

AI-BASED ACTIVE TEACHING COMPETENCY MODEL FOR DIGITAL BUSINESS EDUCATION AND TECH-STARTUP ECOSYSTEM DEVELOPMENT IN PRIVATE COLLEGES*

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Abstract

This study aimed to 1) identify the components of AI-based active teaching competencies among academic staff in digital business faculties at private higher education institutions, 2) develop and validate a Buddhist-integrated AI-based Active Learning competency model for Tech-Startup education, and 3) propose practical guidelines for applying the model to interdisciplinary curricula and integrated degree programs. This quantitative study employed a survey research design. The sample consisted of 380 academic staff members from digital business faculties in private higher education institutions, selected using multi-stage sampling. Data were collected through a five-point Likert-scale questionnaire covering six competency

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dimensions: AI-based instructional design, AI-supported facilitation and assessment, AI literacy and ethics, Buddhist learning competency, entrepreneurial learning design, and readiness for interdisciplinary curriculum development. Descriptive statistics, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) were employed for data analysis.

The findings indicated that all six competency dimensions were rated at a high level. Structural Equation Modeling demonstrated that AI-based instructional design, AI-supported facilitation and assessment, AI literacy and ethics, Buddhist learning competency, and entrepreneurial learning design significantly influenced the proposed competency model. Among these factors, Buddhist learning competency exerted the strongest effect. Furthermore, the competency model significantly enhanced readiness for interdisciplinary curriculum development, including integrated Bachelor's–Master's and Master's–Doctoral programs. The proposed model demonstrated satisfactory goodness-of-fit with the empirical data based on established model fit indices.

Keywords: AI-Based Active Teaching, Teaching Competency Model, Digital Business Education, Tech-Startup Ecosystem, Private Colleges

Introduction

The rapid advancement of Artificial Intelligence (AI) and digital technologies has fundamentally transformed the global economy, labor markets, and higher education systems. The emergence of a data-driven economy has reshaped business models and intensified the demand for professionals equipped with digital competencies, innovative thinking, and lifelong learning capabilities (Chaudhry & Kazim, 2022; Zawacki-Richter et al., 2019). Consequently, higher education institutions are under increasing pressure to shift from traditional knowledge transmission toward competency-based

education that prepares graduates for complex and technology-driven environments.

Within digital business education, Active Learning has become an essential pedagogical approach because it promotes critical thinking, collaborative problem-solving, creativity, and experiential learning. Unlike conventional lecture-based instruction, Active Learning encourages students to actively construct knowledge through authentic learning experiences such as project-based learning, case studies, collaborative activities, and real-world problem solving (Chiu, 2021). The integration of AI technologies further strengthens Active Learning by supporting adaptive learning, learning analytics, automated assessment, intelligent tutoring, and personalized feedback, enabling educators to design more flexible and learner-centered instructional environments (Worapongpat et al., 2025).

Despite these technological advancements, the rapid expansion of AI and Tech-Startup ecosystems has also generated significant ethical challenges, including algorithmic bias, misinformation, data privacy, and responsible AI use (Crawford et al., 2023). Therefore, technological competence alone is insufficient for preparing future entrepreneurs and business professionals. Higher education must simultaneously cultivate ethical reasoning, social responsibility, and reflective decision-making. Within Asian educational contexts, Buddhist philosophy provides a valuable ethical foundation for AI-enhanced learning. The Threefold Training (Ti-Sikkhā) Morality (Sīla), Concentration (Samādhi), and Wisdom (Paññā) supports holistic competency development by integrating ethical conduct, mindful learning, and critical judgment. Likewise, the Four Bases of Success (Iddhipāda IV) Aspiration (Chanda), Effort (Viriya), Thoughtfulness (Citta), and Investigation (Vīmaṃsā) encourage perseverance, intrinsic motivation, and reflective inquiry, all of which are fundamental characteristics of Active Learning and entrepreneurial education.

At the institutional level, universities are increasingly introducing interdisciplinary curricula and integrated degree programs, including Bachelor's–Master's and Master's–Doctoral pathways, to respond to rapidly changing workforce demands and technological innovation (Holmes et al., 2023). Such educational transformation requires academic staff to possess competencies that extend beyond instructional expertise to include AI literacy, curriculum innovation, entrepreneurial education, and ethical leadership. Consequently, developing an integrated competency framework for educators has become an important strategic priority for higher education institutions.

Although previous studies have extensively examined AI in Education, Active Learning, digital competency, and entrepreneurship education, these concepts have generally been investigated independently. Existing research rarely integrates AI-based teaching competencies, Buddhist ethical principles, Active Learning pedagogy, and entrepreneurial learning into a unified theoretical framework. Furthermore, empirical evidence explaining how such integrated competencies contribute to educators' readiness for interdisciplinary curriculum development remains limited, particularly within digital business faculties in private higher education institutions. This theoretical and contextual gap highlights the need for a comprehensive competency model that reflects both technological innovation and ethical responsibility.

To address this gap, the present study develops and validates a Buddhist-integrated AI-based Active Teaching Competency Model for academic staff in digital business faculties at private higher education institutions. The proposed model combines AI-based instructional design, AI-supported facilitation and assessment, AI literacy and ethics, Buddhist learning competency, and entrepreneurial learning design within a unified competency framework. The study further investigates how these competencies influence educators' readiness for interdisciplinary curriculum development and integrated academic programs.

The study contributes to the literature in three important ways. First, it extends existing AI in Education research by integrating educational technology, Active Learning, Buddhist ethics, and entrepreneurship education into a single conceptual framework. Second, it provides empirical validation of the proposed competency model using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). Third, it offers practical guidance for higher education institutions seeking to strengthen AI-enhanced teaching competencies, promote ethical AI implementation, and develop interdisciplinary curricula that better prepare graduates for the digital economy and technology-driven entrepreneurial ecosystems.

Objectives

1. Identify the key components of AI-based active teaching competencies among academic staff in digital business faculties at private higher education institutions.

2. Develop a Buddhist-integrated AI-based Active Teaching Competency Model that supports Tech-Startup education in digital business programs.

3. Validate the proposed competency model by examining its construct validity and its consistency with empirical data using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

4. Propose practical guidelines for applying the validated competency model to enhance interdisciplinary curricula and integrated Bachelor's–Master's and Master's–Doctoral programs in private higher education institutions.

Literature Review

This study is grounded in an interdisciplinary theoretical framework that integrates Active Learning, Artificial Intelligence in Education (AIEd), Digital Competency, Buddhist Educational Philosophy, and Entrepreneurship

Education. These complementary perspectives provide the conceptual foundation for developing an AI-based Active Teaching Competency Model that enhances educators' readiness for interdisciplinary curriculum development in digital business education.

1. Active Learning

Active Learning is a learner-centered pedagogical approach that emphasizes students' active participation in constructing knowledge through meaningful learning experiences rather than passive knowledge acquisition. Rooted in Constructivist Learning Theory, Active Learning promotes higher-order thinking skills, problem-solving, communication, collaboration, and creativity, which are considered essential competencies for the twenty-first century (Koehler & Mishra, 2009). Common instructional approaches include Problem-Based Learning (PBL), Project-Based Learning (PjBL), Collaborative Learning, and the Flipped Classroom. These approaches encourage experiential learning and authentic problem solving, making them particularly suitable for digital business and entrepreneurial education.

2. Artificial Intelligence in Education (AIEd)

Artificial Intelligence has become an important enabler of educational innovation by supporting adaptive learning, intelligent tutoring systems, learning analytics, automated assessment, and personalized feedback (Luckin, 2020). AI technologies enhance instructional effectiveness by reducing routine teaching tasks and allowing educators to focus on designing meaningful learning experiences. Recent studies further emphasize that educators require competencies in AI literacy, prompt engineering, ethical AI use, and AI-supported instructional design to effectively integrate Generative AI into higher education (Ziyia et al., 2024).

3. Digital Competency

Digital competency extends beyond technical proficiency to include the knowledge, skills, attitudes, and ethical awareness necessary for effectively

utilizing digital technologies in teaching and learning. Within AI-enhanced education, educators must possess competencies related to digital content creation, AI literacy, data interpretation, digital communication, and responsible technology use. These competencies are increasingly recognized as essential components of educational transformation and digital innovation in higher education.

4. Buddhist-Integrated Active Learning

Buddhist educational philosophy provides an ethical foundation for integrating AI into teaching and learning. The Threefold Training (Ti-Sikkhā)—Morality (Sīla), Concentration (Samādhī), and Wisdom (Paññā)—supports the development of ethical responsibility, mindful learning, and critical decision-making. Likewise, the Four Bases of Success (Iddhipāda IV)—Aspiration (Chanda), Effort (Viriya), Thoughtfulness (Citta), and Investigation (Vīmaṃsā)—encourage intrinsic motivation, perseverance, reflective thinking, and continuous improvement. These principles complement Active Learning by promoting holistic competency development that integrates cognitive, ethical, and affective dimensions (Ouyang & Jiao, 2023; Worapongpat, 2025a).

5. Entrepreneurship Education

Entrepreneurship education prepares learners to identify opportunities, create innovative solutions, manage uncertainty, and develop sustainable business ventures. Within digital business education, entrepreneurial learning emphasizes creativity, innovation, collaboration, opportunity recognition, and value creation. When integrated with AI technologies and Active Learning, entrepreneurship education supports the development of Tech-Startup competencies that are responsive to the digital economy.

6. Synthesis of the Literature

Previous studies have independently demonstrated the effectiveness of Active Learning, AI-supported instruction, digital competency, Buddhist

educational philosophy, and entrepreneurship education. However, limited research has integrated these perspectives into a comprehensive competency framework for academic staff in digital business faculties. Therefore, this study synthesizes these theoretical perspectives to propose a holistic competency model that combines technological capability, pedagogical innovation, entrepreneurial thinking, and ethical responsibility.

Methodology

Research Design

This study employed a quantitative survey research design to develop and validate a Buddhist-integrated AI-Based Active Teaching Competency Model for academic staff in digital business faculties at private higher education institutions. The proposed conceptual framework was empirically examined using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to evaluate both the measurement model and the structural relationships among latent variables.

Population and Sample

The target population comprised academic staff working in Digital Business faculties at private higher education institutions in Thailand, including full-time lecturers, adjunct lecturers, and academic personnel responsible for teaching and curriculum development.

The sample size was determined according to the recommendations for Structural Equation Modeling, which suggest a minimum ratio of 10–20 respondents per observed variable and at least 300 participants to ensure stable parameter estimation. A total of 380 respondents participated in the study.

A multi-stage sampling procedure was employed:

1. Purposive selection of private higher education institutions offering Digital Business programs.
2. Stratified sampling based on geographical regions.
3. Proportional random sampling of academic staff within each institution.

Research Instrument

Data were collected using a structured questionnaire based on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire was developed through an extensive literature review and adapted from established studies on AI in Education, Active Learning, Digital Competency, Entrepreneurship Education, and Buddhist educational philosophy.

The questionnaire consisted of seven sections:

1. Demographic information
2. AI-Based Instructional Design (AID)
3. AI-Supported Facilitation and Assessment (IFA)
4. AI Literacy and Ethics (AEL)
5. Buddhist Learning Competency (BLC)
6. Entrepreneurial Learning Design (ELD)
7. Readiness for Interdisciplinary Curriculum Development (RIC)

Instrument Validation

Content validity was evaluated by five experts specializing in education, educational technology, digital business, and Buddhist studies. Item-Objective Congruence (IOC) values exceeded the acceptable criterion of 0.50 for all questionnaire items.

A pilot study involving 30 participants with characteristics similar to those of the target population was conducted to examine instrument reliability. Internal consistency was assessed using Cronbach's Alpha coefficient, with all constructs exceeding the recommended threshold of 0.70.

Construct validity was subsequently evaluated through Confirmatory Factor Analysis (CFA). Composite Reliability (CR) values greater than 0.70 and Average Variance Extracted (AVE) values greater than 0.50 were considered evidence of satisfactory convergent validity.

Data Collection

Data collection was conducted through the following procedures:

1. Obtaining official permission from participating institutions.
2. Distributing questionnaires via both online and paper-based formats.
3. Informing participants about the research objectives, voluntary participation, and confidentiality.
4. Screening completed questionnaires for completeness prior to statistical analysis.

Data Analysis

The collected data were analyzed using the following statistical techniques:

Descriptive Statistics (frequency, percentage, mean, and standard deviation) to summarize respondents' demographic characteristics and competency levels.

Confirmatory Factor Analysis (CFA) to examine construct validity, convergent validity, and reliability of the measurement model.

Structural Equation Modeling (SEM) to test the hypothesized causal relationships among latent variables.

Model fit was evaluated using commonly accepted goodness-of-fit indices:

$$\chi^2/df < 3.00$$

$$RMSEA < 0.08$$

$$CFI > 0.90$$

$$TLI > 0.90$$

SRMR < 0.08

Research Ethics

This study was conducted in accordance with accepted ethical standards for research involving human participants. Participation was voluntary, informed consent was obtained from all respondents, and participants were informed of their right to withdraw at any stage of the study without penalty. All collected data were treated confidentially, anonymized during analysis, and used exclusively for academic purposes.

Results

Objective1.To examine the components of Active Learning competency based on Artificial Intelligence (AI) among educational personnel in the Faculty of Digital Business Administration in private higher education institutions in the digital era.

Table 1. Mean and Standard Deviation of Variables in the Model

Variables	Mean	Standard Deviation	Level
AI-based Instructional Design	4.18	0.62	High
AI-supported Facilitation and Assessment	4.05	0.67	High
AI Literacy and Ethics	4.22	0.58	High
Buddhist Learning Competency	4.30	0.55	High
Entrepreneurial Learning Design	4.12	0.64	High
Readiness for Interdisciplinary Curriculum	4.09	0.61	High

The results indicated that all variables were rated at a high level, with Buddhist learning competency showing the highest mean score.

Table 2. Confirmatory Factor Analysis of First-Order Latent Variables

Components	Number of Indicators	Factor Loading	CR	AVE
AI-based Instructional Design	4	0.71 – 0.86	0.89	0.66
AI-supported Facilitation and Assessment	4	0.69 – 0.84	0.88	0.64
AI Literacy and Ethics	4	0.73 – 0.88	0.90	0.69
Buddhist Learning Competency	4	0.75 – 0.89	0.91	0.71
Entrepreneurial Learning Design	4	0.70 – 0.85	0.88	0.65

Note: CR > 0.70 and AVE > 0.50 indicate acceptable reliability and convergent validity.

The findings confirmed that all latent constructs demonstrated adequate reliability and convergent validity.

Objective 2. To develop a Buddhist-oriented Active Learning competency model using AI as a supportive tool for Tech-Startup learning among educational personnel in the Faculty of Digital Business Administration.

Table 3. Structural Equation Modeling (SEM) Results

Hypothesis	Path Relationship	Coefficient (β)	t-value	Result
H1	AI-based Instructional Design → Competency Model	0.78	11.24	Supported
H2	AI-supported Facilitation and Assessment → Competency Model	0.74	10.58	Supported
H3	AI Literacy and Ethics → Competency Model	0.81	12.03	Supported

Hypothesis	Path Relationship	Coefficient (β)	t-value	Result
H4	Buddhist Learning Competency → Competency Model	0.86	13.27	Supported
H5	Entrepreneurial Learning Design → Competency Model	0.79	11.66	Supported
H6	Competency Model → Interdisciplinary Curriculum Readiness	0.83	12.91	Supported

Significant at the .05 level

The results indicated that all hypotheses were supported, with Buddhist learning competency showing the strongest influence on the competency model.

Objective 3. To examine the goodness-of-fit of the AI-based Active Learning competency model grounded in Buddhist principles with empirical data.

Table 4. Model Fit Indices of the Structural Equation Model

Index	Model Value	Standard Criteria	Interpretation
χ^2/df	2.18	< 3.00	Acceptable
RMSEA	0.056	< 0.08	Acceptable
CFI	0.94	> 0.90	Acceptable
TLI	0.93	> 0.90	Acceptable
SRMR	0.047	< 0.08	Acceptable

The results showed that the proposed model demonstrated a good fit with the empirical data according to all statistical criteria.

Table 5. Model Fit Indices of the Structural Equation Model

Index	Model Value	Standard Criteria	Interpretation
χ^2/df	2.18	< 3.00	Acceptable
RMSEA	0.056	< 0.08	Acceptable
CFI	0.94	> 0.90	Acceptable
TLI	0.93	> 0.90	Acceptable
SRMR	0.047	< 0.08	Acceptable

Objective 4: Guidelines for Applying the Competency Model

The findings indicate that the validated AI-based Active Teaching Competency Model can serve as a practical framework for curriculum development in private higher education institutions. The model supports the design and implementation of interdisciplinary curricula, including integrated Bachelor's–Master's and Master's–Doctoral programs, particularly in the fields of digital business, technology entrepreneurship, and AI-enhanced education.

The proposed application framework emphasizes five interrelated competency domains. First, AI-based instructional design enables educators to create flexible, technology-enhanced learning environments that support personalized and competency-based learning. Second, AI-supported facilitation and assessment strengthen active learning by providing continuous feedback, learning analytics, and adaptive assessment strategies. Third, AI literacy and ethical awareness promote the responsible and transparent use of artificial intelligence while reinforcing academic integrity and digital citizenship. Fourth,

Buddhist learning competency contributes to the development of mindful, ethical, and reflective learning practices that balance technological innovation with moral responsibility. Finally, entrepreneurial learning design encourages innovation, opportunity recognition, problem-solving, and technology startup development through authentic learning experiences.

Collectively, these competency dimensions provide higher education institutions with a comprehensive framework for enhancing educators' teaching competencies and strengthening curriculum innovation. The model also supports institutional readiness for digital transformation by integrating technological capability, pedagogical innovation, entrepreneurial thinking, and ethical responsibility into sustainable AI-enhanced learning ecosystems.

Discussion

Discussion of Research Objective 1. The findings revealed that AI-based active teaching competency comprises five core dimensions: AI-based instructional design, AI-supported facilitation and assessment, AI literacy and ethics, Buddhist learning competency, and entrepreneurial learning design. All competency dimensions were perceived at a high level, reflecting the growing recognition among academic staff of the importance of integrating AI into teaching and learning within digital business education. These findings suggest that the rapid digital transformation of higher education has fundamentally changed educators' professional roles. Rather than serving primarily as knowledge transmitters, instructors are increasingly expected to function as learning designers, facilitators, and technology-enabled mentors capable of creating adaptive and student-centered learning environments. AI technologies including learning analytics, intelligent tutoring systems, and personalized feedback enable educators to better address diverse learning needs while supporting competency-based education. This interpretation is consistent with

AI in Education literature, which emphasizes that AI enhances instructional effectiveness by improving learning design, assessment, and learner engagement (Bearman et al., 2024). The findings also support previous studies demonstrating that AI integration promotes learner-centered pedagogy and strengthens active learning practices in higher education.

Discussion of Research Objective 2. The study found that the proposed Buddhist-integrated AI-Based Active Teaching Competency Model consists of five interrelated competency dimensions, all of which significantly contribute to the overall competency model. Among these, Buddhist learning competency demonstrated the strongest influence, followed by AI literacy and ethics and entrepreneurial learning design. This finding highlights that technological competence alone is insufficient for preparing educators in AI-enhanced learning environments. Instead, ethical reasoning, mindfulness, and reflective judgment appear to play a central role in supporting responsible educational innovation. The integration of Buddhist educational philosophy provides a distinctive contribution by balancing technological advancement with moral responsibility. The principles of the Threefold Training (Ti-Sikkhā) Morality (Sīla), Concentration (Samādhī), and Wisdom (Paññā) encourage holistic professional development, while the Four Bases of Success (Iddhipāda IV) foster intrinsic motivation, perseverance, reflective inquiry, and continuous improvement. These competencies closely align with the objectives of Active Learning and entrepreneurial education. The findings are consistent with recent studies emphasizing that ethical frameworks are increasingly important for the responsible implementation of AI in education (UNESCO, 2021; Worapongpat, 2025c). They also extend previous entrepreneurship education research by demonstrating that innovation-oriented learning becomes more sustainable when technological capability is integrated with ethical awareness and reflective practice. Accordingly, this study contributes to the literature by

proposing a culturally contextualized competency framework that integrates AI, Active Learning, Buddhist philosophy, and entrepreneurship education into a unified model.

Discussion of Research Objective 3. The Structural Equation Modeling results confirmed that the proposed competency model demonstrated satisfactory consistency with the empirical data, indicating that the conceptual framework provides a robust explanation of educators' readiness for interdisciplinary curriculum development. More importantly, the model illustrates that AI-related competencies, ethical awareness, entrepreneurial learning design, and Buddhist learning competency function as complementary rather than independent dimensions of effective teaching competency. The significant influence of the competency model on educators' readiness for developing interdisciplinary curricula suggests that curriculum innovation requires more than technological expertise. Academic staff who possess competencies in AI integration, ethical decision-making, and entrepreneurial learning are better prepared to design interdisciplinary learning experiences that address emerging workforce demands and technology-driven innovation. These findings are consistent with previous studies employing Structural Equation Modeling in educational research, which emphasize the importance of integrating technological, pedagogical, and ethical competencies to support educational transformation (Chan, 2023). From a practical perspective, the validated competency model provides a comprehensive framework that higher education institutions can employ for academic staff development, curriculum redesign, AI competency training, and the establishment of interdisciplinary and integrated academic programs. Furthermore, the model supports institutional digital transformation by promoting responsible AI implementation while fostering innovation, entrepreneurial capability, and ethical leadership in digital business education.

Knowledge Contribution

From the study entitled “A Competency Enhancement Model for AI-Based Active Teaching Integrated with Buddhist Principles among Academic Staff in Digital Business Faculties in Private Higher Education Institutions,” the research identified a new body of knowledge that can be synthesized into a conceptual framework referred to as the “Buddhist-Oriented Digital Competency Ecosystem.” This framework integrates four key dimensions into a unified teaching competency model:

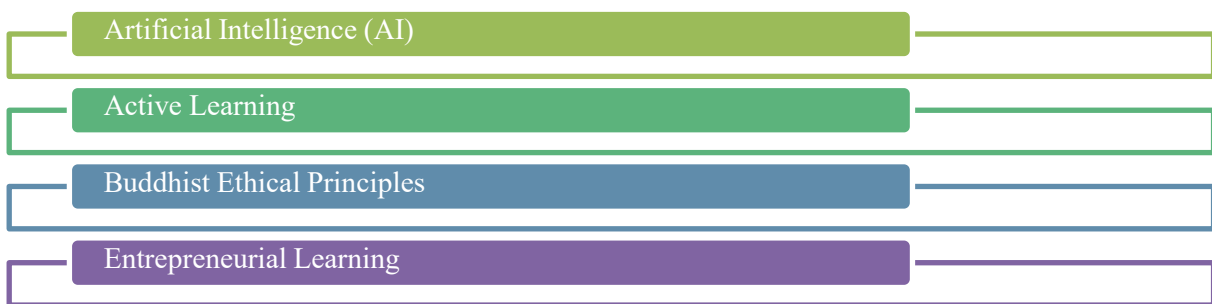


Figure 1 Buddhist-Oriented Digital Competency Ecosystem for AI-Based Active Teaching

Figure 2 illustrates the proposed Buddhist-Oriented Digital Competency Ecosystem, which conceptualizes the integration of Artificial Intelligence, Active Learning pedagogy, Buddhist ethical principles, and entrepreneurial learning as complementary dimensions of AI-based active teaching competency. The framework demonstrates how these interconnected competencies collectively enhance educators' readiness for digital transformation, interdisciplinary curriculum development, and technology-driven entrepreneurial education.

The proposed ecosystem extends existing AI in Education frameworks by emphasizing that effective AI-enhanced teaching requires more than technological proficiency. Instead, educators need a balanced combination of

pedagogical competence, AI literacy, ethical awareness, and entrepreneurial thinking to successfully facilitate learning in digital business education.

First, the findings indicate that Active Learning in the era of Generative AI requires educators to integrate instructional design with Prompt Engineering competencies. Beyond preparing learning activities, instructors must be capable of designing effective prompts that support content generation, adaptive learning, personalized feedback, and collaborative learning experiences. Prompt Engineering therefore emerges as an important professional competency for AI-enhanced teaching.

Second, AI-supported assessment functions not only as an evaluation mechanism but also as an intelligent learning support system. Through learning analytics and predictive assessment, AI enables instructors to identify students who may experience learning difficulties at an early stage. Consequently, educators' roles shift from traditional knowledge transmitters toward learning coaches and mentors who provide individualized academic guidance and timely intervention.

Third, the integration of Buddhist educational philosophy strengthens the ethical dimension of AI-supported learning. Principles such as *Sīla* (ethical conduct), *Samādhī* (mindful concentration), and *Paññā* (wisdom) encourage responsible AI utilization, reflective decision-making, and sustainable innovation. These ethical competencies become increasingly important as higher education institutions prepare graduates for AI-driven business environments where technological advancement must be balanced with social responsibility.

Overall, the Buddhist-Oriented Digital Competency Ecosystem provides a holistic framework that integrates technological capability, pedagogical innovation, entrepreneurial learning, and ethical responsibility. The framework offers practical guidance for academic staff development, AI competency enhancement, interdisciplinary curriculum design, and institutional digital

transformation, while contributing a culturally contextualized perspective to the growing body of research on AI-enhanced higher education.

Recommendation

Practical Implications

Based on the findings of this study, several practical recommendations are proposed to support the implementation of the Buddhist-integrated AI-Based Active Teaching Competency Model in private higher education institutions.

First, universities should establish institutional policies that promote AI literacy and ethical AI use as core components of digital transformation. These policies should include clear guidelines on responsible AI practices, academic integrity, AI-assisted learning, and the appropriate citation of AI-generated content to ensure transparency and ethical scholarship.

Second, higher education institutions should invest in AI-supported digital learning ecosystems and predictive learning analytics platforms. Such systems can assist instructors in monitoring learning progress, identifying students at academic risk through early-warning mechanisms, and providing timely interventions that improve learning outcomes and student retention.

Third, faculties should establish dedicated support units for AI-enhanced teaching and learning, such as AI Instructional Innovation Centers or Prompt Engineering Support Center. These units can provide professional development, discipline-specific prompt libraries, instructional consultation, and technical support, thereby strengthening instructors' confidence and reducing barriers to AI integration.

Fourth, universities should develop institutional guidelines and training programs that promote responsible AI use among students. These initiatives should address issues related to academic integrity, plagiarism prevention,

verification of AI-generated information, digital citizenship, and ethical decision-making when using generative AI technologies.

Finally, higher education institutions should encourage the transformation of instructors' professional roles from traditional knowledge transmitters to learning coaches and facilitators. By utilizing AI for routine assessment, learning analytics, and administrative support, instructors can devote more time to personalized mentoring, critical discussion, reflective learning, and the development of higher-order thinking skills. This shift will strengthen student engagement while maintaining the human-centered values that remain essential in AI-enhanced education.

Recommendations for Future Research

The findings of this study also suggest several directions for future research.

First, future studies should investigate the development of personalized learning ecosystems that integrate Generative AI, adaptive learning technologies, and learning analytics to support individualized learning pathways in higher education.

Second, further research is recommended to examine the effectiveness of Prompt Engineering competencies in improving instructors' instructional design, learning activity development, and AI-assisted teaching practices across different academic disciplines.

Third, future studies should explore governance frameworks for learning analytics, with particular attention to data privacy, cybersecurity, algorithmic transparency, and ethical AI implementation in educational settings.

Finally, future research may extend the proposed competency model by examining its applicability in different institutional contexts, public universities, international higher education systems, or other academic disciplines. Comparative and longitudinal studies would further strengthen the

generalizability of the model and provide deeper insights into the long-term impact of AI-enhanced teaching competencies on curriculum innovation and educational quality.

References

- Chan, C. K. Y. (2023). A comprehensive AI policy framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20(1), 38. <https://doi.org/10.1186/s41239-023-00396-1>
- Chaudhry, M. A., & Kazim, E. (2022). Artificial intelligence in education (AIEd): A high-level academic and industry perspective. *AI and Ethics*, 2(1), 157–165. <https://doi.org/10.1007/s43681-021-00074-z>
- Chiu, T. K. F. (2021). Digital support for student engagement in blended learning based on self-determination theory. *Computers & Education*, 174, 104292. <https://doi.org/10.1016/j.compedu.2021.104292>
- Crawford, J., Cowling, M., & Allen, K. A. (2023). Generative AI in higher education: The ethos of academic integrity. *Journal of University Teaching & Learning Practice*, 20(2). <https://doi.org/10.53761/1.20.02.07>
- Holmes, W., Bialik, M., & Fadel, C. (2023). *Ethics of AI in education: Towards a community-wide framework*. Routledge.
- Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60–70.
- Luckin, R. (2020). *AI for education: What every teacher needs to know*. ISTE.
- Ouyang, F., & Jiao, P. (2023). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 4, 100117. <https://doi.org/10.1016/j.caeai.2022.100117>

- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. UNESCO. <https://unesdoc.unesco.org>
- Wiliam, D. (2018). *Embedded formative assessment*. (2nd ed.). Solution Tree Press.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, 16, 39. <https://doi.org/10.1186/s41239-019-0171-0>
- Worapongpat, N. (2025a). Mindfulness in the use of artificial intelligence for learning among graduate students in private universities in Bangkok, Thailand. *Asian Education and Learning Review*, 3(2), 1–11. <https://doi.org/10.14456/aelr.2025.6>
- Worapongpat, N. (2025b). The influence of artificial intelligence technology utilization and personnel competency in AI applications on work performance in local administrative organizations: A case study of Maha Sarakham Province. *Nakhon Ratchasima Journal of Humanities and Social Sciences*, 1(5), 72–93.
- Worapongpat, N. (2025c). The Influence of Artificial Intelligence Technology Utilization and Personnel's Knowledge and Competency in AI Applications on Work Performance in Local Administrative Organizations: A Case Study of Maha Sarakham Province. *Nakhon Ratchasima Journal of Humanities and Social Sciences*, 1(5), 72–93. <https://so11.tci-thaijo.org/index.php/NJHSS/article/view/2705>

- Worapongpat, N., Dookarn, S., Boonmee, K., Thavisin, N., & Chanphong, S. (2025). The mindfulness in the use of artificial intelligence (AI) and its impact on learning for graduate students at private universities in Thailand. *Journal of Intellect Education*, 4(1), 97–109.
- Yongming, C., Worapongpat, N., & Wongkumchai, T. (2024). Developing a sustainable competitive advantage strategy for financial businesses using blockchain in the banking industry. *International Journal of Multidisciplinary in Educational & Cultures Studies*, 2(1), 50–65.
- Ziyia, J., Wongkumchai, T., Soprakana, C., & Worapongpat, N. (2024). Assessing the role of AI-powered chatbots in improving customer experience in pharmaceutical e-commerce businesses in Beijing. *RMUTT Global Business Accounting and Finance Review*, 8(1), 31–48.