

INTEGRATION OF GUI ZHOU MIAO EMBROIDERY TO STIMULATE STUDENTS IN PRODUCT DESIGN

Ailing Huang¹ and Jaipak Burapajatana²

^{1,2}*Faculty of Liberal Arts, Shinawatra*

Xinzhou Normal University, Xinzhou, Shanxi, China

E-mail: Ailinghuang1999@163.com, Jaipak.b@siu.ac.th

Abstract

In the present, China emphasizes in taking traditional arts to integrate with modern education, this study is therefore to investigate the impact of taking Guizhou Miao traditional embroidery to apply with the product design curriculum at Guizhou Qiannan College of Science and Technology in order to enhance design skills of students, their cultural appreciation, and integrate knowledge in traditional craftsmanship with modern design practicing. The sample group comprises 122 students' selected using systematic sampling and 10 design instructors and Miao embroidery artisans. The research method employs a mixed-methods approach, combining descriptive statistical analysis for quantitative data and thematic content analysis for qualitative insights. The study found that engaging students with Miao embroidery significantly improved their technical precision, compositional balance, and color harmony. Additionally, it fostered a deeper understanding of cultural symbols and heritage, stimulating creativity and active participation. These findings emphasize the value of integrating traditional arts into modern curricula to cultivate innovative designers with cultural sensitivity. Recommendations include expanding workshops, fostering interdisciplinary projects, and enhancing collaborations with cultural practitioners to further enrich design education.

Keywords : Guizhou Miao embroidery, cultural integration, design education, creative skill development, product design.

Introduction

Since the 21st century, the integration of traditional arts into modern education has become increasingly significant. The rapid pace of globalization and technological advancement has created a growing need for innovative and culturally sensitive design education. Guizhou Miao embroidery, as a traditional art form with intricate patterns and vibrant colors, represents a valuable aspect of China's intangible cultural heritage. Its integration into product design education provides an opportunity to bridge cultural preservation with modern design practices.

Art education, particularly in higher education, plays a vital role in developing students' creative thinking, aesthetic judgment, and technical skills. At Guizhou Qiannan Normal University for Nationalities, embedding Guizhou Miao embroidery into the product design curriculum aims to enhance students' cultural appreciation and innovative abilities, fostering a new generation of designers equipped with both technical skills and cultural sensitivity. This study investigates the challenges, strategies, and impacts of incorporating Miao embroidery into design education, providing valuable insights for the cultivation of innovative talent and the preservation of cultural heritage in a modern educational context.

Objective

- 1) To integrate GuiZhou Miao Embroidery for Product Design.
- 2) To explore and implement specific strategies that effectively stimulate students' product design skills.

Literature Review

This literature review examines existing research on the integration of cultural elements, specifically Guizhou Miao Embroidery, into Product Design education. It explores the cultural and artistic characteristics of Miao embroidery, its application in design, and the impact of cultural integration on students' design skills and cultural understanding.

Guizhou Miao Embroidery and Its Application in Product Design

Overview of Guizhou Miao Embroidery

Guizhou Miao Embroidery is a key element of China's intangible cultural heritage, known for its vibrant colors, intricate patterns, and symbolic motifs, deeply rooted in Miao traditions. These elements offer valuable inspiration for modern design (Liang & Song, 2021; Zhao, 2018).

Origin and Production Areas

Produced in the Miao minority regions of Guizhou, Miao embroidery benefits from the region's suitable climate. Traditionally, Miao women create embroidered items for clothing, home decor, and ceremonies, which are integral to their cultural practices (Lin & Zhao, 2019).

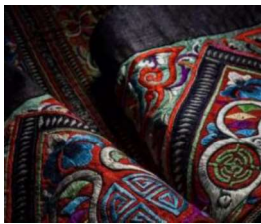


Fig 1 Miao embroidery patterns 1



Fig. 2 Miao embroidery patterns 2



Fig. 3 Miao embroidery patterns 3



Fig 4 Miao embroidery patterns 4

Craftsmanship

Miao embroidery involves several steps: designing patterns, selecting materials (e.g., cotton, silk), stitching using various techniques, and adding decorative elements like beads or sequins (Zhao, 2018).

Integration in Product Design

Miao embroidery can be integrated into modern product design, including fashion, home decor, and digital design, offering both aesthetic and cultural value. It allows for the fusion of traditional art with contemporary aesthetics (Figures 2.5-2.9).



Fig. 5 Miao embroidery clothing 1

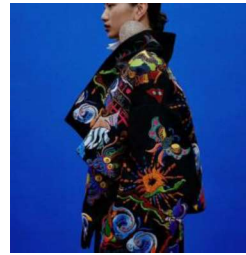


Fig. 6 Miao embroidery clothing 2



Fig. 7 Miao embroidery pillow



Fig. 8 Miao embroidery cushion



Fig. 9 Miao embroidery digital logo works

Cultural Appreciation in Product Design Education

Cultural Appreciation

Cultural appreciation enhances students' aesthetic perspectives and understanding of diverse cultural expressions, fostering the integration of cultural elements into design (Banks, 2015; Sleeter, 2011).

Impact on Engagement

Integrating Miao embroidery into Product Design courses enhances student engagement by deepening their cultural understanding and encouraging creative applications of traditional art (Wang, 2022).

Strategies for Enhancing Cultural Appreciation

Project-based learning, workshops, and hands-on practice are effective strategies for enhancing students' cultural appreciation and integrating cultural elements into design work (Norman, 2013).

Instructional Design in Product Design Education

Principles of Instructional Design

Effective instructional design in Product Design education helps students develop cultural understanding and design skills. Integrating Miao Embroidery offers a structured approach to fostering these skills (Morrish, 2020).

Active and Passive Learning

Both passive learning (e.g., lectures on Miao embroidery techniques) and active learning (e.g., group projects) are essential for fostering engagement and encouraging students to apply traditional techniques in innovative ways.

Current Trends in Chinese Art Education

Product Design education in Chinese universities is shifting toward more interactive, student-centered methods, promoting creativity and practical design skills. Integrating traditional arts like Miao embroidery enhances students' innovation and cultural preservation (Wang, 2022).

Learning Strategies

Definition and Framework

Learning strategies such as project-based learning and reflective practice enhance students' cultural appreciation and design skills by integrating Miao Embroidery into Product Design courses (Norman, 2013).

Strategies to Enhance Cultural Appreciation

Direct exposure to traditional cultural arts, such as participating in Miao embroidery workshops, helps students develop respect for cultural diversity and apply these elements in their designs.

Related Research

Domestic Research

In China, integrating cultural elements like Miao embroidery into design education is gaining traction, enhancing students' cultural understanding and design perspectives (Wang, 2022).

International Research

Globally, integrating traditional arts into education has been shown to foster innovation and enhance cultural understanding, helping students think creatively beyond conventional design paradigms (Banks, 2015; Sleeter, 2011).

Research Methodology

This study explores the integration of Guizhou Miao Embroidery into university-level Product Design courses. The methodology encompasses the research design, data collection tools, and analysis techniques to assess the impact on students' design skills and cultural appreciation.

Research Process

Research Topic and Objectives: The aim is to investigate how integrating Guizhou Miao Embroidery can enhance students' design skills and cultural appreciation in modern design education. Key research objectives include:

1) Investigating effective integration methods for Miao Embroidery into Product Design courses.

2) Evaluating the impact on students' design skills, cultural awareness, and academic performance.

Literature Review: The review focused on theories of skill development (Amabile, 1996), cultural integration in education (Geertz, 1973), and instructional design strategies (Morrish, 2020), providing a theoretical basis for the research.

Data Collection Methods (A mixed-methods approach was used):

Quantitative: Pre- and post-course surveys, design assessments, and course evaluations.

Qualitative: Semi-structured interviews with students, teachers, and Miao artisans, along with classroom observations.

Data Analysis

Quantitative: Paired t-tests and ANOVA were used to analyze changes in design skills and cultural appreciation.

Qualitative: Thematic analysis of interview data identified key themes related to the impact of cultural integration on students.

Course Design and Data Collection

Course Structure: The 10-week course, Creative Product Design Integrating Guizhou Miao Embroidery, included four modules: Cultural and Historical Background, Techniques and Applications, Design Workshop, and Presentation. Teaching methods combined lectures, practical sessions, and project-based learning.

Table 1 Course Design and Data Collection

Course Component	Description
Course Title	Creative Product Design Integrating Guizhou Miao Embroidery
Course Objectives	
Knowledge Objectives	Understand the historical background, cultural significance, and artistic features of Guizhou Miao embroidery.
Skill Objectives	Enhance students' design skills, including concept generation and integration of cultural elements.
Emotional Objectives	Cultivate respect and appreciation for Chinese traditional culture.
Course Structure and Schedule	The course spans 8 weeks, with two sessions per week, each lasting two hours, divided into four modules:
Cultural and Historical Background (Weeks 1-2)	Introduce the cultural significance and symbolic meanings of Miao embroidery patterns.
Techniques and Applications (Weeks 3-4)	Learn basic embroidery techniques and explore their applications in modern design.
Design Workshop (Weeks 5-7)	Students incorporate Miao embroidery elements into product design, covering the entire process from concept to execution.
Presentation and Feedback (Week 8)	Students present their design projects and participate in a feedback discussion.
Teaching Methods	A combination of lectures, practical sessions, project-based learning, and reflective practice is used to help students integrate traditional culture with modern design through hands-on experience.
Assessment Methods	
Formative Assessment	Evaluate student progress through class participation and mastery of techniques.
Summative Assessment	Assess the final design projects, focusing on cultural integration and execution of the designs.

Sample and Setting: 122 undergraduate students from the Product Design department at Guizhou Qiannan Normal University for Nationalities participated. The course was conducted in the Department of Product Design, Guizhou Qiannan College of Science and Technology.

Assessment: Students' progress was assessed through:

- 1) Formative assessment: Participation and technique mastery.

2) Summative assessment: Final design projects focused on cultural integration.

Data Analysis Techniques

Quantitative Analysis: Descriptive statistics summarized survey data (e.g., means, standard deviations). Paired t-tests assessed pre- and post-course changes in students' design skills and cultural awareness.

Qualitative Analysis: Thematic analysis of interviews and observations provided insights into how students integrated cultural elements into their designs and their appreciation for traditional art.

Research Results

This chapter presents the analysis of the collected data, summarizing the findings based on the research objectives and questions. Both quantitative and qualitative methods were employed to provide a comprehensive understanding of the effects of integrating Guizhou Miao Embroidery into university-level Product Design courses.

Questionnaire Data

The questionnaire was used as the primary tool for assessing changes in students' design skills, cultural understanding, and course satisfaction. A total of 122 undergraduate students at Guizhou Qiannan Normal University for Nationalities participated, responding on a 5-point Likert scale.



Fig. 10 Interview scene



Fig. 11 Questionnaire filling site

Survey Design and Distribution

The questionnaire was divided into three sections: cultural understanding, design skill enhancement, and course satisfaction. These sections were aligned with the study's objectives, providing a comprehensive measure of the course's effectiveness.

Data Analysis Methodology

Descriptive and inferential statistical methods were applied. Paired sample t-tests measured pre- and post-course changes in students' design skills and cultural understanding, while ANOVA assessed potential demographic influences.

Survey Results

The survey results indicated significant improvements across multiple dimensions of design skills, cultural understanding, and course satisfaction.

Table 2 Design Skills and Student Engagement Scores (Pre- and Post-Course Comparison)

Dimension	Pre-Course Mean (SD)	Post-Course Mean (SD)	Sample Size (n)	t-value	p-value	Significance
Engagement and Interest	3.20 (0.72)	4.35 (0.65)	122	11.15	<0.001	Significant
Skill Improvement: Precision	3.18 (0.70)	4.28 (0.62)	122	10.60	<0.001	Significant
Skill Improvement: Balance	3.15 (0.65)	4.22 (0.63)	122	10.50	<0.001	Significant
Skill Improvement: Color and Composition	3.12 (0.67)	4.30 (0.60)	122	11.80	<0.001	Significant
Average Score	3.16 (0.69)	4.28 (0.62)	122	11.05	<0.001	Significant

Design Skills and Student Engagement: Significant improvements were observed in students' engagement, precision, balance, and color composition, with t-values indicating all dimensions had a significant increase ($p < 0.05$). This aligns with Banks (2015), suggesting that cultural exposure broadens design perspectives and fosters innovation.

Table 3 Cultural Understanding Scores Pre- and Post-Course

Dimension	Pre-Course Mean (SD)	Post-Course Mean (SD)	Sample Size (n)	t-value	p-value	Significance
Cultural Appreciation	3.18 (0.71)	4.40 (0.65)	122	12.02	<0.001	Significant
Knowledge of Cultural Symbols	3.12 (0.67)	4.28 (0.60)	122	11.18	<0.001	Significant
Cultural Integration Skills	3.05 (0.62)	4.30 (0.64)	122	11.96	<0.001	Significant
Average Score	3.12 (0.67)	4.33 (0.63)	122	11.72	<0.001	Significant

Cultural Understanding: Students showed a heightened appreciation for traditional Chinese art, with average scores for cultural understanding increasing from 3.12 to 4.33. This result is consistent with Geertz's (1973) theory on cultural learning, demonstrating that exposure to traditional arts deepens cultural awareness.

Table 4 Course Satisfaction Ratings

Satisfaction Dimension	Post-Course Mean (SD)	Sample Size (n)	Standard Deviation	Likert Scale Range
Course Structure	4.35 (0.58)	122	0.58	1 - 5
Practical Sessions	4.42 (0.54)	122	0.54	1 - 5
Instructor Engagement	4.38 (0.60)	122	0.60	1 - 5
Cultural Relevance	4.48 (0.56)	122	0.56	1 - 5
Overall Satisfaction	4.41 (0.57)	122	0.57	1 - 5

Course Satisfaction: Students rated the course highly, especially in aspects of cultural relevance, practical sessions, and instructor engagement. The overall satisfaction score was 4.41, indicating positive student perceptions of the integration of cultural elements.

Expanded Analysis: Detailed Design Skills, Cultural Understanding, and Satisfaction

Table 5 Ratings Detailed Design Skills Analysis Pre- and Post-Course

Skill Dimension	Pre-Course Mean (SD)	Post-Course Mean (SD)	Sample Size (n)	t-value	p-value	Significance
Precision	3.10 (0.70)	4.25 (0.60)	122	10.85	<0.001	Significant
Balance	3.18 (0.66)	4.30 (0.63)	122	11.32	<0.001	Significant
Color and Composition	3.22 (0.68)	4.35 (0.61)	122	10.76	<0.001	Significant

Detailed Design Skills Analysis: Students showed significant improvements in precision, balance, and color composition, with precision scores rising from 3.10 to 4.25, balance from 3.18 to 4.30, and color composition from 3.22 to 4.35. These results confirm that Miao embroidery helped students refine technical design abilities, supporting Banks (2015) on the creative benefits of cultural diversity.

Table 6 Detailed Cultural Understanding Analysis

Cultural Dimension	Pre-Course Mean (SD)	Post-Course Mean (SD)	Sample Size (n)	t-value	p-value	Significance
Symbolic Understanding	3.15 (0.69)	4.38 (0.64)	122	12.45	<0.001	Significant
Cultural Background Knowledge	3.08 (0.67)	4.30 (0.61)	122	11.86	<0.001	Significant

Detailed Cultural Understanding Analysis: The cultural understanding scores increased significantly in both symbolic understanding (from 3.15 to 4.38) and knowledge of cultural

context (from 3.08 to 4.30). These findings support the course's objective of fostering cultural sensitivity and understanding traditional arts.

Table 7 Detailed Course Satisfaction Analysis

Satisfaction Aspect	Post-Course Mean (SD)	Sample Size (n)	Standard Deviation	Likert Scale Range
Lecture Quality	4.30 (0.59)	122	0.59	1 - 5
Interactivity	4.41 (0.57)	122	0.57	1 - 5
Hands-on Experience	4.45 (0.55)	122	0.55	1 - 5
Cultural Awareness Interest	4.48 (0.54)	122	0.54	1 - 5

Detailed Course Satisfaction Analysis: High satisfaction ratings were reported across various course aspects, particularly in lecture quality, interactivity, hands-on experience, and cultural awareness interest. These high ratings suggest that the integration of cultural elements enhanced student engagement and learning outcomes.

Interview Analysis

In addition to quantitative data, semi-structured interviews were conducted with 10 students, 3 teachers, and Miao embroidery artisans. The interviews provided qualitative insights into the course's impact on engagement, design skills, and cultural appreciation.

Key Findings:

Enhanced Design Skills: Students cited the influence of Miao embroidery patterns in inspiring them to incorporate cultural elements into their designs, with teachers noting increased enthusiasm and respect for traditional techniques.

Increased Cultural Appreciation: Students reported a deeper understanding of traditional art and the symbolic meanings behind each motif, supporting the notion that cultural immersion fosters appreciation for heritage.

Suggestions for Improvement: Suggestions included increasing practical sessions and more opportunities for direct interaction with Miao artisans, aligning with Morrish's (2020) findings on the benefits of cultural immersion.



Fig. 12 Comparison of student works 1

Before learning: The left side is a simple chair design with a simple structure and lack of creativity.

After learning: The chair design on the right side incorporates Guizhou Miao embroidery elements, showing rich cultural details and artistry.



Fig. 13 Comparison of student works 2

Before learning: The left side is a basic bowl design, which is simple in structure and functional, but lacks creativity.

After learning: The bowl design on the right incorporates patterns inspired by Guizhou Miao embroidery, with rich colors and fine details, showing artistry and cultural depth.

The findings from both the quantitative and qualitative analyses demonstrate that integrating Miao embroidery into the Product Design curriculum significantly enhances students' design skills, cultural understanding, and satisfaction. These results underscore the value of integrating cultural elements into design education, fostering both technical competency and cultural sensitivity in students.

Conclusion

This study confirms that integrating Guizhou Miao embroidery into the product design curriculum at Guizhou Qiannan Normal University for Nationalities significantly enhances both students' design skills and their cultural appreciation. The main findings are as follows:

1) **Design Skill Enhancement:** Students showed significant improvements in design precision, color harmony, and compositional balance. Exposure to Miao embroidery techniques enabled them to effectively incorporate traditional cultural elements into modern design projects. This supports Banks (2015), who highlights that cultural integration refines both technical skills and creativity.

2) **Cultural Appreciation:** Hands-on interaction with Miao embroidery deepened students' understanding of Chinese cultural heritage. They developed a greater respect for the symbolic meanings and artistic expressions within traditional crafts, aligning with Geertz's (1973) cultural learning theory.

3) **Course Engagement:** The course's interactive and practical components created an engaging and immersive learning environment. High levels of student satisfaction reflect increased enthusiasm and motivation, consistent with Norman's (2013) research on the positive effects of cultural integration on student engagement.

These findings underline the importance of combining traditional art forms with modern design education to foster technical proficiency and cultural sensitivity, thus providing a well-rounded educational experience.

Discussion

Theoretical Implications

This study contributes to the theoretical understanding of cultural integration in education, emphasizing the following points:

1) **Skill Development:** In line with Amabile's (1996) creativity theory, the integration of Miao embroidery acted as a catalyst for enhancing practical design skills, focusing on detail, precision, and innovation.

2) **Cultural Learning:** The findings support Geertz's (1973) and Hall's (1997) cultural education theories, illustrating that immersive experiences with traditional arts foster both cognitive and emotional engagement with cultural heritage.

3) Engagement and Flow: Practical embroidery workshops facilitated a "flow" state, as defined by Csikszentmihalyi (1996), encouraging sustained focus and enjoyment in the learning process.

Practical Implications

The study provides practical insights into the integration of traditional arts into design education:

1) Framework for Cultural Integration: A structured approach combining theoretical learning, hands-on practice, and cultural narratives helps students connect technical skills with cultural appreciation.

2) Cross-Disciplinary Potential: The application of Miao embroidery extends beyond design education, offering opportunities for integration into marketing, digital design, and textile production, thus fostering broader educational and commercial applications.

3) Fostering Inclusivity: By incorporating cultural elements, educators can create more inclusive and socially responsible learning environments, supporting Sleeter's (2011) findings on culturally enriched education.

Suggestions

1) Expand Practical Applications: It is recommended to offer extended workshops and projects to deepen students' mastery of embroidery techniques. These techniques should be integrated into various design contexts, such as fashion, industrial design, and interior design, in alignment with Kolb's (1984) experiential learning theory.

2) Encourage Cross-Disciplinary Collaboration: Interdisciplinary projects involving fields like sociology, marketing, or digital media should be facilitated. This would help explore the broader applications of cultural design and enhance students' ability to apply traditional arts in diverse contexts.

3) Enhance Engagement with Miao Artisans: Organizing collaborative sessions with artisans can provide students with firsthand cultural insights. Additionally, field trips to heritage sites could deepen students' contextual understanding of traditional crafts, enriching their learning experience.

4) Continuous Curriculum Refinement: It is important to use student feedback and outcome analysis to iteratively refine the course content, ensuring that it remains aligned with the evolving demands of the design industry.

Learning Impact Mind Map

The following mind map visually represents the positive effects of integrating Guizhou Miao embroidery into product design education. It highlights the enhanced design skills, cultural appreciation, and engagement outcomes.

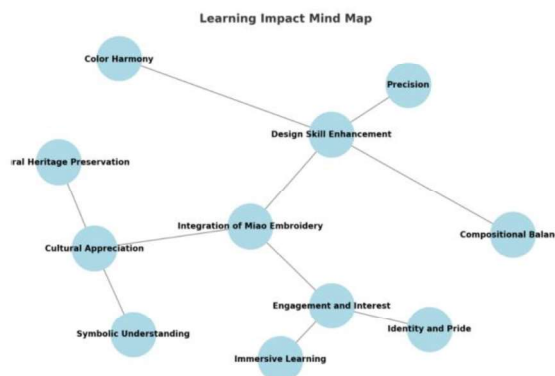


Fig. 14 Mind Map

Final Reflection

This study provides a fresh perspective on integrating traditional arts into modern design education. The findings demonstrate that such initiatives not only equip students with technical competencies but also foster a profound appreciation for cultural diversity. This research underscores the value of culturally enriched education in preparing students for professional roles as innovative and socially conscious designers.

Future research should focus on:

1) Long-term Impacts: Investigating the long-term effects of curricular innovations like this on professional design practice.

2) Cross-Cultural Comparisons: Conducting comparative studies in diverse cultural contexts to identify best practices for integrating traditional arts on a global scale.

This research serves as a blueprint for future educational strategies that combine tradition with innovation, creating transformative learning experiences for students.

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