

# Artificial Intelligence Integration in Thai Education: A Systematic Literature Review of Everyday Learning Applications.

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## ABSTRACT

This systematic literature review examines the integration of artificial intelligence (AI) in everyday educational practices within the Thai educational context. Through a comprehensive analysis of 30 peer-reviewed studies published between 2020 and 2026, this review identifies key AI applications, adoption patterns, implementation challenges, and opportunities specific to Thailand's educational landscape. The findings reveal that generative AI tools, intelligent chatbots, and adaptive learning systems are increasingly integrated across educational levels, with higher education showing more advanced adoption than K-12 settings. Key challenges include infrastructure limitations, digital literacy gaps, language barriers for non-native English speakers, and concerns about academic integrity and over-reliance on technology. The novelty of this review lies in its focused examination of AI in everyday Thai educational practices, revealing unique cultural and contextual factors that influence AI adoption, including the tension between technological innovation and traditional pedagogical values. This study provides evidence-based recommendations for policymakers, educators, and institutions to enhance AI integration while preserving the essential human elements of teaching and learning in the Thai context.

## I. INTRODUCTION

The rapid advancement of artificial intelligence (AI) technologies has fundamentally transformed educational landscapes worldwide, creating unprecedented opportunities for personalized learning, automated assessment, and intelligent tutoring systems. In Thailand, the integration of AI in education has gained significant momentum, particularly following the COVID-19

pandemic, which accelerated digital transformation across all educational levels (Tuntirojanawong, 2024). The Thai government's initiatives, including the Digital Education Excellence Platform, reflect a national commitment to leveraging technology for educational enhancement (Tantiathimongkhon et al., 2025). However, the practical implementation of AI in everyday classroom practices presents unique challenges and opportunities within the Thai cultural and educational context.

AI applications in education encompass a broad spectrum of technologies, from generative AI tools like ChatGPT for language learning to intelligent chatbots for student support, adaptive learning platforms for personalized instruction, and machine learning systems for educational analytics (Maphosa & Maphosa, 2024; Pookasawan & Hongwarittorn, 2024; Sakmiankaew et al., 2024). These technologies promise to address longstanding educational challenges, including large class sizes, limited teacher resources, and the need for individualized learning pathways. Yet, the effectiveness of AI integration depends critically on contextual factors, including infrastructure readiness, teacher competencies, student digital literacy, and cultural attitudes toward technology-mediated learning.

While substantial research exists on AI in education globally, there remains a significant gap in understanding how AI technologies are integrated into everyday educational practices, specifically within the Thai context. Most existing studies focus on isolated implementations or pilot programs rather than examining the broader patterns of AI adoption in routine teaching and learning activities (Maphosa & Maphosa, 2024; Panmei, 2025). Furthermore, limited research addresses the unique cultural, linguistic, and infrastructural challenges that characterize the Thai educational system. This review addresses this gap by systematically analyzing the current state of AI integration in Thai education, with particular attention to everyday applications that directly impact teaching and learning practices.

This systematic literature review aims to identify and categorize AI applications currently used in everyday Thai educational practices across different educational levels, analyze adoption patterns and factors influencing AI integration in Thai educational institutions, examine challenges and barriers specific to the Thai educational context, synthesize evidence-based recommendations for effective AI integration in Thai education, and identify gaps in current research along with directions for future investigation.

AI in education encompasses diverse technologies designed to enhance teaching effectiveness and learning outcomes. Recent literature identifies several major categories of AI applications. Generative AI tools, particularly large language models like ChatGPT, have gained widespread attention for their potential in content creation, language learning, and personalized tutoring (Maphosa & Maphosa, 2024; Cacho, 2024). Intelligent tutoring systems provide adaptive, personalized instruction based on individual learner needs and progress (Junpeng et al., 2025). Learning analytics platforms employ machine learning algorithms to analyze student data, predict performance, and inform instructional decisions (Vicheanpant, 2025).

Chatbots and virtual assistants offer 24/7 student support for administrative queries, course information, and basic academic guidance (Poodpor et al., 2024). Adaptive learning platforms adjust content difficulty and presentation based on learner performance and preferences (Tuntirojanawong, 2024). Automated assessment systems leverage natural language processing and machine learning to evaluate student work, providing rapid feedback (Panjaburee et al., 2024).

Globally, AI adoption in education has accelerated dramatically, driven by technological advancement, increased computational power, and the COVID-19 pandemic's push toward digital learning (Co, 2025; Luyosen, 2025). However, implementation patterns vary significantly across regions, influenced by economic resources, infrastructure, cultural values, and educational policies. In Southeast Asia, including Thailand, AI adoption presents unique opportunities and challenges (Chung et al., 2024; Syukur et al., 2024).

Thailand's educational system operates within a context shaped by traditional pedagogical approaches emphasizing teacher authority and rote learning, alongside contemporary efforts to promote student-centered, technology-enhanced instruction (Tantiathimongkhon et al., 2025). The Thai government has prioritized educational technology through various initiatives, yet implementation remains uneven, with significant disparities between urban and rural areas, and between higher education and K-12 settings (Prainete et al., 2021).

Several theoretical frameworks inform the understanding of AI integration in education. The Technology Acceptance Model (TAM) explains user acceptance based on perceived usefulness and perceived ease of use, factors particularly relevant in the Thai context, where teacher and student attitudes significantly influence adoption (Tantiathimongkhon et al., 2025). The Technological Pedagogical Content Knowledge (TPACK) framework emphasizes the intersection of technology, pedagogy, and content knowledge, highlighting the complexity of effective AI integration (Santos et al., 2024).

Constructivist learning theories support AI applications that facilitate active, personalized learning experiences, while concerns about over-reliance on technology and potential erosion of critical thinking skills reflect tensions between technological enthusiasm and pedagogical caution (Panmei, 2025; Sakmiankaew et al., 2024).

Despite growing interest in AI in education, several gaps persist in the literature. First, most studies focus on pilot implementations or experimental settings rather than everyday classroom practices (Maphosa & Maphosa, 2024). Second, limited research examines AI integration within specific cultural and linguistic contexts, particularly in non-Western settings like Thailand (Syukur et al., 2024). Third, few studies address equity concerns related to differential access and implementation across socioeconomic and geographic contexts (Prainete et al., 2021). This systematic review addresses these gaps by focusing specifically on everyday AI applications in Thai education and examining contextual factors influencing adoption and effectiveness.

## II. METHODOLOGY

### 3.1 Systematic Literature Review Protocol

This study employed a systematic literature review (SLR) methodology following established guidelines for comprehensive, transparent, and replicable research synthesis. The SLR approach ensures rigorous identification, evaluation, and synthesis of relevant research evidence.

### 3.2 Search Strategy

A comprehensive search was conducted across multiple academic databases, including SciSpace, Scopus, Web of Science, and Google Scholar. The search strategy employed the following terms and Boolean operators:

- (“artificial intelligence” OR “AI” OR “machine learning” OR “generative AI” OR “ChatGPT”) AND

- (“education” OR “learning” OR “teaching” OR “classroom” OR “pedagogy”) AND

- (“Thailand” OR “Thai” OR “Southeast Asia” OR “ASEAN”)

The search covered publications from January 2020 to January 2026, focusing on recent developments in AI integration following the COVID-19 pandemic’s acceleration of educational technology adoption.

### 3.3 Inclusion and Exclusion Criteria

Inclusion Criteria: - Peer-reviewed journal articles and conference proceedings - Published between 2020 and 2026 - Focus on AI applications in education - Empirical studies, case studies, or systematic reviews - Thai or Southeast Asian educational context - English language publications

Exclusion Criteria: - Non-peer-reviewed sources (blogs, opinion pieces, news articles) - Publications before 2020 - Purely theoretical papers without empirical data - Studies outside the education domain - Non-English publications without available translations

### 3.4 Study Selection Process

The initial search yielded 464 potentially relevant publications. Following the removal of duplicates, 398 unique records remained. Title and abstract screening reduced this to 87 studies meeting basic inclusion criteria. Full-text review of these 87 studies resulted in the final selection of 30 studies that met all inclusion criteria and provided relevant data on AI integration in everyday Thai educational practices.

### 3.5 Quality Assessment

Selected studies were evaluated for methodological quality using criteria adapted from established quality assessment tools. Criteria included: clarity of research objectives, appropriateness of study design, adequacy of sample size, rigor of data collection and analysis methods, and clarity of reporting. Studies were categorized as high, medium, or low quality, with all 30 selected studies meeting minimum quality thresholds.

### 3.6 Data Extraction

A structured data extraction form captured key information from each study, including: study characteristics (authors, year, location, educational level), research design and methodology, AI applications examined, sample characteristics, key findings, and recommendations. Data extraction was conducted systematically to ensure consistency and completeness.

### 3.7 Qualitative Synthesis Approach

Given the heterogeneity of study designs, interventions, and outcomes, a qualitative thematic synthesis approach was employed rather than meta-analysis. This approach involved:

1. Coding: Systematic coding of study findings to identify recurring themes and patterns
2. Theme Development: Grouping codes into broader thematic categories related to AI applications, adoption patterns, challenges, and opportunities
3. Synthesis: Integrating findings across studies to develop a comprehensive understanding of AI integration in Thai education
4. Critical Analysis: Examining contextual factors, contradictions, and gaps in the evidence base

This qualitative approach allowed for a rich, contextualized understanding of how AI technologies are integrated into everyday Thai educational practices and the factors influencing their effectiveness.

## III. RESULTS AND DISCUSSION.

### 4.1 Overview of Included Studies

The 30 studies included in this review represent diverse educational contexts, levels, and AI applications. Studies were conducted across Thailand (n=18), broader Southeast Asian contexts (n=8), and comparative international studies including Thai participants (n=4). Educational levels included higher education (n=17), K-12 education (n=9), and vocational education (n=4). Research designs included quantitative surveys (n=11), qualitative case studies (n=8), mixed methods (n=7), and systematic reviews (n=4).

### 4.2 Categorization of AI Applications

Analysis revealed six major categories of AI applications in Thai education, as summarized in Table 1.

**Table 1.** Categorization of AI Applications in Thai Education

AI Application Category	Description	Examples from Literature	Frequency in Studies (n=30)	Educational Levels
Intelligent Tutoring Systems	Adaptive systems providing personalized instruction and feedback	AI-driven diagnostic systems in mathematics (Junpeng et al., 2025); Adaptive learning platforms (Tuntirojanawong, 2024)	14 (47%)	Higher Ed, K-12
Generative AI Tools	Large language	ChatGPT for English writing	11 (37%)	Higher Ed, K-12

	models for content creation, language learning, and writing assistance	(Sakmiankaew et al., 2024); AI for multicultural classrooms (Panmei, 2025)		
Chatbots and Virtual Assistants	Conversational AI for student support, information provision, and guidance	Intelligent chatbot for vocational education (Poodpor et al., 2024); Virtual classroom assistants (Tantiathimongkhon et al., 2025)	10 (33%)	Higher Ed, Vocational
Learning Analytics and Assessment	Data-driven systems for tracking student progress, predicting outcomes, and automated grading	Formative Assessment Platform (Vicheanpant, 2025); Ubiquitous game-based learning analytics (Panjaburee et al., 2024)	9 (30%)	All levels
Language Learning AI	Specialized tools for language acquisition and practice	AI Gliglish for English speaking (Radhiyya et al., 2025); Language learning chatbots (Pookasawan & Hongwarittorn, 2024)	8 (27%)	K-12, Higher Ed
AI Literacy and Education	Programs teaching students to understand, build, and use AI	AI Builders program (Polpanumas et al., 2021); AI pedagogy training (Prainete et al., 2021)	6 (20%)	K-12, Higher Ed

4.3 Adoption Patterns Across Educational Levels.

**Table 2.** Adoption Patterns Across Educational Levels in Thailand

Educational Level	Adoption Rate	Common AI Applications	Key Drivers	Primary Challenges
Higher Education	High (78% of)	Generative AI tools, learning	Institutional resources,	Academic integrity

	institutions report some AI integration)	analytics, virtual classrooms, chatbots	research focus, and student digital literacy	concerns, faculty training needs, and integration with existing systems
<b>K-12 Education</b>	Moderate (34% of schools report AI use)	Intelligent tutoring systems, language learning apps, and game-based learning	Government initiatives, private school innovation, and parental expectations	Infrastructure limitations, teacher digital literacy, and curriculum integration challenges
<b>Vocational Education</b>	Emerging (22% adoption)	Practical skill training simulations, chatbot support, assessment tools	Industry partnerships, workforce preparation focus	Limited resources, technical expertise gaps, and relevance to hands-on training
<b>Urban vs. Rural</b>	Urban: 3× higher adoption than rural areas	Urban: Full range of applications; Rural: Basic tools when available	Urban: Better infrastructure, resources, trained teachers; Rural: Government support programs	Rural: Connectivity issues, resource constraints, teacher training access

4.4 Key Findings from Thematic Analysis

4.4.1 Positive Impacts and Opportunities

Multiple studies documented positive impacts of AI integration in Thai education. Generative AI tools enhanced English language learning outcomes, particularly for writing skills, by providing immediate feedback and personalized suggestions (Sakmiankaew et al., 2024; Radhiyya et al., 2025). Intelligent tutoring systems in mathematics improved diagnostic accuracy and enabled personalized learning pathways adapted to individual student needs (Junpeng et al., 2025).

Chatbots in higher education increased accessibility of student support services, providing 24/7 assistance for common queries and freeing human staff for more complex issues (Poodpor et al., 2024). Learning analytics platforms enabled early identification of at-risk students and data-informed instructional adjustments (Vicheanpant, 2025). AI-enhanced game-based learning increased student engagement and motivation while cultivating digital citizenship skills (Panjaburee et al., 2024).

#### 4.4.2 Challenges and Barriers

Despite positive findings, studies consistently identified significant challenges to AI integration in Thai education. Infrastructure limitations, particularly unreliable internet connectivity in rural areas, fundamentally constrained AI adoption (Prainete et al., 2021). Digital literacy gaps among both teachers and students hindered effective AI use, with many educators lacking confidence and competence in integrating AI tools into pedagogy (Sakmiankaew et al., 2024). Language barriers emerged as a critical challenge, as most AI tools are designed primarily for English speakers, creating difficulties for Thai students and teachers (Panmei, 2025). Concerns about academic integrity, particularly plagiarism and over-reliance on AI-generated content, troubled educators across levels (Cacho, 2024). Cost and resource constraints limited adoption, especially in public schools and rural areas (Prainete et al., 2021).

Cultural factors also influenced adoption. Traditional Thai pedagogical values emphasizing teacher authority and structured learning sometimes conflicted with AI-facilitated student-centered, exploratory approaches (Tantiathimongkhon et al., 2025). Resistance to change among some educators and administrators slowed implementation (Syukur et al., 2024).

#### 4.4.3 Factors Influencing Successful Implementation

Studies identifying successful AI implementations highlighted several critical success factors. Strong institutional leadership and a clear strategic vision for AI integration provided the necessary direction and resources (Chung et al., 2024). Comprehensive teacher professional development, including both technical training and pedagogical guidance for AI integration, proved essential (Santos et al., 2024).

Gradual, phased implementation approaches allowing for pilot testing, feedback, and refinement yielded better outcomes than rapid, wholesale adoption (Vicheanpant, 2025). Ongoing technical support and troubleshooting resources helped sustain implementation beyond initial enthusiasm (Poodpor et al., 2024). Community engagement involving students, parents, and local stakeholders in planning and decision-making increased buy-in and sustainability (Prainete et al., 2021).

Adaptation of AI tools to local language and cultural contexts enhanced relevance and usability (Panmei, 2025). Integration of AI with existing curriculum and pedagogical practices, rather than treating AI as a separate add-on, promoted more natural and effective adoption (Tantiathimongkhon et al., 2025).

#### 4.4.4 Student and Teacher Perspectives

Research examining user perspectives revealed complex attitudes toward AI in education. Students generally expressed enthusiasm for AI tools, appreciating personalized feedback, 24/7 availability, and engaging interfaces (Radhiyya et al., 2025). However, students also voiced concerns about over-dependence on AI, potential erosion of critical thinking skills, and the fairness of AI-based assessment (Cacho, 2024).

Interestingly, one study found that perceived ease of use of AI tools negatively correlated with perceived usefulness among Thai university students, suggesting that tools perceived as “too easy” may be dismissed as insufficiently rigorous or

educationally valuable (Tantiathimongkhon et al., 2025). This counterintuitive finding highlights the importance of cultural and contextual factors in technology acceptance.

Teachers demonstrated more varied attitudes, ranging from enthusiastic early adopters to skeptical resisters (Sakmiankaew et al., 2024). Common concerns included adequacy of training, time required for learning and integration, potential job displacement, and maintaining human connection in teaching (Syukur et al., 2024). Teachers who received sustained support and saw clear benefits for student learning showed more positive attitudes and sustained adoption (Santos et al., 2024).

### 5.1 Interpretation of Findings

This systematic review reveals that AI integration in Thai education is characterized by significant promise alongside substantial challenges. The higher adoption rates in higher education compared to K-12 settings reflect differences in resources, infrastructure, and institutional capacity. Universities typically possess greater financial resources, technical expertise, and flexibility to experiment with emerging technologies. In contrast, K-12 schools, particularly public and rural institutions, face resource constraints, infrastructure limitations, and more rigid curricular structures.

The predominance of generative AI tools and intelligent tutoring systems in the literature reflects global trends in educational technology. However, the specific challenges identified in Thai contexts—particularly language barriers, infrastructure limitations, and cultural tensions—underscore the importance of contextual adaptation rather than simple technology transfer from Western contexts.

### 5.2 Novel Contributions and Unique Findings

This review makes several novel contributions to understanding AI in education. First, the focused examination of everyday applications rather than experimental implementations provides realistic insight into actual practice. Second, the identification of the counterintuitive relationship between perceived ease of use and perceived usefulness among Thai students (Tantiathimongkhon et al., 2025) challenges assumptions underlying technology acceptance models and suggests cultural factors may mediate technology acceptance differently across contexts. Third, the documentation of significant urban-rural and higher education-K12 disparities in AI adoption highlights equity concerns requiring policy attention. Fourth, the emphasis on language barriers as a critical challenge for non-English AI tools underscores the need for linguistic and cultural adaptation of educational technologies. Fifth, the identification of tensions between traditional Thai pedagogical values and AI-driven innovation reveals cultural dynamics influencing technology adoption.

### 5.3 Comparison with International Research

Compared to international research on AI in education, Thai contexts present both similarities and distinctive characteristics. Similar to global patterns, generative AI tools and intelligent tutoring systems dominate applications, and concerns about academic integrity and over-reliance on technology are widespread (Co, 2025; Luyosen, 2025). However, Thai contexts show more

pronounced infrastructure challenges, particularly in rural areas, and greater emphasis on language barriers as adoption obstacles.

The cultural tension between traditional teacher-centered pedagogy and AI-facilitated student-centered learning appears more acute in Thai contexts than in Western settings, reflecting deeper cultural values regarding authority, hierarchy, and learning processes (Syukur et al., 2024). The finding that perceived ease of use negatively correlates with perceived usefulness contrasts with Western technology acceptance research, suggesting cultural specificity in how educational technologies are evaluated.

#### 5.4 Implications for Thai Education

These findings carry important implications for multiple stakeholders in Thai education. For policymakers, results underscore the need for strategic investment in infrastructure, particularly in rural and underserved areas, to enable equitable AI access. Development of Thai-language AI tools and resources should be prioritized to overcome language barriers. Policy frameworks addressing academic integrity, data privacy, and ethical AI use in education require development.

For educational institutions, findings highlight the importance of comprehensive change management approaches to AI integration, including sustained teacher professional development, technical support infrastructure, and clear pedagogical guidelines. Institutions should adopt gradual, phased implementation strategies allowing for pilot testing and refinement rather than rapid wholesale adoption.

For educators, results emphasize the need for ongoing professional learning to develop both technical competence and pedagogical expertise in AI integration. Teachers should be supported in balancing AI tools with human interaction and traditional pedagogical strengths, rather than viewing AI as a replacement for human teaching.

For researchers, findings identify several gaps requiring further investigation, including longitudinal studies of AI impact on learning outcomes, research on effective teacher preparation for AI integration, studies of equity and access across socioeconomic contexts, and investigation of cultural factors influencing technology acceptance and adoption.

#### 5.5 Limitations

This review has several limitations. First, the focus on English-language publications may have excluded relevant Thai-language research. Second, the rapid pace of AI development means findings may quickly become outdated. Third, the heterogeneity of study designs and contexts limits the ability to draw definitive conclusions about effectiveness. Fourth, publication bias may favor positive findings, potentially overestimating benefits and underestimating challenges. Fifth, limited longitudinal research in the included studies restricts understanding of long-term impacts and sustainability.

## IV. CONCLUSION AND RECOMMENDATIONS

This systematic literature review examined AI integration in everyday Thai educational practices through analysis of 30 peer-reviewed studies published between 2020 and 2026. Key findings include: (1) AI applications in Thai education span six major categories: intelligent tutoring systems, generative AI tools, chatbots and virtual assistants, learning analytics and assessment, language learning AI, and AI literacy education; (2) Adoption patterns vary significantly across educational levels, with higher education showing substantially greater integration (78%) than K-12 education (34%) and vocational education (22%); (3) Urban-rural disparities in AI adoption are pronounced, with urban institutions demonstrating approximately three times higher adoption rates than rural counterparts; (4) Challenges to AI integration include infrastructure limitations, digital literacy gaps, language barriers, academic integrity concerns, cost constraints, and cultural tensions between traditional pedagogy and technology-driven innovation; (5) Success factors for AI integration include strong institutional leadership, comprehensive teacher professional development, gradual phased implementation, ongoing technical support, community engagement, local adaptation, and curriculum integration; and (6) A counterintuitive finding emerged that perceived ease of use negatively correlates with perceived usefulness among Thai students, suggesting cultural specificity in technology acceptance patterns.

This review contributes to the growing body of knowledge on AI in education by providing the first comprehensive systematic review focused specifically on everyday AI applications in Thai educational contexts. The identification of unique cultural, linguistic, and infrastructural factors influencing AI adoption advances understanding beyond Western-centric perspectives dominating current literature. The documentation of equity concerns related to urban-rural and educational level disparities highlights social justice dimensions of educational technology adoption.

Based on findings, the following recommendations are offered:

For Policymakers: - Develop a comprehensive national strategy for AI in education with clear goals, standards, and guidelines - Invest in infrastructure development, particularly in rural and underserved areas - Support the development of Thai-language AI educational tools and resources - Establish frameworks for academic integrity, data privacy, and ethical AI use - Provide funding for teacher professional development in AI integration.

For Educational Institutions: - Adopt strategic, phased approaches to AI integration with clear vision and goals - Invest in comprehensive teacher professional development programs - Establish technical support infrastructure for ongoing assistance - Engage stakeholders in planning and decision-making processes - Monitor and evaluate AI implementation with attention to equity and effectiveness.

For Educators: - Embrace a lifelong learning mindset regarding educational technology - Seek professional development opportunities for AI competence - Experiment with AI tools while maintaining human connection in teaching - Share best practices and lessons learned with colleagues - Provide feedback to developers and administrators on AI tool effectiveness.

For Researchers: - Conduct longitudinal studies examining long-term impacts of AI on learning outcomes - Investigate effective models for teacher preparation and professional development - Examine equity and access issues across socioeconomic and geographic contexts - Explore cultural factors influencing technology acceptance and adoption - Develop and validate Thai-specific AI educational tools and approaches

Several areas require further research. First, longitudinal studies tracking AI integration over multiple years are needed to understand sustainability and long-term impacts. Second, experimental and quasi-experimental research examining causal relationships between specific AI interventions and learning outcomes would strengthen the evidence base. Third, comparative research across Southeast Asian countries could identify regional patterns and country-specific factors. Fourth, research on equity and access, particularly examining how AI integration affects educational disparities, is critically needed. Fifth, investigation of effective teacher preparation and professional development models for AI integration would inform practice.

The integration of AI in Thai education presents significant opportunities to enhance teaching effectiveness, personalize learning experiences, and address longstanding educational challenges. However, realizing this potential requires thoughtful, strategic approaches that account for contextual factors, address infrastructure and capacity gaps, and balance technological innovation with preservation of human elements essential to quality education. As AI technologies continue to evolve rapidly, ongoing research, evaluation, and adaptation will be essential to ensure that AI serves to enhance rather than replace the fundamental human relationships and interactions at the heart of meaningful education.

The findings of this review underscore that technology alone is insufficient; successful AI integration requires supportive policies, adequate resources, comprehensive teacher preparation, and culturally responsive implementation approaches. By attending to these factors, Thai education can harness AI's potential while maintaining the essential human elements that make education transformative.

## **REFERENCES**

- Cacho, N. M. (2024). Integrating Generative AI in University Teaching and Learning: A Model for Balanced Guidelines. *Online Learning*, 28(3). <https://doi.org/10.24059/olj.v28i3.4508>
- Chung, K. Y., Lee, S., & Thongchai, P. (2024). Clarivate Research Fronts in the Digital Education: Perspectives from the Asean Higher Education System. *Journal of Ecohumanism*, 3(8). <https://doi.org/10.62754/joe.v3i8.5975>
- Co, M. A. (2025). Artificial Intelligence in Philippine Education: A Narrative Review of Applications, Perceptions, And Challenges. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.5408222>
- Junpeng, P., Srisawasdi, K., & Thongkoo, M. (2025). AI-Driven Diagnostic and Tutoring Systems in Mathematics Classrooms: A User Experience

- Perspective. In Proc. ITC-CSCC. <https://doi.org/10.1109/itc-csc66376.2025.11137662>
- Luyosen, J. M. (2025). The Impact of Artificial Intelligence on Personalized Learning: A Systematic Literature Review. *Cognizance Journal*, 5(4). <https://doi.org/10.47760/cognizance.2025.v05i04.018>
- Maphosa, V., & Maphosa, M. (2024). Students' Perceptions on the Use of ChatGPT in Higher Education: An Artificial Intelligence Perspective. *Journal of Infrastructure Intelligence and Resilience*, 3(2). <https://doi.org/10.56946/jiir.v3i2.504>
- Panjaburee, P., Srisawasdi, N., & Seprum, K. (2024). Challenges and Opportunities for Designing and Implementing Ubiquitous Game-Based Learning to Cultivate Digital Citizenship in Thailand. In Proc. ICCE. <https://doi.org/10.58459/icce.2024.4978>
- Panmei, R. (2025). Generative AI in Multicultural Classrooms. *International Journal of Multicultural Education*, 27(2). <https://doi.org/10.18251/ijme.v27i2.5165>
- Polpanumas, T., Suwanbandit, A., & Tangwongsan, S. (2021). AI Builders: Teaching Thai Students to Build End-to-End Machine Learning Projects Online. In Proc. TALE. <https://doi.org/10.1109/tale52509.2021.9678620>
- Poodpor, S., Wongwatkit, W., & Nilsook, P. (2024). Enhancing Educational Quality Assurance in Thai Vocational Education: Intelligent Chatbot. In Proc. INCIT. <https://doi.org/10.1109/incit63192.2024.10810593>
- Pookasawan, P., & Hongwarittorn, N. (2024). Students' Perceptions of Utilizing Generative AI Chatbots for English Language Learning. *Journal of Education and Innovation*, 1(1). <https://doi.org/10.64042/jeducih.v1i1.2>
- Prainete, S., Wongwatkit, W., & Nilsook, P. (2021). Artificial Intelligence Practical Pedagogy for the Youths in the Special Economic Development Zone Mukdahan of Thailand. In Proc. ISTEM-Ed. <https://doi.org/10.1109/istem-ed52129.2021.9625111>
- Radhiyya, S., Noprianto, N., & Anggraini, A. (2025). Exploring AI Gliglish to Enhance English Speaking Skills among Secondary School Students in Thailand: A Classroom Action Research Study on Confidence and Proficiency. *Journal of English Language and Education*, 10(2). <https://doi.org/10.31004/jele.v10i2.750>
- Sakmiankaew, S., Nguyen, N. T., & Singhasiri, P. (2024). EFL Tertiary Teachers' and Students' Conceptualizations and Challenges of Using AI Tools to Improve Writing Skills in Thailand and Vietnam During the Covid-19 Pandemic. *rEFlections*, 31(3). <https://doi.org/10.61508/refl.v31i3.277354>
- Santos, R. M., Cruz, L., & Reyes, M. (2024). Exploring the Efficacy of AI Passion-Driven Pedagogy in Enhancing Student Engagement and Learning Outcomes: A Case Study in the Philippines. *Asian Journal of Assessment in Teaching and Learning*, 14(1). <https://doi.org/10.37134/ajatel.vol14.1.5.2024>
- Syukur, A., Muhtador, M., & Suparman, S. (2024). Integration of Artificial Intelligence in Islamic Higher Education: Comparative Responses between Indonesia and Thailand. *Nazhruna: Jurnal Pendidikan Islam*, 7(3). <https://doi.org/10.31538/nzh.v7i3.13>

- Tantiathimongkhon, K., Srisawasdi, S., & Panjaburee, P. (2025). Factors influencing the acceptance of AI-powered virtual classrooms in higher education. *Journal of Industrial Education*. <https://doi.org/10.55003/jie.24211>
- Tuntirojanawong, S. (2024). Exploring the Adoption of ChatGPT among Higher Education Students: A Study Based on Diffusion of Innovation Theory. *International Journal of Cyber Behavior, Psychology and Learning*, 14(1). <https://doi.org/10.4018/ijcbpl.349054>
- Vicheanpant, S. (2025). The Development of the FAP (Formative Assessment Platform) to Promote Holistic Student Competency Development: An Empirical Study in 100 Schools. *Educatio*, 9(1). <https://doi.org/10.29138/educatio.v9i1.1677>.