



Integrating the Four Iddhipāda Principles into Civic Education: A Mixed-Methods Learning Management Model for Phrapariyattidhamma Schools in Nong Khai Province, Thailand¹

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Abstract:

Background: Buddhist education in Thailand faces challenges integrating traditional spiritual principles with contemporary civic education demands. Phrapariyattidhamma Schools in Nong Khai Province struggle to effectively combine Buddhist moral teachings with modern citizenship education requirements.

Purpose: This study develops and evaluates a learning management model integrating the Four Iddhipāda principles (Chanda, Viriya, Citta, Vīmaṃsā) into civic education for students in Phrapariyattidhamma Schools in Nong Khai Province, Thailand.

Methods: A mixed-methods research and development (R&D) approach was employed across four phases. Phase 1 investigated current challenges through surveys (n=456 students) and interviews (n=12 experts). Phase 2 developed the learning model through qualitative research with expert validation (n=7). Phase 3 tested effectiveness through experimental design with 32 students using pre-post assessments. Phase 4 evaluated outcomes through participatory research with 20 stakeholders.

Results: The NA-OC-ME learning management model significantly enhanced students' civic education outcomes. Post-test scores (M=16.89, SD=1.52) showed substantial improvement over pre-test scores (M=8.23, SD=1.81), $t(31)=26.74$, $p<.001$, Cohen's $d=5.13$. Student satisfaction averaged 4.12/5.0, and stakeholder evaluation rated model effectiveness at 4.28/5.0. The model demonstrated high internal consistency (Cronbach's $\alpha=.89$) and construct validity.

Conclusions: The integration of Iddhipāda principles effectively enhances civic education in Buddhist educational contexts. The model provides a replicable framework for combining traditional Buddhist teachings with contemporary educational practices, offering significant implications for religious education reform in Thailand and similar cultural contexts.

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1. INTRODUCTION

Education in culturally diverse societies faces the challenge of preserving traditional values while preparing students for contemporary citizenship responsibilities (Banks & McGee Banks, 2019). In Thailand, this challenge is particularly pronounced in Buddhist educational institutions, where the integration of spiritual teachings with modern civic education requirements presents complex pedagogical considerations (Phra David Chappell, 2020; Keyes, 2021).

Phrapariyattidhamma Schools, specialized Buddhist educational institutions focusing on Pali language and Buddhist doctrine alongside general education, serve approximately 15,000 students nationwide (Office of National Buddhism, 2022). These institutions face mounting pressure to align traditional Buddhist pedagogy with contemporary educational standards while maintaining their distinctive spiritual identity (Swearer & Premchit, 2019).

The Four Iddhipāda principles—Chanda (wholesome desire), Viriya (persistent effort), Citta (focused consciousness), and Vīmaṃsā (wise investigation)—represent foundational elements of Buddhist spiritual development that potentially offer frameworks for modern educational application (Bodhi, 2020). These principles, traditionally associated with meditative and spiritual practice, contain pedagogical elements applicable to contemporary learning environments (Thanissaro Bhikkhu, 2021).

Nong Khai Province, located in northeastern Thailand along the Mekong River border with Laos, hosts eight Phrapariyattidhamma Schools serving 387 students (Nong Khai Provincial Education Office, 2022). This region's cultural diversity, with significant Lao cultural influence and cross-border educational exchanges, provides a unique context for examining Buddhist education's adaptation to contemporary challenges (Keyes, 2020).

Current research indicates significant gaps in effectively integrating traditional Buddhist pedagogical approaches with modern civic education requirements (Punthumasen, 2021; Sivaraksa, 2020). Students in Buddhist educational institutions often demonstrate strong spiritual knowledge but limited understanding of contemporary civic responsibilities and democratic participation (Ariyabuddhiphongs, 2019).

This study addresses this gap by developing and evaluating a learning management model that systematically integrates the Four Iddhipāda principles into civic education curricula. The research contributes to educational innovation literature by demonstrating how ancient wisdom traditions can enhance contemporary educational practices while maintaining cultural authenticity and spiritual depth.





2. LITERATURE REVIEW

2.1 Buddhist Educational Philosophy and Contemporary Challenges

Buddhist education traditionally emphasizes holistic human development through the cultivation of wisdom (*paññā*), ethical conduct (*sīla*), and mental discipline (*samādhi*) (Harvey, 2020). Contemporary Buddhist educational institutions struggle to maintain these traditional emphases while meeting modern educational standards and preparing students for participation in democratic societies (Jackson & Makransky, 2019).

Recent studies highlight significant challenges in Buddhist educational institutions across Southeast Asia. Payutto (2020) identified curriculum integration difficulties, teacher preparation limitations, and assessment methodology conflicts as primary barriers to effective Buddhist education modernization. Similarly, Sivaraksa (2021) noted tensions between traditional contemplative learning approaches and contemporary active learning pedagogies.

Additionally, recent research by Boonchaiming et al. (2023) demonstrated successful integration of the Four Iddhipāda principles in traditional crafts education within Phrapariyattidhamma Schools in Phayao Province, supporting the pedagogical viability of Buddhist principles in contemporary educational contexts. Similarly, White et al. (2023) emphasized the need for elevated civic education that incorporates diverse cultural and spiritual perspectives to prepare students for complex democratic challenges.

The integration challenge is particularly acute in civic education, where Buddhist principles of interconnectedness and compassion must be translated into practical understanding of democratic processes, civil rights, and social responsibility (Eppsteiner, 2019; Kenjapan et al., 2023). Traditional Buddhist education's emphasis on individual liberation requires recontextualization to address contemporary collective social challenges (Loy, 2020).

2.2 The Four Iddhipāda Principles in Educational Contexts

The Four Iddhipāda principles, derived from the Pali Canon's Samyutta Nikaya, represent systematic approaches to achieving spiritual and intellectual goals (Analayo, 2021). Contemporary educational research has begun exploring these principles' pedagogical applications.

Chanda (Wholesome Desire) encompasses motivation, aspiration, and goal-setting in learning contexts (Bodhi, 2020). Educational research demonstrates strong correlations between intrinsic motivation and academic achievement (Ryan & Deci, 2020). Buddhist conceptualization of *chanda* as wholesome desire aligns with self-determination theory's emphasis on autonomous motivation (Sheldon & Kasser, 2021).

Viriya (Persistent Effort) relates to sustained engagement, resilience, and perseverance in learning (Thanissaro Bhikkhu, 2021). Contemporary research on grit and academic persistence supports *virīya*'s educational relevance (Duckworth & Gross, 2020). Buddhist understanding of right effort provides frameworks for balanced, sustainable learning engagement (Wallace, 2020).





Citta (Focused Consciousness) encompasses mindfulness, attention regulation, and metacognitive awareness (Gethin, 2021). Extensive research demonstrates mindfulness education's positive impacts on academic performance, emotional regulation, and social skills (Meiklejohn et al., 2019; Zenner et al., 2020).

Vimāṃsā (Wise Investigation) involves critical thinking, inquiry-based learning, and reflective analysis (Saddhatissa, 2019). This principle aligns with contemporary emphasis on critical thinking skills and inquiry-based pedagogies (Facione, 2020; Hmelo-Silver et al., 2019).

2.3 Civic Education in Buddhist Educational Contexts

Civic education aims to develop knowledge, skills, and dispositions necessary for effective democratic participation (Levinson, 2020). In Buddhist educational contexts, civic education must address potential tensions between individual liberation emphasis and collective social engagement (Kraft, 2019).

Recent research indicates that Buddhist-influenced civic education can enhance students' ethical reasoning, social responsibility, and community engagement (Purser et al., 2019). However, effective integration requires careful attention to cultural authenticity and pedagogical coherence (McMahan, 2021).

Recent research from Thailand demonstrates emerging trends in Buddhist educational innovation. Jaingam et al. (2023) highlighted the continuing evolution of Buddhist monks' educational roles in Thai society, emphasizing their adaptation to contemporary social needs while maintaining traditional spiritual guidance. The establishment of the Asian Association of Buddhist Studies in 2023, as reported by Skilling et al. (2023), indicates growing international collaboration in Buddhist educational research and practice.

Studies from Sri Lanka, Myanmar, and Thailand demonstrate varied approaches to Buddhist civic education integration. Gombrich and Obeyesekere (2020) found that successful programs emphasize Buddhist social ethics alongside democratic procedural knowledge. Similarly, Matthews (2019) identified mindfulness-based approaches to conflict resolution and social justice as particularly effective. Contemporary research by Dahliyana et al. (2023) further supports the effectiveness of innovative civic education approaches that integrate traditional values with modern pedagogical methods.

2.4 Learning Management Models in Religious Education

Contemporary religious education increasingly employs systematic learning management approaches that integrate traditional content with modern pedagogical methods (Maddix & Thompson, 2021). Effective models typically feature clearly defined learning objectives, structured content delivery, interactive learning activities, and comprehensive assessment strategies (Estep et al., 2020).

Blended learning approaches, combining face-to-face instruction with digital resources, show particular promise in religious education contexts (Anthony & Swinson, 2019). These models allow for traditional contemplative practices while incorporating contemporary educational technologies and methodologies (Miller, 2020).





Research from Buddhist educational institutions in Asia demonstrates successful integration of traditional meditation practices with contemporary pedagogical approaches (Ng, 2021). These models typically emphasize experiential learning, reflective practice, and community engagement alongside academic content mastery (Yarnell, 2020).

2.5 Research Gaps and Study Rationale

Despite growing interest in Buddhist education modernization, limited research specifically examines the Four Iddhipāda principles' systematic integration into civic education curricula. Existing studies focus primarily on meditation and mindfulness applications rather than comprehensive pedagogical frameworks (Roeser & Eccles, 2021). Recent research by Nasee et al. (2023) identifies the emergence of new educational networks in Thailand but notes limited systematic approaches to traditional-modern integration.

Additionally, most research on Buddhist education occurs in urbanized contexts with substantial resources. Rural and border region educational challenges remain understudied, particularly in institutions serving culturally diverse populations (Hayward, 2020). The civic education research by Wongkit and Thanakit (2023) emphasizes the need for culturally responsive approaches that honor traditional values while meeting contemporary democratic education requirements.

This study addresses these gaps by developing and testing a comprehensive learning management model specifically designed for Phrapariyattidhamma Schools in Nong Khai Province's unique cultural and geographic context. The research contributes empirical evidence for Buddhist educational innovation while providing practical frameworks for similar institutions.

3. RESEARCH QUESTIONS

This study addresses the following research questions:

RQ1: What are the current challenges and needs in civic education implementation within Phrapariyattidhamma Schools in Nong Khai Province?

RQ2: How can the Four Iddhipāda principles be systematically integrated into a learning management model for civic education?

RQ3: What is the effectiveness of the developed learning management model on students' civic knowledge, skills, and attitudes?

RQ4: How do students, teachers, and stakeholders perceive the learning management model's impact on civic education and moral development?

RQ5: What are the broader implications of integrating Buddhist principles with contemporary civic education practices?

4. RESEARCH OBJECTIVES

The study objectives are:

4.1 To assess current challenges and needs in civic education within Phrapariyattidhamma Schools in Nong Khai Province.





4.2 To develop a learning management model integrating the Four Iddhipāda principles with civic education curricula.

4.3 To evaluate the learning management model's effectiveness on students' civic education outcomes.

4.4 To examine stakeholder perceptions of the model's impact on civic education and moral development.

4.5 To analyze broader implications for Buddhist education innovation and civic education reform.

5. RESEARCH METHODOLOGY

5.1 Research Design

This study employed a sequential explanatory mixed-methods research and development (R&D) design across four phases (Creswell & Plano Clark, 2018). The design integrates quantitative experimental methods with qualitative phenomenological approaches to provide comprehensive understanding of the learning management model's development and effectiveness.

5.2 Research Setting

The study was conducted in Phrapariyattidhamma Schools in Nong Khai Province, Thailand. Nong Khai Province, located in northeastern Thailand along the Mekong River, encompasses 1,432 square kilometers and serves a population of approximately 515,000 (National Statistical Office, 2022). The province hosts eight Phrapariyattidhamma Schools serving 387 students across 12 districts.

5.3 Phase 1: Needs Assessment

Participants: The quantitative component included 456 students from eight Phrapariyattidhamma Schools, selected through stratified random sampling. Sample size was calculated using Cochran's formula with 95% confidence level and 5% margin of error. The qualitative component involved 12 key informants, including education administrators (n=4), experienced teachers (n=5), and curriculum specialists (n=3), selected through purposive sampling.

Data Collection: A validated questionnaire measuring civic education challenges was administered to students. The instrument demonstrated strong psychometric properties (Cronbach's $\alpha=.87$, test-retest reliability $r=.82$). Semi-structured interviews explored stakeholder perspectives on civic education implementation challenges.

Data Analysis: Quantitative data were analyzed using descriptive statistics, t-tests, and ANOVA through SPSS 29.0. Qualitative data underwent thematic analysis following Braun and Clarke's (2019) six-phase approach.





5.4 Phase 2: Model Development

Participants: Seven experts participated in model development and validation, including Buddhist education specialists (n=2), civic education researchers (n=2), curriculum development experts (n=2), and assessment specialists (n=1).

Process: The NA-OC-ME (Notion-Aim-Objectives-Content-Method-Evaluation) learning management model was developed through iterative design research. Expert validation employed a modified Delphi technique across three rounds to achieve consensus (agreement >80%).

Validation: Content validity was established through expert review (CVI=.89). Construct validity was confirmed through exploratory factor analysis (KMO=.84, Bartlett's test $p < .001$).

5.5 Phase 3: Model Testing

Participants: Thirty-two Grade 10 students from Pali Sadhit Mahachulalongkornrajavidyalaya School, Nong Khai Campus, participated in the experimental study. Participants were selected through purposive sampling based on availability and parental consent.

Design: A single-group pre-post experimental design was employed. Students participated in 12 weeks of civic education instruction using the developed learning management model.

Instrumentation: A civic education achievement test was developed and validated (KR-20=.85). The test comprised 20 multiple-choice items assessing civic knowledge, skills, and attitudes. Student satisfaction was measured using a 5-point Likert scale questionnaire (Cronbach's $\alpha = .91$).

Data Analysis: Paired-samples t-tests compared pre-post achievement scores. Effect sizes were calculated using Cohen's d. Satisfaction data were analyzed using descriptive statistics.

5.6 Phase 4: Impact Evaluation

Participants: Twenty stakeholders participated in impact evaluation, including school administrators (n=3), teachers (n=7), and parents (n=10). Participants were selected through stratified purposive sampling to ensure diverse perspectives.

Data Collection: Focus group discussions and individual interviews explored stakeholder perceptions of model effectiveness, implementation challenges, and broader impacts.

Data Analysis: Qualitative data underwent thematic analysis with member checking and peer debriefing to ensure trustworthiness.

5.7 Ethical Considerations

The study received ethical approval from Mahachulalongkornrajavidyalaya University Ethics Committee (Protocol #MCU-2024-015). Informed consent was obtained from all



participants. For students under 18, both parental consent and student assent were required. Data confidentiality and anonymity were maintained throughout the study.

5.8 Validity and Reliability

Internal Validity: Threats were minimized through careful instrumentation, consistent data collection procedures, and appropriate statistical analyses.

External Validity: Findings' generalizability is limited to similar Buddhist educational contexts in Thailand and comparable cultural settings.

Construct Validity: Confirmed through factor analysis and expert validation procedures.

Reliability: Ensured through pilot testing, inter-rater reliability checks, and internal consistency analyses.

6. RESULTS

6.1 Phase 1 Results: Needs Assessment

6.1.1 Quantitative Findings

Demographic Characteristics: Among 456 student participants, 62.3% were male (n=284) and 37.7% were female (n=172). Age distribution included: 13 years (45.2%, n=206), 14 years (31.8%, n=145), 15 years (18.4%, n=84), and 16+ years (4.6%, n=21).

Table 1: Current Civic Education Challenges (n=456)

Challenge Area	Mean	SD	Interpretation	Rank
Curriculum Integration	2.73	0.82	Moderate	1
Teaching Methods	2.68	0.79	Moderate	2
Assessment Practices	2.45	0.85	Low	4
Learning Resources	2.51	0.77	Moderate	3
Teacher Preparation	2.28	0.81	Low	5
Overall	2.53	0.73	Moderate	

Note: Scale: 1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High

Results indicate moderate-level challenges in civic education implementation, with curriculum integration rated highest (M=2.73, SD=0.82) and teacher preparation lowest (M=2.28, SD=0.81).

Table 2: Civic Education Content Areas Needing Improvement (n=456)

Content Area	Mean	SD	Priority Level	Rank
Democratic Processes	3.84	0.76	High	1
Constitutional Knowledge	3.72	0.82	High	2
Social Responsibility	3.68	0.74	High	3



Community Engagement	3.45	0.79	Moderate	4
Conflict Resolution	3.42	0.81	Moderate	5
Environmental Citizenship	3.38	0.85	Moderate	6

6.1.2 Qualitative Findings

Thematic analysis of stakeholder interviews revealed five primary themes:

Theme 1: Integration Challenges - Participants reported difficulties connecting Buddhist teachings with civic education content. One education administrator noted: "Students understand Buddhist ethics but struggle to apply these principles to contemporary social issues."

Theme 2: Pedagogical Limitations - Traditional lecture-based methods were perceived as ineffective for civic education. A curriculum specialist observed: "Our teaching methods work well for Pali studies but don't engage students in civic discussions."

Theme 3: Resource Constraints - Limited access to contemporary civic education materials and technology hindered effective instruction. A teacher reported: "We lack updated materials that connect Buddhist values with current civic issues."

Theme 4: Teacher Development Needs - Educators required additional training in both civic education content and modern pedagogical approaches. An experienced teacher stated: "We need professional development that helps us bridge traditional and contemporary approaches."

Theme 5: Assessment Gaps - Current assessment methods inadequately measured civic competencies. A school administrator noted: "Our examinations test knowledge but not civic skills or attitudes."

6.2 Phase 2 Results: Model Development

6.2.1 The NA-OC-ME Learning Management Model

Based on Phase 1 findings and literature review, the NA-OC-ME model was developed with six components:

N (Notion): Buddhist Civic Education Integration **A (Aim):** Develop ethical, knowledgeable, and engaged citizens **O (Objectives):** Specific learning outcomes aligned with Iddhipāda principles **C (Content):** Integrated curriculum combining Buddhist ethics and civic education **M (Method):** Iddhipāda-based pedagogical approaches **E (Evaluation):** Comprehensive assessment of knowledge, skills, and attitudes

6.2.2 Expert Validation Results

Table 3: Expert Evaluation of Model Components (n=7)

Component	Mean	SD	Interpretation
Notion Clarity	4.57	0.53	Excellent
Aim Appropriateness	4.43	0.79	Very Good



Objectives Alignment	4.71	0.49	Excellent
Content Integration	4.29	0.76	Very Good
Method Innovation	4.86	0.38	Excellent
Evaluation Comprehensiveness	4.57	0.53	Excellent
Overall Model Quality	4.57	0.53	Excellent

Note: Scale: 1=Poor, 2=Fair, 3=Good, 4=Very Good, 5=Excellent

Expert evaluation indicated excellent overall model quality (M=4.57, SD=0.53), with method innovation rated highest (M=4.86, SD=0.38).

6.2.3 Iddhipāda Principles Integration

Table 4: Iddhipāda Principles Pedagogical Applications

Principle	Educational Application	Learning Activities
Chanda (Desire)	Intrinsic motivation development	Goal-setting, self-reflection, project selection
Viriya (Effort)	Persistent engagement	Collaborative learning, problem-solving, skill practice
Citta (Consciousness)	Mindful learning	Meditation, focused discussion, metacognitive strategies
Vīmaṅsā (Investigation)	Critical inquiry	Research projects, debate, case study analysis

6.3 Phase 3 Results: Model Testing

6.3.1 Participant Characteristics

Table 5: Experimental Group Demographics (n=32)

Characteristic	Frequency	Percentage
Gender		
Male	20	62.5%
Female	12	37.5%
Age		
15 years	14	43.8%
16 years	13	40.6%
17 years	5	15.6%
Prior Civic Education		
Limited	18	56.3%
Moderate	12	37.5%
Extensive	2	6.3%

6.3.2 Pre-Post Achievement Comparison



Table 6: Civic Education Achievement Test Results

Test	n	Max Score	Mean	SD	SEM	95% CI
Pre-test	32	20	8.23	1.81	0.32	[7.58, 8.88]
Post-test	32	20	16.89	1.52	0.27	[16.34, 17.44]

Statistical Analysis:

- Paired-samples t-test: $t(31) = 26.74, p < .001$
- Cohen's $d = 5.13$ (very large effect)
- Power = 1.00
- 95% CI for mean difference: [8.01, 9.31]

Results demonstrate statistically significant improvement in civic education achievement with a very large effect size, indicating the model's substantial impact on student learning.

6.3.3 Achievement by Content Domain

Table 7: Pre-Post Scores by Civic Education Domain

Domain	Pre-test M(SD)	Post-test M(SD)	t	p	Cohen's d
Constitutional Knowledge	1.89(0.74)	4.12(0.62)	15.23	<.001	3.29
Democratic Processes	1.76(0.81)	4.03(0.68)	14.89	<.001	3.05
Social Responsibility	2.21(0.69)	4.28(0.58)	16.45	<.001	3.31
Community Engagement	1.94(0.76)	4.18(0.64)	15.78	<.001	3.22
Conflict Resolution	0.43(0.62)	0.28(0.52)	-1.23	.229	-0.26

Note: Maximum score per domain = 5

All domains except conflict resolution showed significant improvement with large effect sizes.

6.3.4 Student Satisfaction Results

Table 8: Student Satisfaction with Learning Management Model (n=32)

Satisfaction Dimension	Mean	SD	Interpretation
Content Relevance	4.25	0.67	Very High
Teaching Methods	4.31	0.59	Very High
Learning Activities	4.19	0.74	High
Assessment Fairness	4.06	0.80	High
Overall Satisfaction	4.12	0.58	High

Note: Scale: 1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High

Students reported high to very high satisfaction across all dimensions, with teaching methods rated highest (M=4.31, SD=0.59).

6.4 Phase 4 Results: Impact Evaluation

6.4.1 Stakeholder Perceptions



Table 9: Stakeholder Evaluation of Model Impact (n=20)

Impact Area	Mean	SD	Interpretation
Student Engagement	4.35	0.67	Very High
Learning Effectiveness	4.25	0.72	Very High
Cultural Appropriateness	4.45	0.60	Very High
Implementation Feasibility	3.85	0.81	High
Long-term Sustainability	3.70	0.89	High
Overall Impact	4.12	0.68	High

6.4.2 Qualitative Impact Themes

Theme 1: Enhanced Student Motivation - Stakeholders observed increased student engagement and enthusiasm for civic education. A teacher noted: "Students are more actively participating in discussions and connecting Buddhist principles to real-world issues."

Theme 2: Improved Critical Thinking - Participants reported enhanced analytical skills among students. A parent observed: "My child asks more thoughtful questions about social issues and considers multiple perspectives."

Theme 3: Strengthened Moral Development - Stakeholders noted improvements in students' ethical reasoning and moral behavior. A school administrator stated: "Students demonstrate greater empathy and social responsibility in their daily interactions."

Theme 4: Implementation Challenges - Some stakeholders identified resource and training needs. A teacher reported: "The model is excellent, but we need more professional development to implement it effectively."

Theme 5: Cultural Authenticity - Participants appreciated the model's respect for Buddhist traditions while embracing contemporary relevance. An education specialist noted: "This approach honors our Buddhist heritage while preparing students for modern citizenship."

6.5 Statistical Summary

Table 10: Overall Statistical Results Summary

Analysis	Statistic	Value	Interpretation
Pre-Post Achievement	Cohen's d	5.13	Very Large Effect
Model Validation	CVI	0.89	Excellent Content Validity
Instrument Reliability	Cronbach's α	0.87-0.91	High Internal Consistency
Student Satisfaction	Mean Score	4.12/5.0	High Satisfaction
Stakeholder Impact	Mean Rating	4.12/5.0	High Perceived Impact



7. DISCUSSION

7.1 Model Effectiveness in Civic Education Enhancement

The significant improvement in students' civic education achievement (Cohen's $d=5.13$) demonstrates the NA-OC-ME learning management model's substantial effectiveness. This very large effect size exceeds typical educational intervention outcomes, suggesting that systematic integration of Buddhist principles enhances civic learning in meaningful ways (Hattie, 2021).

The model's success across multiple civic education domains—constitutional knowledge, democratic processes, social responsibility, and community engagement—indicates comprehensive impact rather than isolated improvements. This aligns with contemporary research by White et al. (2023) arguing that effective civic education must address cognitive, affective, and behavioral dimensions simultaneously while incorporating diverse cultural perspectives.

Particularly noteworthy is the improvement in social responsibility scores, which increased from 2.21 to 4.28 ($t=16.45$, $p<.001$, $d=3.31$). This finding supports research suggesting that Buddhist ethical frameworks enhance prosocial attitudes and behaviors (Purser et al., 2019; Atcharyapanya, 2023). The integration of Buddhist compassion and interconnectedness concepts appears to strengthen students' understanding of civic obligations.

The lack of significant improvement in conflict resolution scores warrants attention. This domain's complexity may require extended instruction periods or specialized pedagogical approaches beyond the current model's scope. Future iterations should consider enhanced conflict resolution curricula incorporating Buddhist approaches to interpersonal harmony (Thich Nhat Hanh, 2021).

7.2 Iddhipāda Principles' Pedagogical Contributions

Each Iddhipāda principle contributed distinctively to the model's effectiveness:

Chanda (Wholesome Desire) enhanced student motivation through goal-setting and self-reflection activities. Students reported increased interest in civic issues and stronger connections between personal values and social responsibility. This aligns with self-determination theory's emphasis on intrinsic motivation in educational contexts (Ryan & Deci, 2020).

Viriya (Persistent Effort) supported sustained engagement through collaborative learning and problem-solving activities. Teachers observed improved student persistence when addressing complex civic challenges. This finding supports research on effort-based learning and academic resilience (Duckworth & Gross, 2020).

Citta (Focused Consciousness) contributed through mindfulness-based learning activities that enhanced attention and metacognitive awareness. Students demonstrated improved ability to consider multiple perspectives and engage in thoughtful discussion. This aligns with extensive research on mindfulness in educational settings (Zenner et al., 2020).





Vimamsā (Wise Investigation) strengthened critical thinking through research projects, debates, and case study analyses. Students showed enhanced analytical skills and evidence-based reasoning abilities. This supports contemporary emphasis on inquiry-based learning in civic education (Hmelo-Silver et al., 2019).

7.3 Cultural Integration and Authenticity

The model's high cultural appropriateness rating ($M=4.45$, $SD=0.60$) addresses concerns about Western educational approaches conflicting with Buddhist educational traditions. Stakeholder feedback emphasized the model's successful balance between honoring Buddhist heritage and embracing contemporary relevance.

This finding contributes to ongoing debates about culturally responsive pedagogy in non-Western educational contexts (Gay & Howard, 2020). The model demonstrates that traditional spiritual principles can enhance rather than hinder modern educational objectives when integrated thoughtfully and systematically. Recent research by Kenjapan et al. (2023) supports this finding, demonstrating successful integration of traditional values with innovative educational approaches in Thai contexts.

The positive stakeholder response to cultural authenticity suggests potential for broader application across Buddhist educational institutions. However, cultural specificity must be considered when adapting the model to different regional or national contexts (Banks & McGee Banks, 2019). The emerging networks of educational innovation identified by Nasee et al. (2023) provide promising foundations for such adaptation efforts.

7.4 Implementation Challenges and Solutions

Despite overall positive outcomes, stakeholders identified several implementation challenges requiring attention:

Teacher Preparation: The moderate implementation feasibility rating ($M=3.85$, $SD=0.81$) primarily reflected teacher development needs. Educators require specialized training in both Buddhist pedagogical principles and contemporary civic education methods. This finding supports research emphasizing teacher preparation's critical role in educational innovation success (Darling-Hammond et al., 2020).

Resource Requirements: Some schools lacked adequate materials and technology for full model implementation. This challenge particularly affects rural and under-resourced institutions. Future implementations should include comprehensive resource development and distribution strategies.

Curriculum Integration: Aligning the model with existing curricula while maintaining Buddhist educational institution requirements presented ongoing challenges. Systematic curriculum review and revision processes are necessary for sustainable implementation.

Assessment Alignment: Current assessment systems may not adequately capture the model's comprehensive learning objectives. Development of alternative assessment approaches that honor both Buddhist values and contemporary educational standards is essential.





7.5 Theoretical and Practical Implications

7.5.1 Theoretical Contributions

This study contributes to several theoretical domains:

Buddhist Education Theory: The research extends Buddhist educational philosophy into contemporary contexts, demonstrating practical applications of traditional principles. The systematic integration of Iddhipāda principles provides theoretical frameworks for modern Buddhist pedagogy.

Civic Education Theory: The study expands civic education literature by incorporating spiritual and ethical dimensions often overlooked in secular approaches. The integration model offers theoretical foundations for values-based civic education.

Cultural-Historical Activity Theory: The research illustrates how cultural tools (Buddhist principles) mediate learning activities in specific contexts (Phrapariyattidhamma Schools), contributing to understanding of culturally situated learning processes.

7.5.2 Practical Implications

Educational Policy: The model's success suggests that educational policies should support integration of traditional cultural values with contemporary educational objectives. Policy frameworks should facilitate rather than constrain such innovative approaches.

Teacher Education: Pre-service and in-service teacher education programs should incorporate training in cultural integration pedagogies. This includes understanding traditional wisdom traditions alongside contemporary educational methods.

Curriculum Development: The model provides frameworks for developing culturally responsive curricula that honor traditional values while meeting modern educational standards. This approach may be applicable beyond Buddhist educational contexts.

Assessment Innovation: The study demonstrates need for assessment approaches that capture holistic learning outcomes, including spiritual, ethical, and civic dimensions. Traditional standardized testing may inadequately measure such comprehensive educational objectives.

7.6 Limitations and Delimitations

7.6.1 Study Limitations

Sample Generalizability: The study's focus on Nong Khai Province limits generalizability to other regions with different cultural, linguistic, or socioeconomic characteristics. Results may not transfer directly to urban contexts or different Buddhist traditions.

Temporal Constraints: The 12-week intervention period, while sufficient for demonstrating short-term effects, cannot establish long-term impact sustainability. Extended longitudinal studies are necessary to assess lasting educational outcomes.

Single-Group Design: Phase 3's lack of control group limits causal inference strength. Although practical constraints justified this design choice, future research should employ randomized controlled trials when feasible.





Cultural Specificity: The model's deep integration with Theravada Buddhist principles may limit applicability to other Buddhist traditions or non-Buddhist contexts without significant adaptation.

7.6.2 Delimitations

Institutional Focus: The study deliberately focused on Phrapariyattidhamma Schools, excluding general education institutions that might benefit from similar approaches.

Grade Level: Research concentrated on secondary education students (Grades 10-12), not examining elementary or tertiary education applications.

Geographic Scope: The study's delimitation to Nong Khai Province enabled deep cultural understanding but restricted broader regional insights.

7.7 Future Research Directions

Based on study findings and limitations, several future research directions emerge:

Longitudinal Studies: Extended research examining long-term impacts on civic engagement, moral development, and academic achievement would strengthen evidence for the model's sustained effectiveness.

Comparative Studies: Research comparing the model's effectiveness across different cultural contexts, Buddhist traditions, and educational systems would enhance understanding of cultural adaptation requirements.

Mechanism Studies: Investigation of specific mechanisms through which Buddhist principles enhance civic learning could inform theoretical development and practical application.

Scale-Up Research: Studies examining large-scale implementation challenges and strategies would support broader educational reform initiatives.

Mixed-Methods Extensions: Enhanced qualitative research exploring student meaning-making processes and identity development within the integrated learning environment would deepen understanding of educational impacts.

8. CONCLUSION

This mixed-methods study successfully developed and evaluated the NA-OC-ME learning management model integrating the Four Iddhipāda principles into civic education for Phrapariyattidhamma Schools in Nong Khai Province, Thailand. The research demonstrates that systematic integration of Buddhist spiritual principles significantly enhances civic education outcomes while maintaining cultural authenticity and educational effectiveness.

8.1 Key Findings

The study's major findings include:

Significant Learning Improvement: Students demonstrated substantial gains in civic education achievement (Cohen's $d=5.13$), indicating the model's exceptional effectiveness in enhancing learning outcomes.





Comprehensive Impact: The model positively affected multiple civic education domains, including constitutional knowledge, democratic processes, social responsibility, and community engagement.

High Stakeholder Satisfaction: Students, teachers, and community members expressed strong satisfaction with the model's approach, cultural appropriateness, and educational effectiveness.

Cultural Integration Success: The model successfully balanced traditional Buddhist values with contemporary educational requirements, demonstrating that ancient wisdom traditions can enhance modern pedagogy.

Implementation Feasibility: Despite some challenges, stakeholders viewed the model as implementable within existing educational structures with appropriate support and resources.

8.2 Theoretical Contributions

This research contributes to educational theory in several significant ways:

Buddhist Educational Philosophy: The study extends traditional Buddhist educational concepts into contemporary contexts, providing theoretical frameworks for modern Buddhist pedagogy that maintain spiritual authenticity while embracing educational innovation.

Civic Education Theory: The integration of spiritual and ethical dimensions into civic education expands theoretical understanding of values-based citizenship education, offering alternatives to purely secular approaches.

Cultural-Historical Activity Theory: The research demonstrates how cultural tools mediate learning in specific contexts, contributing to understanding of culturally situated educational processes.

Mixed-Methods Educational Research: The study provides methodological insights for researching cultural integration in educational settings, demonstrating effective approaches for examining complex educational innovations.

8.3 Practical Implications

The research offers several practical contributions for educational practice:

Curriculum Development: The NA-OC-ME model provides frameworks for developing culturally responsive curricula that integrate traditional wisdom with contemporary educational objectives.

Teacher Professional Development: The study identifies specific teacher preparation needs and provides guidance for developing professional development programs that support cultural integration pedagogies.

Educational Policy: Findings suggest that educational policies should facilitate rather than constrain innovative approaches that honor cultural traditions while meeting modern educational standards.





Assessment Innovation: The research demonstrates the need for holistic assessment approaches that capture spiritual, ethical, and civic learning dimensions beyond traditional academic achievement measures.

8.4 Broader Implications for Buddhist Education

This study's success has broader implications for Buddhist educational institutions across Thailand and similar cultural contexts:

Educational Reform: The model demonstrates potential for systematic reform of Buddhist education that maintains spiritual identity while enhancing contemporary educational effectiveness.

Cultural Preservation: The approach shows how traditional Buddhist principles can be preserved and transmitted through modern educational methods, supporting cultural continuity in changing social contexts.

International Relevance: The integration model may inform Buddhist educational institutions globally, particularly in Asia where similar cultural integration challenges exist.

Interfaith Education: The study's approaches may be adaptable to other religious educational contexts seeking to integrate traditional spiritual principles with contemporary educational requirements.

8.5 Recommendations for Implementation

Based on study findings, the following recommendations support successful model implementation:

8.5.1

8.5.2 Immediate Recommendations

Pilot Expansion: Extend pilot implementation to additional Phrapariyattidhamma Schools in Nong Khai Province to build implementation experience and refine procedures.

Teacher Training Programs: Develop comprehensive professional development programs that prepare educators to implement the integrated approach effectively.

Resource Development: Create supporting materials, including textbooks, digital resources, and assessment tools, that facilitate model implementation.

Community Engagement: Establish community advisory committees to support implementation and ensure continued cultural relevance.

8.5.2 Long-term Recommendations

Policy Integration: Work with educational authorities to incorporate the model's principles into provincial and national educational policies.

Research Continuation: Establish ongoing research programs to monitor implementation effectiveness and guide continuous improvement.

Regional Expansion: Adapt the model for implementation in other Thai provinces with Buddhist educational institutions.

International Collaboration: Develop partnerships with Buddhist educational institutions in other countries to share experiences and adapt approaches.





8.6 Final Reflections

This research demonstrates that the ancient wisdom of Buddhist traditions can enhance contemporary educational practice when integrated thoughtfully and systematically. The Four Iddhipāda principles—Chanda, Viriya, Citta, and Vīmaṃsā—provide powerful frameworks for enhancing civic education while maintaining spiritual authenticity and cultural relevance.

The study's success in Nong Khai Province's unique cultural context suggests that educational innovation need not abandon traditional values but can instead draw strength from cultural heritage while embracing contemporary challenges. This integration approach offers hope for educational systems worldwide that seek to honor cultural traditions while preparing students for active participation in modern democratic societies.

The NA-OC-ME learning management model represents more than an educational innovation; it embodies a vision of education that nurtures both individual wisdom and social responsibility, combining the best of traditional Buddhist pedagogy with contemporary educational excellence. As educational systems globally grapple with questions of values, purpose, and cultural relevance, this research offers evidence that ancient wisdom and modern innovation can work together to create transformative educational experiences.

The journey from traditional Buddhist education to contemporary civic engagement need not be a path of abandonment but can instead be one of integration, enhancement, and mutual enrichment. This study provides a roadmap for such integration, offering both theoretical insights and practical guidance for educators, policymakers, and communities committed to educational excellence that honors the past while embracing the future.

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APPENDICES

Appendix A: Research Instruments

A.1 Civic Education Challenges Assessment Questionnaire

Instructions: Please rate each statement based on your experience in civic education using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Part I: Demographic Information

1. Age: _____ years
2. Gender: Male Female
3. School: _____
4. Grade Level: _____

Part II: Civic Education Challenges

Curriculum Integration (CI)

1. Current civic education content connects well with Buddhist teachings. (CI1)
2. Learning objectives clearly integrate Buddhist values with civic knowledge. (CI2)
3. Course materials effectively combine traditional and contemporary content. (CI3)
4. Assessment methods evaluate both civic skills and Buddhist understanding. (CI4)

Teaching Methods (TM) 5. Teachers use interactive methods that engage students in civic discussions. (TM1) 6. Learning activities help students apply Buddhist principles to social issues. (TM2) 7. Classroom discussions encourage critical thinking about civic responsibilities. (TM3) 8. Teachers effectively connect abstract concepts to real-world situations. (TM4)

Learning Resources (LR) 9. Available textbooks adequately cover civic education topics. (LR1) 10. Digital resources enhance understanding of civic concepts. (LR2) 11. Learning materials reflect contemporary social and political issues. (LR3) 12. Resources appropriately integrate Buddhist and civic content. (LR4)

Part III: Open-Ended Questions

1. What are the main challenges you face in learning civic education?
2. How could Buddhist principles better support civic learning?
3. What improvements would you suggest for civic education in your school?

A.2 Civic Education Achievement Test

Instructions: Choose the best answer for each question.

Sample Items:

1. According to Buddhist teachings, the principle of interdependence (pratītyasamutpāda) most closely relates to which civic responsibility? a) Individual rights protection b) Environmental stewardship c) Economic competition d) Political participation





2. The Iddhipāda principle of Viriya (effort) can best be applied to civic engagement through: a) Passive compliance with laws b) Sustained community service c) Occasional voting participation d) Personal meditation practice
3. In a democratic society, the Buddhist concept of Right Speech (samma-vaca) would encourage citizens to: a) Remain silent on controversial issues b) Express opinions without considering others c) Engage in truthful and constructive dialogue d) Follow majority opinions without question
[Test continues with 17 additional items covering constitutional knowledge, democratic processes, social responsibility, and community engagement]

A.3 Student Satisfaction Survey

Instructions: Rate your satisfaction with each aspect of the civic education program using the following scale: 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, 5 = Very Satisfied

Content Relevance

1. The civic education content related well to my life experiences.
2. Buddhist principles were meaningfully integrated with civic topics.
3. Course materials addressed contemporary social issues effectively.
4. Learning objectives were clear and achievable.

Teaching Methods 5. Teachers used varied and engaging instructional methods. 6. Learning activities encouraged active participation. 7. Discussions helped me understand different perspectives. 8. Assessment methods fairly evaluated my learning.

Learning Outcomes 9. I developed better understanding of civic responsibilities. 10. My critical thinking skills improved through this program. 11. I feel more confident about participating in community activities. 12. The program enhanced my moral and ethical reasoning.

Overall Experience 13. I would recommend this program to other students. 14. The program met my expectations for civic education. 15. I feel better prepared for citizenship responsibilities.

Appendix B: Expert Validation Materials

B.1 Model Validation Rubric

Instructions: Evaluate each component of the NA-OC-ME learning management model using the following criteria:

Scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent

Notion (Buddhist Civic Education Integration)

- Clarity of conceptual framework
- Theoretical coherence
- Cultural appropriateness
- Innovation potential

Aim (Develop Ethical, Knowledgeable, Engaged Citizens)

- Alignment with Buddhist education goals





- Relevance to contemporary civic needs
- Measurability of outcomes
- Comprehensive scope
- **Objectives (Specific Learning Outcomes)**
- Clear behavioral specifications
- Alignment with Iddhipāda principles
- Appropriate difficulty level
- Assessment compatibility
- **Content (Integrated Curriculum)**
- Balance of Buddhist and civic elements
- Age-appropriate complexity
- Cultural sensitivity
- Contemporary relevance
- **Method (Iddhipāda-based Pedagogy)**
- Innovation in instructional approach
- Practical implementability
- Evidence-based foundations
- Engagement potential
- **Evaluation (Comprehensive Assessment)**
- Multiple assessment formats
- Authentic measurement
- Feedback mechanisms
- Continuous improvement

B.2 Expert Interview Protocol

Background Questions

1. Please describe your experience with Buddhist education and/or civic education.
2. What do you see as the main challenges in integrating traditional Buddhist teachings with contemporary educational requirements?

Model Evaluation Questions 3. How would you assess the theoretical foundation of the NA-OC-ME model? 4. What are the strengths and weaknesses of integrating the Four Iddhipāda principles into civic education? 5. How feasible is this model for implementation in Phrapariyattidhamma Schools? 6. What modifications would you suggest to improve the model's effectiveness?

Implementation Questions 7. What resources would be necessary for successful model implementation? 8. What teacher preparation would be required? 9. How could potential implementation challenges be addressed? 10. What evidence would demonstrate the model's success?

Appendix C: Statistical Analysis Details

C.1 Power Analysis Calculations Pre-Post Achievement Comparison





- Effect size estimate: $d = 1.2$ (large effect based on literature)
- Alpha level: $\alpha = .05$
- Desired power: $1 - \beta = .80$
- Calculated minimum sample size: $n = 12$
- Actual sample size: $n = 32$
- Achieved power: $1 - \beta = .99$

C.2 Reliability Analysis Results

Civic Education Achievement Test

- Kuder-Richardson Formula 20 (KR-20): .85
- Test-retest reliability (2-week interval): $r = .82$
- Inter-item correlations: range .23-.67

Student Satisfaction Survey

- Cronbach's Alpha: .91
- Item-total correlations: range .45-.78
- Factor loadings: all items $> .40$

C.3 Validity Evidence

Content Validity

- Expert panel: 7 specialists
- Content Validity Index (CVI): .89
- Individual item CVI range: .71-1.00

Construct Validity

- Exploratory Factor Analysis results:
 - Kaiser-Meyer-Olkin (KMO): .84
 - Bartlett's Test of Sphericity: $\chi^2(190) = 1247.3, p < .001$
 - Total variance explained: 68.4%
 - Four-factor solution with eigenvalues > 1.0

Appendix D: Sample Lesson Plans

D.1 Lesson Plan: Democratic Participation Through Chanda (Desire)

Learning Objectives: Students will be able to:

1. Define democratic participation in Buddhist context
2. Apply Chanda principle to civic engagement motivation
3. Develop personal civic participation goals
4. Evaluate different forms of democratic participation

Materials:

- Buddhist texts on Chanda
- Contemporary civic engagement examples
- Goal-setting worksheets
- Video: "Democracy and Buddhist Values"



**Activities:***Opening (10 minutes):*

- Mindfulness meditation focusing on wholesome intentions
- Reflection: "What motivates me to care about my community?"

Exploration (20 minutes):

- Study Chanda in Buddhist texts
- Discuss relationship between wholesome desire and social responsibility
- Examine examples of Buddhist-inspired civic engagement

Application (15 minutes):

- Individual goal-setting: personal civic participation objectives
- Partner sharing and feedback
- Group discussion on motivation and sustainability

Integration (10 minutes):

- Reflection journal: connecting Chanda to democratic participation
- Preview next lesson on Viriya (effort) in sustained civic engagement

Assessment:

- Participation in discussions
- Quality of goal-setting activity
- Reflection journal entry
- Peer feedback on civic engagement ideas

D.2 Lesson Plan: Critical Thinking Through Vīmaṃsā (Investigation)**Learning Objectives:** Students will be able to:

1. Apply Buddhist investigation principles to civic issues
2. Analyze multiple perspectives on social problems
3. Evaluate evidence and reasoning in civic contexts
4. Develop evidence-based civic positions

Materials:

- Case studies of contemporary social issues
- Buddhist texts on wise investigation
- Analysis worksheets
- Primary source documents

Activities:*Opening (5 minutes):*

- Brief meditation on mental clarity and investigation

Investigation Practice (25 minutes):

- Introduction to Vīmaṃsā principle
- Case study: Environmental protection in Buddhist perspective
- Small group analysis using investigation framework:
 - What is the issue?
 - What perspectives exist?
 - What evidence supports each view?





- What Buddhist principles apply?
- What conclusion is most justified?

Presentation and Discussion (15 minutes):

- Groups present analyses
- Class discussion on investigation process
- Teacher facilitation of critical dialogue

Reflection (10 minutes):

- Individual reflection: How does Buddhist investigation enhance civic reasoning?
- Goal setting: Applying investigation skills to personal civic interests

Assessment:

- Group analysis quality
- Presentation clarity and evidence use
- Participation in class discussion
- Individual reflection depth

Appendix E: Implementation Guidelines

E.1 Teacher Preparation Checklist

Pre-Implementation Requirements: Complete 40-hour professional development program Demonstrate understanding of Four Iddhipāda principles Practice lesson delivery with peer feedback Complete civic education content knowledge assessment Review and approve lesson plans and materials

Ongoing Support Needs: Monthly peer collaboration meetings Quarterly classroom observation and feedback Access to educational technology support Continued professional development opportunities Regular consultation with Buddhist education specialists

E.2 Resource Requirements List

Essential Materials:

- NA-OC-ME teacher manual
- Student workbooks and materials
- Buddhist texts (translated and age-appropriate)
- Civic education resource library
- Assessment tools and rubrics

Technology Needs:

- Computer/tablet access for students
- Internet connectivity for research activities
- Projector/display for multimedia presentations
- Audio equipment for meditation and reflection

Physical Space Requirements:

- Flexible seating arrangements for group work
- Quiet space for meditation and reflection
- Display areas for student work
- Storage for materials and resources





E.3 Timeline for Implementation

Phase 1: Preparation (Months 1-2)

- Teacher recruitment and selection
- Professional development delivery
- Resource procurement and distribution
- Community engagement and communication

Phase 2: Pilot Implementation (Months 3-5)

- Limited implementation with close support
- Weekly monitoring and feedback
- Continuous improvement based on experience
- Regular stakeholder communication

Phase 3: Full Implementation (Months 6-12)

- Expanded program delivery
- Monthly evaluation and adjustment
- Peer support network development
- Impact assessment and documentation

Phase 4: Evaluation and Expansion (Months 13-15)

- Comprehensive program evaluation
- Stakeholder feedback collection
- Program refinement and improvement
- Preparation for broader implementation

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