrich & Eppinger, 2008). If traditional elements are superficially incorporated, the resulting products may lose both cultural significance and consumer trust (Gordon, 1986). Therefore, integrating authentic Tai Lue symbols and weaving patterns into modern product forms is essential for maintaining the community's ethnic identity while reaching wider markets.

The Tai Lue crafts in this study focus on character design inspired by traditional attire and motifs, aiming to preserve symbolic meanings while enhancing the appeal to global audiences.

Marketability of Traditional Crafts

Traditional crafts often face difficulties in contemporary markets due to outdated designs, limited functionality, and lack of effective branding (Chunxiao & Tingyue, 2010; Zhou & Hu, 2021). Modern consumers, especially younger generations, are drawn to products that combine aesthetic value, functionality, and cultural storytelling (Palomo-Domínguez et al., 2023).

The evolution of consumer preferences toward sustainability, multifunctionality, and ethical production further challenges traditional crafts to innovate while preserving cultural values (Utara & Rattanasikul, 2024). Studies by Luo et al. (2021) highlight that blending cultural elements with modern design features enhances both marketability and brand value of traditional crafts.

Thus, applying digital innovation and co-creation approaches to Tai Lue crafts aligns with global trends in sustainable tourism and creative economies, providing a strategic pathway for cultural and economic revitalization.

Research Gap and Conceptual Framework

While previous research underscores the importance of design thinking and cultural identity preservation, few studies specifically address the application of digital design tools in revitalizing Tai Lue crafts. Furthermore, there is limited exploration of co-creation models where artisans and designers collaborate as equal partners in product innovation processes.

This study aims to fill these gaps by integrating design thinking, digital innovation, and participatory co-creation methods to develop culturally authentic, marketable Tai Lue products, thereby contributing to the sustainability of traditional crafts in the modern era.

The following section outlines the qualitative research methodology employed in this study, detailing the co-creation process, community participation strategies, and digital tools utilized in the modernization of Tai Lue craftsmanship.

Methodology

This study employed a qualitative research methodology to explore how digital innovation and co-creation approaches can be integrated into Tai Lue craftsmanship to enhance cultural preservation and marketability.



Research Design

The research adopted a qualitative design with participatory elements, emphasizing in-depth engagement with the Tai Lue community of Ban Luang Nuea, Doi Saket District, Chiang Mai. Design thinking and co-creation workshops were utilized as primary frameworks for integrating traditional knowledge with modern innovation (Brown, 2009; Liedtka, 2018).

Participants and Sampling

The study involved 50 participants selected through purposive sampling, ensuring representation from both traditional artisans and younger community members familiar with marketing and technology. The selection criteria required participants to:

- Be official members of the Tai Lue community enterprise for at least three years.
- Have continuous participation in community activities.
- Possess knowledge or experience in traditional Tai Lue craftsmanship.

The participants consisted of 35 traditional artisans and 15 younger members with expertise in marketing and digital tools, allowing for diverse perspectives in the co-creation process.

Data Collection Methods

Multiple qualitative data collection methods were employed to ensure comprehensive understanding:

1. In-depth Interviews

Semi-structured interviews were conducted with all 50 participants, each lasting approximately 45–60 minutes. Interview questions were validated for content validity by three experts specializing in indigenous crafts and design innovation. Interviews were audio-recorded with consent and transcribed verbatim.

2. Participant Observation

The researcher engaged in participant observation over four months, participating in craft production activities and recording field notes, photographs, and videos with the community's permission.

3. Focus Group Discussions

Three focus group sessions were organized, each comprising 10–15 participants grouped by expertise. Each session lasted 90–120 minutes and was recorded for thematic analysis.

4. Co-creation Workshops

Four full-day co-design workshops were conducted, applying design thinking techniques combined with ethnic identity analysis to collaboratively develop modern product prototypes. Workshop processes and outcomes were systematically documented (Jarmai & Vogel-Pöschl, 2020).

Data Analysis

The data were analyzed using content analysis and inductive thematic analysis, following these steps:

- **Data Preparation:** Verbatim transcription and organization of raw data.
- **Coding:** Open coding of transcripts based on research objectives.
- **Categorization:** Grouping codes into meaningful themes related to digital innovation, cultural preservation, and marketability.
- **Triangulation:** Data triangulation and methodological triangulation were applied to validate findings across interviews, observations, and workshops.

Trustworthiness of the Study

To enhance the credibility and trustworthiness of the research:

- **Member Checking:** Preliminary findings were presented to participants to verify accuracy.
- **Triangulation:** Multiple data sources and methods were used to cross-validate results.
- **Thick Description:** Rich, detailed descriptions of the research context and processes were provided to ensure transferability.

Ethical Considerations

The study received ethical approval from the Human Research Ethics Committee of Chiang Mai University (Approval No. 183/66). Informed consent was obtained from all participants prior to data collection, ensuring voluntary participation and confidentiality. Participants retained the right to withdraw at any point without consequences.

Results

This section presents the findings categorized into four main areas: aesthetic improvements, economic impact, cultural preservation, and consumer appeal, based on data collected through interviews, observations, focus groups, and co-creation workshops. The findings demonstrate that integrating digital innovation and co-creation approaches into traditional Tai Lue craftsmanship effectively preserves cultural identity while enhancing economic sustainability and expanding market appeal. These outcomes validate the research hypothesis that modernization and cultural preservation can coexist through carefully structured participatory design and technological adaptation.



Figure 4 The Co-creation Workshops and the Prototyping and Testing Phase.

1. Aesthetic Improvements

The integration of digital design tools, such as Adobe Illustrator and digital textile printing, enabled the transformation of Tai Lue traditional designs into modern character-based products (Jintapitak, 2024). Traditional Tai Lue motifs, which historically featured symmetrical geometric patterns and symbolic elements, were adapted into vibrant and playful designs suitable for fashion accessories, souvenirs, and home décor.

Visual elements, such as stylized keychains and key covers inspired by Tai Lue attire, incorporated modern color palettes and refined detailing (Figures 5–7). This transformation enhanced the visual appeal of the products to younger demographics and international tourists, aligning with contemporary aesthetics without compromising cultural essence (Norman, 2023).

These findings align with previous research emphasizing the importance of blending tradition with modernity to enhance product attractiveness while retaining authenticity (Luo et al., 2021).



Figure 5 The Incorporation of Traditional Tai Lue Attire Alongside Character Designs Created Through Digital Tools.



Figure 6 The Image Showcases a Keychain Inspired by Tai Lue Ethnic Identity.



Figure 7 The Image Showcases a Key Cover Inspired by Tai Lue Ethnic Identity.

2. Economic Impact

The introduction of modernized Tai Lue products led to tangible economic benefits for the community. Local market sales increased by 20%, and individual artisan incomes rose by 10% within the first year of implementation. Online marketing strategies further expanded the market reach, attracting a broader customer base, including domestic urban consumers and international buyers (Utara & Rattanasikul, 2024).

A Social Return on Investment (SROI) assessment revealed a ratio of 1:14, indicating that each unit of investment generated fourteen times its value in economic and social benefits. This outcome underscores

the economic viability of combining cultural preservation with modern design innovation, resonating with studies advocating for creative economy models in rural community development (Markwick, 2001).

3. Cultural Preservation

Throughout the design and co-creation process, maintaining cultural authenticity was a primary objective. Artisans were actively involved in every stage, from concept development to prototyping, ensuring that traditional Tai Lue motifs, attire elements, and cultural narratives remained central to the final products (Manzini, 2015).

The use of digital tools allowed for the faithful reproduction of intricate cultural patterns while enabling flexibility in adapting designs for modern usage. Community feedback indicated strong approval, with participants expressing pride in seeing their heritage represented in new, vibrant forms that resonate with contemporary consumers.

This finding supports earlier research highlighting that participatory approaches strengthen cultural transmission and community ownership over modernization processes (Jarmai & Vogel-Pöschl, 2020).

4. Consumer Appeal

Market testing through local fairs, tourist shops, and online platforms revealed high levels of consumer interest, particularly among younger audiences seeking authentic yet modern cultural products. Products such as ethnic-themed keychains and accessories received positive feedback for their uniqueness, cultural storytelling, and practical functionality (Gordon, 1986; Jansen-Verbeke, 1991).

Social media engagement, including shares, likes, and consumer testimonials, further amplified brand visibility, contributing to increased sales and brand awareness. These results align with global trends emphasizing the growing demand for culturally authentic and sustainable products among Generation Z and millennial consumers (Palomo-Domínguez et al., 2023).

Business Model Canvas Comparison

This section presents a comparative analysis of the Tai Lue community's business model before and after the integration of digital innovation and co-creation approaches, using the Business Model Canvas as an analytical framework.

Business Model Before Product Development

Prior to the intervention, the Tai Lue community's business model was predominantly traditional and locally focused. This business model, while culturally rich, exhibited limited scalability and competitiveness in broader markets. The static nature of the products, coupled with minimal branding and marketing efforts, restricted growth opportunities (Markwick, 2001; Zhou & Hu, 2021).

Business Model After Product Development

Following the implementation of the co-creation project integrating digital tools and modern design thinking, the business model evolved significantly. The new model aligns with emerging trends in the creative economy, where blending tradition and innovation creates added cultural and economic value (Bendix, 2008; Manzini, 2015).



Business Model Canvas Comparison

Elements	Business Model Before Product Development	Business Model After Product Development
Key Partners	Local suppliers and community artisans.	Expanded to include design institutions, digital tool providers, and online marketing platforms, alongside traditional suppliers.
Key Activities	Traditional weaving and handicraft production based on generational knowledge.	Co-creation workshops, digital design application, product prototyping, and e-commerce marketing.
Key Resources	Natural fibers, traditional skills, and cultural knowledge.	Traditional knowledge, digital technologies, design expertise, and cultural narratives.
Value Proposition	Authentic Tai Lue products emphasizing heritage and tradition.	Modernized products that balance cultural authenticity with contemporary aesthetics, offering unique, meaningful souvenirs and lifestyle products.
Customer Relationships	Personal relationships within the local community.	Dynamic interactions through social media engagement, community storytelling, and online customer service.
Channels	Local markets and tourist outlets in nearby areas.	Expanded beyond local markets to include e-commerce platforms and digital marketing channels.
Customer Segments	Local residents and visiting tourists interested in cultural products.	Broadened to include domestic urban consumers, Generation Z and millennial tourists, and international buyers seeking authentic cultural products.
Cost Structure	Raw materials and artisan labor costs.	Addition of digital design and marketing costs, alongside traditional production expenses.
Revenue Streams	Sales of traditional products at local markets and fairs.	Diversified to include online sales, customized product lines, and collaborations with tourism and cultural sectors.

Figure 8 The Business Model Canvas Comparison (Before–After).

Comparative Analysis

The transformation of the business model reflects a strategic shift from a preservation-focused approach to a sustainability-driven innovation model. Key improvements include:

- **Enhanced Market Reach:** Transition from local-only to national and international markets.
- **Diversification of Revenue:** Introduction of new product lines and digital sales channels.
- **Strengthened Brand Identity:** Positioning Tai Lue products as both culturally authentic and contemporary.
- **Empowerment of Community Artisans:** Through skill development in digital technologies and participatory product design (Jarmai & Vogel-Pöschl, 2020).

This evolution demonstrates the importance of integrating digital innovation and co-creation processes to sustain traditional crafts economically and culturally in the global market context.

Discussion

This study examined the integration of digital innovation and co-creation approaches into Tai Lue craftsmanship, aiming to modernize traditional crafts while preserving cultural authenticity. The following discussion interprets the findings in relation to research objectives and existing literature.

1. Interpretation of Findings

The findings confirm that applying design thinking and digital innovation to traditional craftsmanship can enhance both marketability and cultural preservation. The co-creation approach empowered artisans to become active participants in the design process, ensuring cultural authenticity was maintained while adapting products to meet contemporary consumer preferences (Jarmai & Vogel-Pöschl, 2020).

The aesthetic improvements observed—particularly the modernization of traditional Tai Lue motifs through digital tools—align with prior studies suggesting that digital technologies can bridge traditional and modern design paradigms without diluting cultural meanings (Jintapitak, 2024; Luo et al., 2021).

Moreover, the project's economic outcomes, including increased artisan income and expanded market reach, underscore the viability of integrating traditional crafts into creative economy frameworks (Manzini, 2015; Palomo-Domínguez et al., 2023).



2. Theoretical Contributions

This study contributes to the growing body of knowledge on cultural preservation through innovation by demonstrating that co-creation models can successfully sustain and revitalize indigenous crafts. Unlike top-down modernization efforts that often marginalize traditional artisans (Norman, 2023), the participatory design thinking approach fostered a sense of ownership and pride within the Tai Lue community.

Additionally, by incorporating digital innovation into the co-creation process, this research expands existing theories of cultural sustainability, suggesting that carefully adapted technological interventions can strengthen rather than erode ethnic identity (Bendix, 2008; Brown, 2009).

3. Practical Implications

The success of this project highlights several practical strategies for other indigenous communities facing similar challenges:

- **Capacity Building:** Training artisans in basic digital design skills empowers them to innovate independently (Yang, 2024).
- **Participatory Product Development:** Engaging artisans from the ideation stage ensures cultural authenticity and product resonance with local values (Liedtka, 2018).
- **Market Diversification:** Utilizing online sales platforms and social media expands market access beyond local communities (Utara & Rattanaungsikul, 2024).

These strategies align with broader movements toward sustainable development and community-based creative economies, as emphasized by international cultural policy frameworks.

4. Limitations and Future Research Directions

While the study achieved its objectives, several limitations warrant acknowledgement:

- **Limited Sample Scope:** The findings are based on one Tai Lue community and may not fully generalize to other ethnic groups with different cultural dynamics.
- **Technological Adaptation Challenges:** Some older artisans faced difficulties adapting to digital tools, indicating a need for longer-term training and support.

Future research could explore comparative studies across multiple indigenous communities, investigate the long-term sustainability of such innovation models, and examine the role of policy frameworks in supporting cultural entrepreneurship.

Conclusion

This study demonstrates that integrating digital innovation and participatory co-creation approaches into traditional Tai Lue craftsmanship offers an effective pathway for cultural preservation, economic sustainability, and market expansion.

Using a qualitative, community-based research design, the study applied design thinking frameworks to engage artisans in modernizing traditional Tai Lue motifs through digital tools such as graphic design software and digital textile printing (Brown, 2009; Jintapitak, 2024). Through participatory workshops, artisans collaborated with designers to create culturally authentic yet market-responsive products, including fashion accessories and souvenirs.



The major findings reveal that:

- Modernizing Tai Lue crafts through co-creation and digital innovation enhances their marketability while preserving cultural identity (Manzini, 2015; Jarmai & Vogel-Pöschl, 2020).
- Community participation ensures that modernization strengthens rather than erodes ethnic heritage (Norman, 2023).
- Economic outcomes, including a 20% increase in local sales and broader international market reach, validate the potential for integrating traditional crafts into creative economy frameworks (Palomo-Domínguez et al., 2023; Utara & Rattanaungsikul, 2024).

Theoretically, this research advances understanding of how digital technologies can be responsibly adapted to support indigenous cultural preservation. Practically, it offers a replicable model for other ethnic communities seeking to balance tradition with innovation in product development and market expansion.

Future work should explore longitudinal studies to assess the sustainability of such interventions over time. Additionally, research into scalable digital literacy programs tailored for elder artisans would address adaptation challenges identified during this project (Yang, 2024).

By demonstrating that tradition and modernity can coexist harmoniously through co-creation and digital integration, this study contributes to ongoing discussions on sustainable cultural development and the evolution of indigenous craftsmanship in the globalized economy.

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