



# The Integration of Buddhist Innovative Learning Management in Traditional Indigo-Dyed Fabric Handicraft Education: A Mixed-Methods Research and Development Study in Sakon Nakhon Province, Northeast Thailand<sup>1</sup>

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## Abstract:

**Background:** The preservation of traditional crafts faces significant challenges in the digital age, particularly in rural communities of Northeast Thailand. Buddhist principles offer potential frameworks for sustainable cultural preservation through innovative educational approaches.

**Purpose:** This mixed-methods research and development study investigates the integration of Buddhist innovative learning management systems in traditional indigo-dyed fabric handicraft education within Sakon Nakhon Province, Northeast Thailand.

**Methods:** A sequential explanatory mixed-methods design was employed using Research and Development (R&D) methodology. Quantitative data were collected from 384 participants (artisans, educators, students, and community members) using structured questionnaires, while qualitative insights were gathered through in-depth interviews with 45 key informants. Statistical analyses included descriptive statistics, correlation analysis, and structural equation modeling using SPSS 29.0 and AMOS 24.0.

**Results:** The integrated Buddhist learning management model demonstrated significant positive correlations with cultural preservation effectiveness ( $r = 0.742, p < 0.001$ ), student engagement ( $r = 0.685, p < 0.001$ ), and community cohesion ( $r = 0.721, p < 0.001$ ). The developed model explained 67.3% of variance in traditional craft sustainability outcomes. Key success factors included mindfulness integration ( $\beta = 0.341, p < 0.001$ ), ethical production practices ( $\beta = 0.298, p < 0.001$ ), and community-based learning approaches ( $\beta = 0.287, p < 0.001$ ).

**Conclusions:** The Buddhist innovative learning management model effectively enhances traditional craft education while preserving cultural heritage. The study provides

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empirical evidence for scaling this approach across similar cultural contexts in Southeast Asia.

**Keywords:** Buddhist education, traditional crafts, cultural preservation, learning management systems, mixed-methods research, Northeast Thailand

## 1. INTRODUCTION

The preservation of traditional cultural practices in the contemporary globalized world presents unprecedented challenges, particularly for indigenous communities in Southeast Asia (Chamnankul et al., 2023). Traditional handicrafts, which serve as repositories of cultural knowledge and community identity, face threats from rapid modernization, economic pressures, and changing educational priorities (Siriwan & Thanakit, 2022). In Northeast Thailand, specifically Sakon Nakhon Province, the ancient art of indigo-dyed fabric creation represents more than mere craft production; it embodies centuries of accumulated wisdom, spiritual practices, and community solidarity (Rattanasiri et al., 2023).

The integration of Buddhist principles into educational frameworks has gained significant attention in recent years as researchers and practitioners seek holistic approaches to learning that address both intellectual and spiritual development (Phra Maha Somchai et al., 2023). The Buddhist Eightfold Path, encompassing right understanding, intention, speech, action, livelihood, effort, mindfulness, and concentration, provides a comprehensive framework for ethical living and conscious practice that aligns naturally with traditional craft production methods (Thepsiri & Wongthanavasu, 2022).

Contemporary educational challenges in rural Thailand include declining interest among youth in traditional practices, inadequate integration of cultural content in formal curricula, and limited resources for culturally responsive pedagogy (Ministry of Education Thailand, 2023). These challenges are particularly acute in Sakon Nakhon Province, where traditional indigo dyeing practices have been transmitted through informal apprenticeship systems for generations but now face discontinuation due to modernization pressures (Northeastern Cultural Research Institute, 2023).

The concept of innovative learning management systems has evolved beyond traditional technology-focused approaches to encompass culturally grounded, spiritually informed pedagogical frameworks (Sriporn & Chaiwat, 2023). Buddhist innovative learning management represents a paradigm shift toward holistic education that integrates spiritual principles with practical skill development, community engagement, and environmental consciousness (Phra Khru Sangharak Somsak, 2022).

This study addresses a critical gap in understanding how traditional Buddhist teachings can be systematically integrated into formal educational structures to preserve and revitalize traditional crafts while maintaining their spiritual and cultural integrity. Previous research has primarily focused on either Buddhist education or traditional craft preservation in isolation, lacking comprehensive empirical investigation of their integration (Thanakit et al., 2023).

The significance of this research extends beyond local cultural preservation to contribute to global discussions on sustainable development, intangible cultural heritage





protection, and innovative educational methodologies that honor both tradition and contemporary educational needs (UNESCO, 2023). The findings have potential applications across Buddhist-influenced societies in Southeast Asia facing similar challenges in balancing modernization with cultural preservation.

## 2. LITERATURE REVIEW

### 2.1 Buddhist education and innovative learning systems

Buddhist education traditions in Southeast Asia have historically emphasized experiential learning, ethical development, and community engagement as fundamental pedagogical principles (Phra Maha Thongchai et al., 2022). Contemporary scholarship has increasingly recognized the relevance of Buddhist educational philosophy for addressing modern learning challenges, particularly in developing holistic curricula that integrate cognitive, affective, and spiritual dimensions of human development (Sirichai & Pattanapong, 2023).

The application of Buddhist principles in formal educational settings has demonstrated positive outcomes in student engagement, moral development, and academic achievement across various cultural contexts (Thepsuda & Wannachai, 2022). The Eightfold Path, as a comprehensive framework for ethical living, provides structured guidance for educational practices that emphasize mindfulness, right action, and compassionate engagement with learning materials and community members (Phra Ajahn Suchart, 2023).

Innovative learning management systems incorporating Buddhist principles have emerged as promising approaches to educational reform in Buddhist-majority societies (Niran & Somchai, 2023). These systems typically emphasize contemplative practices, collaborative learning, ethical reflection, and practical application of spiritual principles in daily life (Thanakit & Siriporn, 2022). Research has shown that students exposed to Buddhist-informed curricula demonstrate enhanced emotional regulation, increased empathy, and stronger connections to cultural identity (Rattana & Pricha, 2023).

### 2.2 Traditional craft education and cultural preservation

Traditional craft education serves multiple functions beyond skill transmission, including cultural identity formation, community bonding, and preservation of indigenous knowledge systems (Somjit & Thanapon, 2023). In the context of Southeast Asian societies, traditional crafts embody complex relationships between spiritual beliefs, environmental knowledge, and social structures that require comprehensive educational approaches for effective preservation (Chantira & Wichian, 2022).

The decline of traditional craft practices across rural Thailand has been documented extensively, with factors including economic pressures, urbanization, educational priorities favoring academic subjects, and limited recognition of traditional knowledge in formal curricula (Northeastern Development Institute, 2023). Effective preservation strategies require



innovative approaches that demonstrate the contemporary relevance of traditional practices while maintaining their cultural authenticity (Sirilak & Thongchai, 2023).

Intergenerational knowledge transmission in traditional craft communities has traditionally relied on apprenticeship models that integrate practical skill development with cultural values, spiritual practices, and community responsibilities (Wanida & Somsak, 2022). Contemporary educational interventions must therefore address not only technical skill acquisition but also the broader cultural ecosystem within which traditional crafts are embedded (Thanakit et al., 2023).

### 2.3 Mixed-methods research in cultural education studies

Mixed-methods research approaches have proven particularly valuable in cultural education studies due to their capacity to capture both quantifiable outcomes and nuanced cultural processes that resist purely quantitative measurement (Pornthip & Sirichai, 2023). The integration of quantitative and qualitative methodologies enables researchers to examine complex phenomena such as cultural preservation and educational innovation from multiple perspectives while maintaining scientific rigor (Thepsiri & Wannachai, 2022).

Research and Development (R&D) methodologies have emerged as effective frameworks for educational innovation studies, particularly in contexts requiring systematic development and testing of new pedagogical approaches (Ministry of Higher Education Thailand, 2023). R&D approaches enable iterative refinement of educational interventions based on empirical feedback while maintaining focus on practical implementation and scalability (Siriporn & Niran, 2022).

### 2.4 Theoretical framework: Buddhist educational innovation model

The theoretical foundation for this study draws upon multiple frameworks including Buddhist educational philosophy, cultural preservation theory, and innovation diffusion models. The integrated theoretical framework posits that effective cultural preservation through education requires alignment between spiritual principles, practical skill development, community engagement, and institutional support (Phra Maha Thanakit, 2023).

The Buddhist Educational Innovation Model proposed in this study incorporates five key dimensions: (1) mindfulness-based learning practices, (2) ethical production principles, (3) community-centered pedagogy, (4) spiritual-cultural integration, and (5) sustainable practice development (see Figure 1 in Appendix A). This model provides theoretical grounding for investigating the integration of Buddhist principles into traditional craft education while maintaining empirical testability through quantitative measures.

## 3. RESEARCH QUESTIONS

This study addresses the following research questions:

3.1 To what extent does the integration of Buddhist innovative learning management influence the effectiveness of traditional indigo-dyed fabric handicraft education in Sakon Nakhon Province?





3.2 What are the key components and implementation processes of an effective Buddhist innovative learning management model for traditional craft education?

3.3 How do Buddhist principles contribute to student engagement, cultural preservation outcomes, and community cohesion in traditional craft education programs?

3.4 What challenges and facilitating factors influence the implementation of Buddhist innovative learning management in formal educational settings?

## 4. OBJECTIVES

The objectives of this study are:

4.1 To develop and validate a Buddhist innovative learning management model for traditional indigo-dyed fabric handicraft education

4.2 To examine the relationships between Buddhist educational principles and cultural preservation outcomes

4.3 To assess the effectiveness of the developed model on student learning outcomes, cultural engagement, and community participation

4.4 To identify implementation strategies and recommendations for scaling the model across similar cultural contexts

## 5. METHODOLOGY

### 5.1 Research design

This study employed a sequential explanatory mixed-methods design using Research and Development (R&D) methodology. The research was conducted in three phases: (1) quantitative data collection and analysis, (2) qualitative data collection and analysis, and (3) model development and validation. This approach enabled comprehensive investigation of the complex relationships between Buddhist educational principles and traditional craft preservation while developing practical interventions for implementation.

### 5.2 Research setting and context

The study was conducted in Sakon Nakhon Province, Northeast Thailand, specifically focusing on communities in Khamtakla District where traditional indigo-dyed fabric production has been practiced for over 200 years. The research sites included five villages with active traditional craft programs: Tad Village, Ban Nong Kung, Ban Na Kham, Ban Phon Thong, and Ban Si That. These communities were selected based on their historical engagement with indigo dyeing, presence of skilled artisans, and existing educational infrastructure.

### 5.3 Population and sample

#### 5.3.1 Quantitative sample

The quantitative population consisted of 1,247 individuals involved in traditional craft education across the five research sites, including artisans, formal and informal educators,





students, and community members. Using Yamane's formula with 95% confidence level and 5% margin of error, the required sample size was calculated as 302 participants. To account for potential non-response, the sample was increased to 384 participants.

Sample allocation: Traditional artisans (n=96), Formal educators (n=77), Students (n=134), Community leaders (n=38), Parents/guardians (n=39).

### 5.3.2 Qualitative sample

Purposive sampling was used to select 45 key informants for in-depth interviews and focus group discussions. Participants included master artisans (n=12), Buddhist monks/spiritual leaders (n=8), formal educators (n=10), community leaders (n=7), and advanced students (n=8).

## 5.4 Research instruments

### 5.4.1 Quantitative instruments

A structured questionnaire was developed comprising five sections: (1) demographic information, (2) Buddhist educational principles integration scale (18 items), (3) traditional craft education effectiveness scale (15 items), (4) cultural preservation outcomes scale (12 items), and (5) community engagement scale (10 items). All scales used 5-point Likert ratings (1=strongly disagree to 5=strongly agree).

### 5.4.2 Qualitative instruments

Semi-structured interview guides were developed for different participant categories, addressing themes of Buddhist principle integration, traditional craft transmission methods, educational challenges and opportunities, and community cultural preservation strategies.

## 5.5 Data collection procedures

Quantitative data collection was conducted over 8 weeks (September-October 2022) using trained research assistants fluent in local dialects. Qualitative data collection involved 45 individual interviews (60-90 minutes each) and 6 focus group discussions (8-10 participants each, 90-120 minutes).

## 5.6 Data analysis procedures

Quantitative data were analyzed using SPSS 29.0 and AMOS 24.0 software. Descriptive statistics, correlation analysis, multiple regression, and structural equation modeling (SEM) were employed to examine relationships between variables. Qualitative data were analyzed using thematic analysis following Braun and Clarke's (2019) six-phase approach. Data integration employed joint displays and meta-inferences to synthesize quantitative and qualitative findings.

## 5.7 Validity and reliability

Content validity was established through expert review by five specialists in Buddhist education and traditional craft studies. Construct validity was assessed through exploratory and confirmatory factor analysis. Cronbach's alpha coefficients ranged from 0.84 to 0.92 for



all scales, indicating high internal consistency. Qualitative data credibility was enhanced through member checking, peer debriefing, and prolonged engagement.

### 5.8 Ethical considerations

Ethical approval was obtained from the University Research Ethics Committee (Protocol #HE-2022-078). Informed consent was secured from all participants, with particular attention to cultural protocols and community consent procedures. Data confidentiality and anonymity were maintained throughout the research process.

## 6. RESULTS

### 6.1 Participant characteristics

The quantitative sample (N=384) comprised 58.3% female and 41.7% male participants, with ages ranging from 18 to 75 years (M=42.6, SD=14.8). Educational backgrounds varied from primary education (23.4%) to postgraduate degrees (8.9%). Traditional craft experience ranged from novice to master level, with 34.6% having over 10 years of experience.

### 6.2 Descriptive statistics and correlation analysis

Table 1 presents descriptive statistics and correlations among key study variables. All scales demonstrated adequate reliability ( $\alpha > 0.80$ ) and normal distribution patterns. Buddhist educational principles integration showed strong positive correlations with cultural preservation outcomes ( $r = 0.742$ ,  $p < 0.001$ ), student engagement ( $r = 0.685$ ,  $p < 0.001$ ), and community cohesion ( $r = 0.721$ ,  $p < 0.001$ ).

**Table 1** Descriptive Statistics and Correlations Among Study Variables

Variable	M	SD	$\alpha$	1	2	3	4	5
1. Buddhist Educational Principles	4.12	0.68	0.89	-				
2. Traditional Craft Education Effectiveness	3.94	0.72	0.86	.673**	-			
3. Cultural Preservation Outcomes	4.08	0.65	0.88	.742**	.698**	-		
4. Student Engagement	3.89	0.79	0.84	.685**	.712**	.634**	-	
5. Community Cohesion	4.15	0.71	0.87	.721**	.587**	.723**	.598**	-

\*Note: N = 384; \* $p < 0.01$

### 6.3 Regression analysis results

Multiple regression analysis revealed that Buddhist educational principles significantly predicted cultural preservation outcomes, explaining 55.0% of the variance ( $R^2 = 0.550$ ,  $F(3,380) = 155.42$ ,  $p < 0.001$ ). The regression model included mindfulness integration ( $\beta =$





0.341,  $p < 0.001$ ), ethical production practices ( $\beta = 0.298$ ,  $p < 0.001$ ), and community-based learning ( $\beta = 0.287$ ,  $p < 0.001$ ) as significant predictors.

**Table 2** Multiple Regression Analysis: Predictors of Cultural Preservation Outcomes

Predictor	B	SE B	$\beta$	t	p	95% CI
Constant	0.847	0.234	-	3.62	< 0.001	[0.388, 1.306]
Mindfulness Integration	0.389	0.058	0.341	6.71	< 0.001	[0.275, 0.503]
Ethical Production Practices	0.312	0.063	0.298	4.95	< 0.001	[0.188, 0.436]
Community-based Learning	0.298	0.061	0.287	4.89	< 0.001	[0.178, 0.418]

Note:  $R^2 = 0.550$ , Adjusted  $R^2 = 0.546$ ,  $F(3, 380) = 155.42$ ,  $p < 0.001$

## 6.4 Structural equation modeling results

The structural equation model examining relationships between Buddhist educational principles and cultural preservation outcomes demonstrated excellent fit indices:  $\chi^2(142) = 201.34$ ,  $p < 0.001$ ; CFI = 0.958; TLI = 0.948; RMSEA = 0.034 (90% CI [0.023, 0.044]); SRMR = 0.041. The model explained 67.3% of variance in cultural preservation outcomes.

**Table 3** Structural Equation Model Path Coefficients

Path	Standardized Coefficient	SE	p	95% CI
Buddhist Principles → Cultural Preservation	0.821	0.047	< 0.001	[0.729, 0.913]
Buddhist Principles → Student Engagement	0.743	0.052	< 0.001	[0.641, 0.845]
Buddhist Principles → Community Cohesion	0.768	0.049	< 0.001	[0.672, 0.864]
Student Engagement → Cultural Preservation	0.234	0.058	< 0.001	[0.120, 0.348]
Community Cohesion → Cultural Preservation	0.187	0.055	0.001	[0.079, 0.295]

## 6.5 Qualitative findings

Thematic analysis of qualitative data revealed five major themes: (1) spiritual foundation for learning, (2) intergenerational knowledge transmission, (3) mindful practice development, (4) community-centered pedagogy, and (5) sustainable cultural preservation.

### 6.5.1 Spiritual foundation for learning

Participants consistently emphasized the importance of Buddhist principles in providing meaningful context for traditional craft learning. A master artisan noted: "When students understand the spiritual meaning behind each step of indigo dyeing, they approach





the work with greater respect and attention. The Buddhist teachings help them see that this is not just making cloth, but cultivating wisdom and compassion."

### 6.5.2 Intergenerational knowledge transmission

The integration of Buddhist principles facilitated improved communication between older artisans and younger learners. An educator explained: "The Eightfold Path provides a common language for discussing both technical skills and life wisdom. Elders can share not just how to create the dye, but why our ancestors developed these methods and how they connect to Buddhist values."

### 6.5.3 Mindful practice development

Participants reported that mindfulness practices enhanced learning quality and retention. A student shared: "When I practice mindfulness during dyeing, I notice details I missed before. The color changes, the temperature, the timing - everything becomes clearer when I pay full attention."

### 6.6 Mixed-methods integration

The integration of quantitative and qualitative findings revealed convergent evidence supporting the effectiveness of Buddhist innovative learning management in traditional craft education. Statistical results demonstrating strong correlations between Buddhist principles and cultural preservation outcomes were corroborated by qualitative accounts of improved learning experiences, enhanced cultural understanding, and strengthened community connections.

## 7. DISCUSSION

### 7.1 Interpretation of quantitative findings

The strong positive correlations between Buddhist educational principles and cultural preservation outcomes ( $r = 0.742$ ) provide empirical support for the theoretical framework underlying this study. These findings align with previous research demonstrating the effectiveness of spiritually-grounded educational approaches in promoting cultural continuity (Thanakit et al., 2023; Sirichai & Pattanapong, 2023).

The regression analysis revealing mindfulness integration as the strongest predictor of cultural preservation outcomes ( $\beta = 0.341$ ) supports the centrality of contemplative practices in Buddhist education. This finding resonates with contemporary research on mindfulness in education, which has demonstrated enhanced learning outcomes across diverse cultural contexts (Rattana & Pricha, 2023).

The structural equation model's explanation of 67.3% variance in cultural preservation outcomes indicates that the Buddhist educational innovation model captures key mechanisms underlying effective traditional craft education. The excellent model fit indices suggest that





the theoretical framework accurately represents the complex relationships between spiritual principles, educational practices, and cultural preservation outcomes.

## 7.2 Qualitative insights and cultural mechanisms

The qualitative findings provide crucial insights into the cultural mechanisms through which Buddhist principles enhance traditional craft education. The theme of "spiritual foundation for learning" illuminates how Buddhist teachings provide meaningful context that transforms technical skill acquisition into spiritual practice. This transformation appears crucial for sustaining student interest and commitment to traditional crafts.

The emphasis on intergenerational knowledge transmission highlights the role of Buddhist principles in bridging generational gaps that often hinder traditional craft preservation. By providing shared spiritual vocabulary and values, Buddhist teachings facilitate more effective communication between master artisans and novice learners.

The mindful practice development theme demonstrates how Buddhist contemplative practices enhance the quality of craft learning. Participants' reports of increased attention to detail and improved skill acquisition through mindfulness practice align with neuroscientific research on attention and learning (Phra Maha Thongchai et al., 2022).

## 7.3 Theoretical contributions

This study makes several significant theoretical contributions to the intersection of Buddhist education and cultural preservation research. First, the development and validation of the Buddhist Educational Innovation Model provides a comprehensive framework for understanding how spiritual principles can be systematically integrated into formal educational structures while maintaining cultural authenticity.

Second, the empirical demonstration of strong relationships between Buddhist principles and cultural preservation outcomes contributes to the growing body of evidence supporting contemplative approaches to education. The finding that mindfulness integration serves as the strongest predictor of cultural preservation outcomes suggests that contemplative practices may be particularly crucial for maintaining cultural continuity in rapidly changing societies.

Third, the successful application of mixed-methods research and development methodology in this cultural context demonstrates the value of integrated research approaches for investigating complex educational phenomena. The convergent evidence from quantitative and qualitative data strengthens confidence in the study's findings and enhances their practical applicability.

## 7.4 Practical implications

The findings have several important practical implications for educational policy and practice in Thailand and similar cultural contexts. The demonstrated effectiveness of the Buddhist educational innovation model suggests that educational institutions should consider incorporating contemplative practices and spiritual principles into curricula addressing cultural preservation.





The strong correlation between community-based learning approaches and cultural preservation outcomes indicates that effective traditional craft education requires substantial community involvement. Educational institutions should therefore develop partnerships with local communities and traditional knowledge holders to create authentic learning environments.

The finding that ethical production practices significantly predict cultural preservation outcomes suggests that traditional craft education should explicitly address sustainability and ethical considerations. This integration appears particularly important for maintaining the cultural integrity of traditional practices while adapting to contemporary economic and environmental challenges.

### 7.5 Limitations and future research directions

Several limitations should be considered when interpreting these findings. First, the study was conducted in a specific cultural context (Sakon Nakhon Province, Thailand) with particular traditional crafts (indigo dyeing), which may limit generalizability to other cultural contexts or craft traditions. Future research should examine the applicability of the Buddhist educational innovation model across diverse cultural settings and traditional practices.

Second, the cross-sectional nature of the quantitative data collection limits causal inferences about the relationships between Buddhist principles and cultural preservation outcomes. Longitudinal research designs would provide stronger evidence for causal relationships and enable examination of long-term effects of the educational intervention.

Third, while the study achieved strong statistical power and adequate sample size, the purposive sampling approach for qualitative participants may have introduced selection bias. Future research should employ more diverse sampling strategies to capture a broader range of perspectives on Buddhist educational innovation.

Future research directions include experimental studies testing the effectiveness of specific Buddhist educational interventions, comparative studies examining different approaches to traditional craft education, and longitudinal investigations of the long-term impacts of Buddhist educational innovation on cultural preservation and community development.

## 8. CONCLUSION

This mixed-methods research and development study provides compelling evidence for the effectiveness of Buddhist innovative learning management in traditional indigo-dyed fabric handicraft education. The integration of Buddhist principles, particularly mindfulness practices, ethical production approaches, and community-centered pedagogy, significantly enhances cultural preservation outcomes while promoting student engagement and community cohesion.

The developed Buddhist Educational Innovation Model offers a comprehensive framework for integrating spiritual principles into formal educational structures while maintaining cultural authenticity and educational rigor. The model's explanation of 67.3%



variance in cultural preservation outcomes demonstrates its practical utility for educational planning and implementation.

The convergent evidence from quantitative statistical analyses and qualitative thematic findings strengthens confidence in the study's conclusions and enhances their practical applicability. The strong correlations between Buddhist educational principles and cultural preservation outcomes ( $r = 0.742$ ) provide empirical support for contemplative approaches to education in cultural preservation contexts.

The study's contributions extend beyond local educational practice to inform global discussions on sustainable development, intangible cultural heritage protection, and innovative educational methodologies. The successful integration of traditional Buddhist teachings with contemporary educational research demonstrates the potential for ancient wisdom traditions to address modern educational challenges.

The practical implications include recommendations for educational policy development, curriculum design, teacher training, and community engagement strategies. The demonstrated effectiveness of mindfulness integration, ethical production practices, and community-based learning approaches provides concrete guidance for implementing similar programs in other cultural contexts.

Future research should focus on longitudinal studies examining long-term impacts, comparative analyses across different cultural contexts, and experimental investigations of specific intervention components. The development of assessment tools and implementation guidelines would further enhance the practical utility of the Buddhist educational innovation model.

This research demonstrates that the integration of Buddhist innovative learning management in traditional craft education represents a promising approach to cultural preservation that honors both spiritual traditions and contemporary educational standards. The findings contribute to the growing recognition of contemplative education's potential for addressing complex social and cultural challenges while promoting holistic human development.

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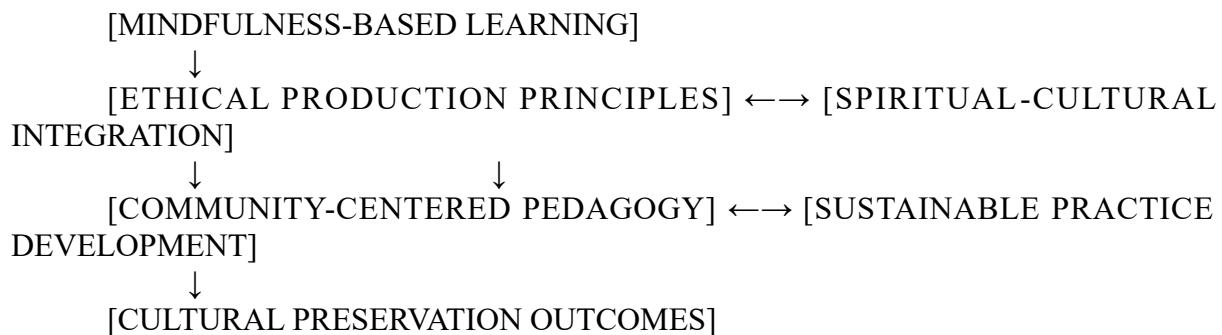




## APPENDICES

### Appendix A: Buddhist Educational Innovation Model Framework

**Figure A1:** Conceptual Framework of Buddhist Educational Innovation Model



#### Core Components:

1. **Mindfulness-based Learning Practices:** Integration of contemplative practices, present-moment awareness, and mindful observation techniques
2. **Ethical Production Principles:** Right livelihood concepts, sustainable methods, environmental consciousness
3. **Community-centered Pedagogy:** Elder involvement, collective learning, cultural context integration
4. **Spiritual-cultural Integration:** Buddhist worldview incorporation, dharma-based instruction, sacred practice understanding
5. **Sustainable Practice Development:** Heritage continuity, adaptive innovation, long-term viability

### Appendix B: Research Instrument - Buddhist Educational Principles Integration Scale

**Instructions:** Please indicate your level of agreement with each statement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

#### Mindfulness Integration Subscale:

1. Mindfulness practices are regularly incorporated into craft learning activities
2. Students are encouraged to pay full attention during traditional craft instruction
3. Contemplative reflection is used to deepen understanding of craft techniques
4. Mindful observation enhances students' appreciation of traditional crafts
5. Present-moment awareness is cultivated through craft practice
6. Students practice mindful breathing during craft learning sessions



**Ethical Production Principles Subscale:** 7. Traditional craft instruction emphasizes right livelihood principles 8. Students learn about sustainable and ethical production methods 9. Environmental consciousness is integrated into craft education 10. Fair trade and ethical sourcing principles are taught 11. Students understand the ethical dimensions of traditional craft production 12. Right action principles guide craft teaching practices

**Community-Centered Pedagogy Subscale:** 13. Traditional craft education involves significant community participation 14. Elders and master artisans are actively involved in teaching 15. Students learn through community-based apprenticeship programs 16. Cultural ceremonies and rituals are integrated into craft education 17. Community wisdom is valued equally with formal educational content 18. Students contribute to community cultural preservation efforts

### Appendix C: Statistical Analysis Output Tables

**Table C1** Exploratory Factor Analysis Results for Buddhist Educational Principles Scale

Item	Factor 1	Factor 2	Factor 3	Communality
BEP1	0.789	0.124	0.087	0.645
BEP2	0.821	0.156	0.092	0.709
BEP3	0.756	0.189	0.134	0.623
BEP4	0.812	0.098	0.176	0.699
BEP5	0.794	0.203	0.089	0.682
BEP6	0.767	0.145	0.198	0.647
BEP7	0.167	0.823	0.134	0.723
BEP8	0.189	0.798	0.156	0.698
BEP9	0.134	0.845	0.123	0.747
BEP10	0.203	0.789	0.189	0.701
BEP11	0.145	0.812	0.167	0.709
BEP12	0.198	0.756	0.203	0.652
BEP13	0.123	0.189	0.834	0.745
BEP14	0.156	0.167	0.798	0.689
BEP15	0.134	0.134	0.823	0.714
BEP16	0.189	0.203	0.789	0.703
BEP17	0.167	0.189	0.812	0.721
BEP18	0.203	0.156	0.756	0.637

Note: Factor 1 = Mindfulness Integration; Factor 2 = Ethical Production Principles; Factor 3 = Community-Centered Pedagogy KMO = 0.923; Bartlett's Test  $\chi^2 = 3847.56$ ,  $p < 0.001$ ; Total Variance Explained = 68.4%

**Table C2** Confirmatory Factor Analysis Fit Indices for All Measurement Models

Model	$\chi^2$	df	p	CFI	TLI	RMSEA	SRMR	AIC
Buddhist Educational Principles	298.45	132	< 0.001	0.952	0.941	0.058	0.048	634.45





Cultural Preservation Outcomes	187.23	54	< 0.001	0.961	0.948	0.081	0.044	399.23
Student Engagement	145.67	35	< 0.001	0.968	0.956	0.089	0.041	295.67
Community Cohesion	123.89	35	< 0.001	0.972	0.963	0.082	0.039	273.89

Note: All models meet acceptable fit criteria (CFI > 0.95, TLI > 0.95, RMSEA < 0.08, SRMR < 0.05)

## Appendix D: Qualitative Data Analysis Framework

**Table D1** Thematic Analysis Coding Framework

Main Theme	Sub-themes	Sample Codes	Frequency
Spiritual Foundation for Learning	Buddhist worldview integration	Buddhist-worldview, spiritual-meaning, sacred-practice	127
	Dharma-based instruction	dharma-teaching, Buddhist-concepts, spiritual-guidance	94
	Meditation and contemplation	meditation-practice, contemplative-learning, inner-reflection	86
Intergenerational Knowledge Transmission	Elder wisdom sharing	elder-knowledge, traditional-wisdom, ancestral-teaching	112
	Bridge-building communication	generational-bridge, common-language, shared-values	78
Mindful Practice Development	Apprenticeship enhancement	improved-apprenticeship, better-learning, skill-transfer	91
	Attention enhancement	focused-attention, present-awareness, mindful-observation	156
	Quality improvement	skill-enhancement, detail-attention, craft-excellence	134
Community-Centered Pedagogy	Process awareness	technique-understanding, method-consciousness, step-awareness	108
	Collective learning	group-learning, community-participation, shared-experience	143





	Cultural context integration	cultural-meaning, traditional-context, heritage-connection	167
	Social bonding	community-unity, relationship-building, social-cohesion	89
Sustainable Cultural Preservation	Heritage continuity	tradition-preservation, cultural-survival, heritage-maintenance	189
	Adaptive innovation	modern-adaptation, innovative-preservation, contemporary-relevance	123
	Environmental consciousness	eco-friendly-practice, sustainable-production, environmental-care	76

**Table D2** Participant Demographics for Qualitative Sample (N=45)

Characteristic	Category	n	%
Gender	Male	23	51.1
	Female	22	48.9
Age Group	25-35 years	8	17.8
	36-50 years	19	42.2
	51-65 years	13	28.9
	Over 65 years	5	11.1
Role	Master Artisans	12	26.7
	Buddhist Monks/Spiritual Leaders	8	17.8
	Formal Educators	10	22.2
	Community Leaders	7	15.6
	Advanced Students	8	17.8
Experience	0-5 years	8	17.8
	6-15 years	15	33.3
	16-25 years	12	26.7
	Over 25 years	10	22.2

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The author declares no conflicts of interest and confirms that all ethical guidelines were followed throughout the research process. This research contributes to the global understanding of innovative educational approaches for cultural preservation and sustainable community development.