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Examining the Relationship between AI Competency and AI Awareness among Graduate-Level Instructors in Private Higher Education Institutions in Thailand

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Abstract

Background and Aim: Grounded in the Technology Acceptance Model (TAM) and Technological Pedagogical Content Knowledge (TPACK) framework, this study investigates the relationship between artificial intelligence (AI) competency and AI awareness among graduate-level instructors in Thailand's private higher education sector. The objectives were to: (1) examine overall levels of AI competency; (2) compare competency and awareness across academic disciplines, positions, and faculties; and (3) analyze the relationship between AI competency and awareness in the context of teaching management. The study addresses the growing need for educators to integrate AI tools ethically and effectively in instruction, research, and academic administration.

Materials and Methods: A total of 400 graduate-level instructors from five private universities, Shinawatra University, Rangsit University, Sripatum University, Bangkok University, and Mahanakorn University of Technology, were selected through purposive sampling. Data were collected between January and March 2025 using a validated questionnaire (Cronbach's $\alpha = .902$) measuring AI competency and awareness of AI utilization. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to assess general trends, while inferential analyses (ANOVA, Pearson's correlation, and t-tests) tested group differences and relationships.

Results: Findings indicated a moderate overall level of AI competency and awareness, with higher proficiency among instructors in STEM disciplines and technology-oriented faculties compared to those in the humanities and social sciences. Significant differences were observed by academic position, with lecturers demonstrating higher engagement in AI-integrated practices than senior professors. A strong positive correlation was found between AI competency and AI awareness ($r = .928$, $p < .001$), confirming that instructors with stronger technical, instructional design, and ethical AI skills also exhibited greater awareness of AI's pedagogical and societal implications.

Conclusion: The study underscores the need for targeted faculty development programs, AI-integrated professional learning, and institutional strategies to enhance instructors' digital and ethical readiness. Strengthening AI competency not only fosters responsible AI awareness but also supports teaching innovation, faculty performance, and digital transformation within Thailand's private higher education sector.

Keywords: Artificial Intelligence Literacy; AI Awareness; Teaching Management; Faculty Development; Private Universities; Thailand.

Introduction

Artificial Intelligence (AI) is rapidly transforming global education systems, reshaping how knowledge is created, delivered, and managed (Haruthaithanasan et al., 2024; Baashar et al., 2022). In higher education, AI applications ranging from personalized learning environments and intelligent tutoring systems to predictive analytics and automated assessments are redefining teaching and administrative processes (Jinlei et al., 2024). These technological shifts present both opportunities and challenges for educators. On one hand, AI can enhance instructional effectiveness and research productivity; on the other, its responsible and meaningful integration requires instructors to possess adequate AI literacy

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and ethical awareness (Jing et al., 2024; Good, 1973). Thus, the capacity of instructors to use AI technologies appropriately has become a critical determinant of institutional success and educational innovation. Within Southeast Asia, Thailand's higher education sector has actively embraced digital transformation to enhance competitiveness and academic quality. In particular, private universities play a leading role in adopting innovative teaching technologies, often serving as testing grounds for educational modernization (Jing et l, 2024). These institutions host graduate programs that prepare professionals and researchers central to Thailand's knowledge-based economy (Tamanna & Sinha, 2024). However, despite the growing presence of AI tools in education, there remains a limited understanding of how graduate-level instructors in Thai private universities perceive, utilize, and reflect upon AI in their academic practice (TianShu & Worapongpat, 2023). Addressing this gap is essential, as instructors' competency and awareness influence not only their personal teaching management but also the broader institutional capacity for innovation and responsible AI adoption.

To conceptualize this study, two theoretical frameworks are integrated: the Technology Acceptance Model (TAM) and the Technological Pedagogical Content Knowledge (TPACK) framework. TAM explains how users' perceived usefulness and ease of use shape their acceptance of technological innovations (Worapongpat, 2024a). Applied to AI in education, it suggests that instructors with higher AI literacy are more likely to perceive AI as beneficial, thus developing stronger awareness and willingness to apply it in teaching management (Worapongpat, 2024b). TPACK, on the other hand, emphasizes the intersection of technological, pedagogical, and content knowledge required for effective technology integration. From this perspective, AI literacy represents not only technical skills but also the pedagogical competence to adapt AI for instructional design, assessment, and ethical decision-making. Anchored in these frameworks, this study posits that instructors' AI competency—encompassing technical, instructional, analytical, adaptive, and ethical dimensions—directly influences their AI awareness, including understanding of purpose, ethics, risks, continuous learning, and the impact of AI on learning processes (Worapongpat, 2025a). The Technology Acceptance Model helps explain behavioral tendencies toward AI adoption, while TPACK provides a pedagogical foundation linking technical skills to reflective teaching practice. Together, they offer a robust theoretical basis for exploring the relationship between AI skills and awareness in educational contexts.

The Thai higher education context presents both opportunities and challenges for AI integration. National policy initiatives, such as Thailand's Digital Economy and Society Development Plan and Higher Education Strategy 2037, emphasize the development of digital competencies and the integration of AI-driven innovation in academic institutions. Nevertheless, disparities persist between public and private universities in terms of technological infrastructure, faculty readiness, and institutional support mechanisms. Private universities, despite their agility, often face resource constraints and uneven professional development structures. Consequently, there is an urgent need to identify the specific competencies that underpin AI awareness among instructors to guide policy, training, and strategic planning. Therefore, this study explores the relationship between AI competency and AI awareness among graduate-level instructors in Thailand's private universities. It seeks to determine which dimensions of AI skills most strongly correlate with awareness of AI's educational potential, ethical implications, and practical limitations. By examining these factors, the study contributes to both theoretical advancements, extending TAM and TPACK into the domain of AI in higher education, and practical application, providing evidence-based insights for teaching management, faculty development, and institutional digital transformation. Ultimately, enhancing instructors' AI literacy and awareness will strengthen the capacity of Thai higher education to integrate AI responsibly and effectively in pursuit of educational innovation and national digital readiness.

Objectives

1. To study the level of artificial intelligence (AI) literacy of instructors and their awareness of AI utilization in private universities in Thailand.
2. To compare the AI literacy of instructors and their awareness of AI utilization in private universities in Thailand, classified by academic discipline, academic position, and faculty offering courses.

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3. To examine the relationship between the AI literacy of instructors and their awareness of AI utilization among instructors in private universities.

Literature review

Technical Skills.

These refer to instructors' ability to operate AI tools and platforms such as AI-powered learning management systems or data analysis software. Technical competence forms the foundation of AI literacy.

Instructional Design Skills.

This involves integrating AI into curriculum and pedagogy—designing adaptive learning activities and AI-based assessments (Worapongpat, 2025b). The TPACK framework highlights that effective AI use requires balanced integration of technological, pedagogical, and content knowledge.

Ethical and Safety Skills.

This encompasses understanding privacy, bias, and responsible AI use (Worapongpat & Arunyakanon, 2025), aligning with the global emphasis on ethical and human-centered AI in education.

Analysis and Evaluation Skills.

This refers to the ability to interpret AI-generated data to inform teaching decisions (Worapongpat, Cai, & Wongsawad, 2024). According to the Technology Acceptance Model (TAM), the perceived usefulness of AI analytics influences adoption and teaching management.

Development and Adaptation Skills.

This represents instructors' readiness to continuously learn and adapt to emerging AI tools (Worapongpat & Chayboonkrong, 2024), consistent with Reflective Practice emphasizing ongoing professional learning.

Instructor's AI Awareness for Skill Enhancement

Purpose and Goals of AI in Education.

This reflects an understanding of how AI supports learning objectives and pedagogical improvement (Worapongpat & Junsuk, 2024).

Ethics and Responsibility.

Awareness of fairness, transparency, and accountability when using AI in education (Worapongpat et al, 2024).

Limitations and Risks of AI.

Recognition of AI's constraints and risks, such as data privacy issues, over-reliance, or algorithmic opacity (Xunan & Worapongpat, 2023).

Skill Development.

Awareness of the need for ongoing professional learning to keep pace with AI advancements (Ye, Viphooparakhot, & Howattanakul, 2024).

Impact on Learning Processes.

Understanding how AI reshapes learning theories, teaching methods, and disciplinary knowledge

Theoretical Integration

Overall, AI skills provide the operational base for developing AI awareness, which in turn enhances teaching management.

TAM explains how perceived usefulness and ease of use influence AI adoption.

TPACK situates AI integration at the intersection of pedagogy, content, and technology.

Social Cognitive Theory and Reflective Practice describe awareness as a reflective, self-regulated professional process.

Although prior studies conceptualize AI literacy globally, there remains limited empirical evidence in Southeast Asian contexts, particularly among instructors in Thai private universities, where institutional and technological conditions differ.

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Conceptual Framework

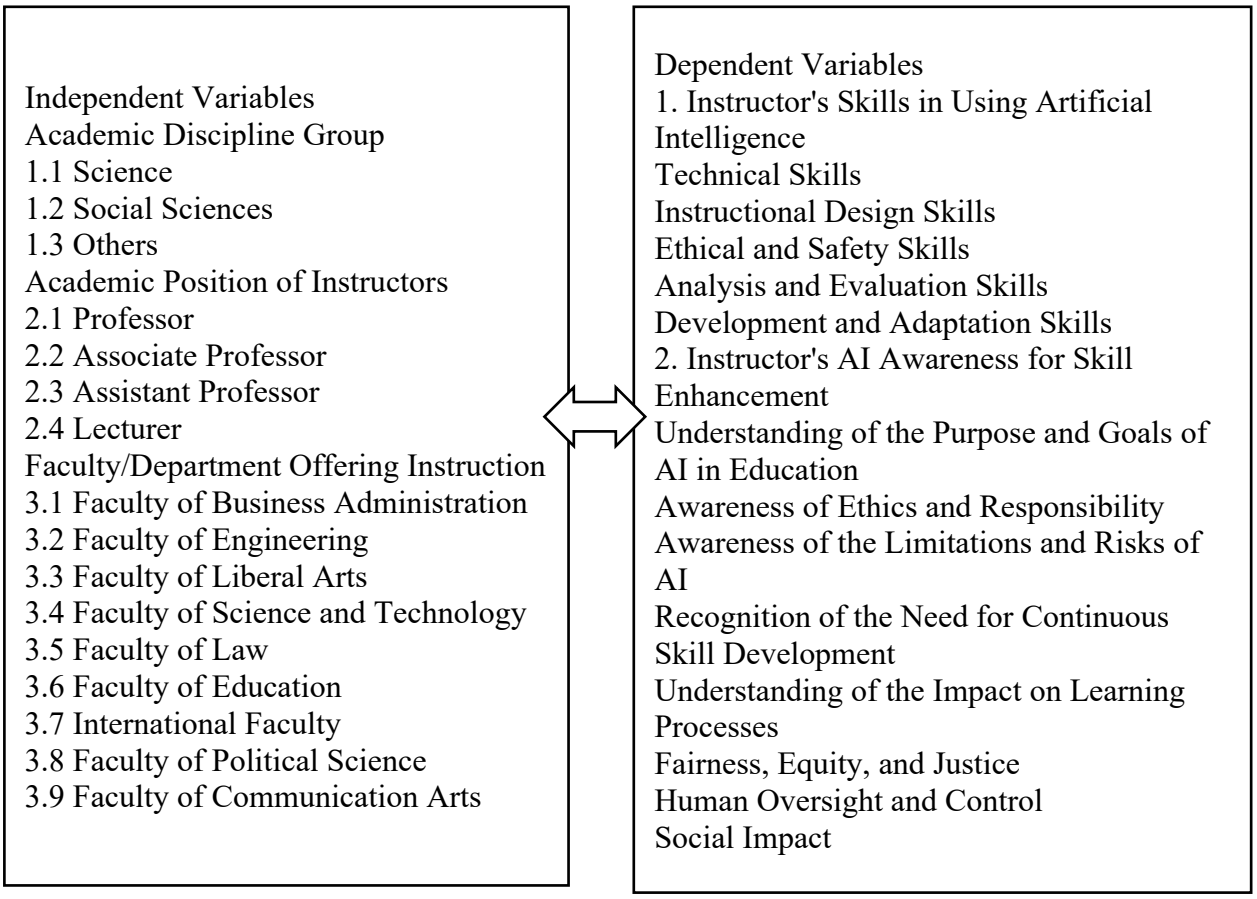

Figure 1. Conceptual framework of the research.

Methodology

Research Design

This study employed a quantitative correlational research design to examine the relationship between artificial intelligence (AI) competency and AI awareness among graduate-level instructors in private higher education institutions in Thailand. The design allowed for both descriptive analysis of AI literacy levels and inferential testing of the relationships between variables across academic disciplines, positions, and faculties.

Population and Sample

The target population comprised graduate-level instructors employed in private universities across Thailand. These instructors were selected because of their critical role in shaping postgraduate research, supervising theses, and incorporating emerging technologies into advanced learning environments.

A purposive sampling technique was used to ensure that participants met specific inclusion criteria:

Currently teaching at the graduate level (master's or doctoral programs) in a private university. Having at least one year of teaching experience in higher education.

Being actively involved in research or instructional technology integration.

Five private universities were included to represent institutional diversity and geographical distribution: Shinawatra University, Rangsit University, Sripatum University, Bangkok University, and Mahanakorn University of Technology. These universities were selected due to their recognized emphasis on innovation, digital transformation, and graduate-level education.

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The final sample consisted of 400 instructors, which met the minimum recommended size for correlational and factor analytic studies, ensuring adequate statistical power (Krejcie & Morgan, 1970).
Research Instrument

Data were collected using a structured questionnaire designed to measure two core constructs:
AI Competency (AI Literacy) assesses instructors' technical, instructional, analytical, ethical, and adaptive skills in using AI.

AI Awareness evaluates instructors' understanding of AI's educational purposes, ethical implications, risks, continuous learning needs, and impacts on teaching and learning processes.

The instrument was developed based on a synthesis of prior literature and theoretical frameworks, including the Technology Acceptance Model (TAM) and Technological Pedagogical Content Knowledge (TPACK), as well as recent empirical studies Items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), which allowed for nuanced responses regarding attitudes, skills, and awareness.

Instrument Validation and Reliability

The questionnaire underwent a rigorous multi-stage validation process:
Content validity was established through expert review by five specialists in educational technology and AI integration from Thai universities. Each item's relevance and clarity were assessed using the Item-Objective Congruence (IOC) index, with all items achieving IOC values between 0.80 and 1.00, indicating strong agreement.

Construct validity was confirmed through exploratory factor analysis (EFA) using Principal Component Analysis with Varimax rotation. Factors loading above 0.50 were retained, confirming the alignment of items with their intended constructs.

Reliability testing yielded a Cronbach's alpha coefficient of .902, indicating excellent internal consistency across all instrument components.

Data Collection Procedure

Data were collected between January and March 2025. After obtaining institutional permissions, questionnaires were distributed both electronically and in printed form. Respondents were informed of the study's purpose, assured of confidentiality, and invited to participate voluntarily. Completed responses were screened for completeness before analysis, and missing data were handled using mean imputation where appropriate.

Data Analysis

Data analysis was conducted using SPSS version 29. The following statistical techniques were employed:

Descriptive statistics (frequency, percentage, mean, and standard deviation) to summarize AI competency and awareness levels.

Inferential statistics to test relationships and differences:

T-tests and one-way ANOVA were applied to compare AI competency and awareness across demographic and institutional variables (discipline, position, faculty)

Pearson's correlation coefficient (r) was used to assess the strength and direction of the relationship between AI competency and AI awareness.

Multiple regression analysis was conducted to determine the predictive effect of AI competency dimensions on AI awareness.

Assumption checks for normality, linearity, homoscedasticity, and multicollinearity were performed before regression to ensure model validity.

For future model testing and theoretical validation, the study design also supports the potential use of Structural Equation Modeling (SEM) in subsequent research phases.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of Shinawatra University before data collection. All participants provided informed consent, were assured of anonymity, and were informed that participation was voluntary with the option to withdraw at any time. Data were stored securely and used solely for research purposes in accordance with Thailand's Personal Data Protection Act.

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Summary

This methodology ensured the validity, reliability, and ethical integrity of the study. By focusing on graduate-level instructors from diverse private universities and using theoretically grounded, empirically validated instruments, the study provides a robust foundation for understanding the relationship between AI competency and awareness in Thailand's higher education context.

Results

Table 1 Mean, Standard Deviation, and Level of Artificial Intelligence Literacy among Instructors (n = 400)

Dimension	μ	σ	Interpretation
Technical Skills	3.98	0.44	High
Instructional Design Skills	3.74	0.40	High
Ethical and Safety Skills	4.14	0.57	High
Analysis and Evaluation Skills	4.19	0.54	High
Development and Adaptability Skills	4.02	0.49	High
Overall	4.01	0.43	High

Note: μ = Mean, σ = Standard Deviation.

Overall, instructors demonstrated a high level of AI literacy (μ = 4.01, σ = 0.43). The highest mean was observed in Analysis and Evaluation Skills (μ = 4.19), indicating a strong capacity to analyze and interpret AI-driven data for pedagogical decisions. The lowest mean was in Instructional Design Skills (μ = 3.74), suggesting that while instructors are capable users of AI, they are less confident in *designing* AI-integrated learning experiences.

Table 2 *Mean, Standard Deviation, and Level of Awareness Regarding AI Utilization (n = 400)*

Dimension	μ	σ	Awareness Level
Purpose and Goals of AI in Education	4.11	0.64	High
Ethics and Responsibility	4.62	0.51	Highest
Limitations and Risks of AI	3.96	0.58	High
Continuous Skill Development	4.08	0.61	High
Impact on Learning Processes	4.19	0.74	High
Fairness, Equity, and Justice	3.67	0.55	High
Human Oversight and Control	4.33	0.65	High
Social Impact	4.05	0.68	High
Overall	4.12	0.62	High

Instructors' overall awareness of AI utilization was high (μ = 4.12, σ = 0.62). The highest mean appeared in Ethics and Responsibility (μ = 4.62), indicating strong mindfulness of ethical implications—reinforcing the results of Worapongpat et al (2024). Conversely, Fairness, Equity, and Justice (μ = 3.67) scored lowest, suggesting a potential gap in instructors' understanding of algorithmic fairness and inclusive AI practices.

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Table 3: Comparison of Instructors' Ability to Use Artificial Intelligence and Their Awareness of Using Artificial Intelligence in Private Universities in Thailand by Field of Study ($n = 400$)

Field of Study	Instructors' AI Usage Skills				Instructors' AI Awareness for Skill Enhancement			
	μ	σ	Skill Level	Rank	μ	σ	Awareness level	Rank
Science & Technology	4.16	0.58	High	2	4.16	0.54	High	2
Social Sciences	4.07	0.41	High	3	4.01	0.47	High	3
Others	4.11	0.40	High	1	4.17	0.39	High	1
Overall	4.11	0.46	High		4.11	0.47	High	

All fields demonstrated high levels ($p > .05$, ANOVA = n.s.), suggesting no statistically significant difference in AI literacy or awareness across disciplinary groups. Instructors from "Other" fields (e.g., interdisciplinary studies) had slightly higher means ($\mu = 4.11$, $\sigma = 0.40$), possibly due to more flexible integration of AI tools in diverse curricula.

Table 4: Comparison of Instructors' Artificial Intelligence Competency and Awareness of Artificial Intelligence Use in Private Universities in Thailand, Categorized by Academic Position *(n = 400)*

Academic Position	Instructors' AI Skills				Instructors' AI Awareness for Skill Enhancement			
	μ	σ	Skill Level	Rank	μ	σ	Awareness level	Rank
Professor	2.52	0.41	Low	4	2.74	0.34	Moderate	4
Associate Professor	3.61	0.21	Moderate	3	3.68	0.21	High	3
Assistant Professor	4.21	0.38	High	2	4.21	0.35	High	1
Lecturer	4.32	0.49	High	1	4.25	0.51	High	2
Overall	3.66	0.37	High		3.72	0.35	High	

Table 4 compares results by academic position. A one-way ANOVA showed a statistically significant difference in AI skills ($F (3, 396) = 45.27$, $p < .001$, $\eta^2 = .26$) and AI awareness ($F (3, 396) = 39.18$, $p < .001$, $\eta^2 = .23$). Post-hoc analysis (Tukey HSD) indicated that professors scored significantly lower than other groups ($\mu = 2.52$, $\sigma = 0.41$), whereas lecturers scored highest ($\mu = 4.32$, $\sigma = 0.49$).

Table 5: Comparison of Instructors' Artificial Intelligence Competency and Awareness of Artificial Intelligence Use in Private Universities in Thailand, Categorized by Faculty *(n= 400)*

Faculty	Instructors' AI Skills				Instructors' AI Awareness for Skill Enhancement			
	μ	σ	Skill Level	Rank	μ	σ	Awareness level	Rank
Business Administration	3.93	0.69	High	10	3.93	0.63	High	9
Engineering	3.94	0.71	High	9	3.95	0.55	High	8
Liberal Arts	4.02	0.61	High	8	4.04	0.52	High	7
Science and Technology	4.03	0.47	High	7	4.11	0.47	High	6
Law	4.29	0.36	High	4	4.27	0.21	High	3
Education	4.25	0.37	High	5	4.39	0.32	High	2

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Faculty	Instructors' AI Skills				Instructors' AI Awareness for Skill Enhancement			
	μ	σ	Skill Level	Rank	μ	σ	Awareness level	Rank
International College	4.32	0.34	High	3	4.27	0.35	High	3
Political Science	4.18	0.51	High	6	4.15	0.42	High	5
Communication Arts	4.37	0.35	High	2	4.24	0.37	High	4
Medicine	4.41	0.11	High	1	4.46	0.19	High	1
	4.17	0.45	High		4.18	0.40	High	

Table 5 reveals no statistically significant differences among faculties (F (9, 390) = 1.68, p = .09), though the Faculty of Medicine and Communication Arts showed the highest mean scores (μ = 4.41 and 4.37, respectively). This reflects how fields with high technological exposure and rapid innovation cycles are often early adopters of AI-enhanced teaching tools.

Table 6 Correlation Between Instructors' AI Competency and Awareness (n = 400)

Teachers' skills in using artificial intelligence	Teachers' awareness of using artificial intelligence to enhance skills								Over all	Level of Correlation
	Understanding the Purpose and Goals of AI in Education	Awareness of Ethics and Responsibility	Awareness of the Limitations and Risks of AI	Recognition of the Need for Continuous Skill Development	Understanding of the Impact on Learning Processes	Justice, equality, fairness	Human control and monitoring	Social and academic impact		
Technical skills	.551**	.446**	.563**	.699**	.571**	.288**	.633**	.499**	.717**	High
Instructional Design Skills	.634**	.472	.586*	.614**	.626**	.335**	.622**	.548**	.731**	High
Ethical and safety skills	.771**	.537**	.721**	.785**	.767**	.394**	.741**	.629**	.880**	Very High
Analytical and evaluative skills	.784**	.562**	.685**	.739**	.785**	.388**	.761**	.688**	.890**	Very High
Development and adaptation skills	.716**	.532**	.698**	.741**	.772**	.398**	.763**	.701**	.889**	Very High
Overall	.789**	.565**	.744**	.811**	.788**	.413**	.794**	.677**	.928**	Very High

** Statistically significant at the .001 level.

Overall correlation between instructors' AI competency and mindfulness in AI usage was very high (r = .928, p < .001), indicating a strong positive association. However, this should be interpreted cautiously due to potential conceptual overlap between constructs (e.g., ethical skills appearing in both competency and awareness dimensions).

Among subdimensions, the highest correlations were found in:

Analytical and Evaluative Skills (r = .890, p < .001)

Ethical and Safety Skills (r = .880, p < .001)

Development and Adaptation Skills (r = .889, p < .001)

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These results suggest that instructors with stronger evaluative and adaptive capacities are also more mindful and ethically aware of AI's impact, aligning with Worapongpat (2025), who emphasized the interplay between cognitive and ethical dimensions of AI literacy.

Effect sizes (Cohen's $r^2 \approx .86$) confirm a large effect, suggesting that strengthening AI competency directly enhances instructors' ethical awareness and reflective engagement with AI technologies.

Interpretive Summary

The findings collectively indicate that:

Instructors in Thai private universities demonstrate high AI literacy and awareness, particularly in ethical, analytical, and adaptive dimensions.

Ethical awareness emerges as the strongest aspect of AI mindfulness, reinforcing that responsible AI use is becoming a professional norm.

Significant positional differences exist, with lecturers outperforming senior academics—highlighting the need for tailored professional development.

The strong correlation ($r = .928$) between AI skills and awareness supports the theoretical model of reflective AI literacy, in which technical competence and ethical mindfulness are mutually reinforcing (Worapongpat, 2025).

These findings provide empirical support for integrating AI literacy frameworks into faculty development and institutional AI policies, ensuring ethical, sustainable, and pedagogically effective AI adoption in Thai higher education.

Discussion

Research Objective 1: To Examine the Level of AI Usage Competency and AI Awareness among Instructors in Private Universities in Thailand. The results revealed that instructors across private universities in Thailand demonstrated high levels of AI usage competency and AI awareness across all dimensions. The highest mean was observed in Analysis and Evaluation Skills and Ethical and Safety Skills, indicating that instructors are not only capable of utilizing AI tools effectively but are also mindful of their ethical implications. These findings align with Worapongpat, Dookarn, Boonmee, Thavisin, and Chanphong (2025), who reported that AI-related mindfulness and awareness have reached a mature stage among educators and learners in Thai private universities. From a Technology Acceptance Model (TAM) perspective, Baashar et al (2022). These results suggest that instructors perceived usefulness and perceived ease of use of AI tools are positively influencing their overall AI literacy. High competency across technical and evaluative dimensions reflects instructors' growing belief that AI enhances teaching efficiency and supports student learning outcomes. Furthermore, their strong ethical awareness indicates a deepening behavioral intention to use AI responsibly, which supports the attitude–intention–behavior linkage central to TAM. Additionally, the results support Diffusion of Innovation Theory, wherein early adopters of educational technology often emerge from institutions that prioritize digital transformation. In this study, private universities—being more agile and market-responsive—provide conducive environments for innovation diffusion, which explains the high overall competency levels. Consistent with Cantú-Ortiz et al (2020). Mindfulness in AI use correlates with reflective and ethical practice. This reinforces the idea that AI awareness is not only cognitive (knowledge of tools) but also metacognitive—instructors actively reflect on how and why AI should be applied in pedagogically and ethically sound ways.

Research Objective 2: To Compare AI Usage Competency and AI Awareness across Academic Disciplines, Positions, and Faculties. The comparative analysis revealed that instructors from the "Other" category (interdisciplinary or applied fields) and those from medicine and communication arts faculties achieved the highest levels of AI competency and awareness. These areas often rely on applied technologies, simulation, and data analytics, which may foster greater exposure to AI tools. Conversely, business and engineering faculties—despite being technology-oriented—showed slightly lower means, possibly due to a focus on research and administration rather than teaching applications. In terms of academic position, lecturers and assistant professors exhibited significantly higher AI skills and awareness than senior faculty members. This generational trend reflects differences in digital self-

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efficacy and motivation for professional development, consistent with Self-Determination Theory Dongling & Worapongpat, 2023). Ziyia, J., Wongkumchai, T., Soprakana, C., & Worapongpat, N. (2024). Younger instructors often experience higher intrinsic motivation to explore new technologies due to opportunities for career growth and self-improvement. Professors, on the other hand, may experience technological resistance or lower perceived relevance, consistent with findings by Zhou, W., Worapongpat, N., & Liuyue, Z. (2024). Haruthaithanasan et al (2024). on the digital competency gap in Thai academia. From a TPACK (Technological Pedagogical Content Knowledge) perspective, lecturers' high competency indicates effective integration of technological and pedagogical knowledge domains. Their ability to adapt AI tools for instructional design and assessment supports the idea that AI literacy enhances TPACK fluency, enabling instructors to make more data-informed and personalized teaching decisions. Overall, these results suggest that faculty development strategies should prioritize inclusive AI capacity-building programs, especially for senior academics, emphasizing hands-on practice, ethical reflection, and interdisciplinary collaboration.

Research Objective 3: To Examine the Relationship between AI Usage Competency and AI Awareness among Instructors. The correlation analysis ($r = .928$, $p < .001$) revealed a very strong positive relationship between instructors' AI competency and their awareness of AI utilization. This indicates that higher AI skills are closely linked with greater mindfulness and ethical consideration in using AI technologies. While the correlation is strong, conceptual overlap between constructs—particularly between ethical competency and ethical awareness—should be acknowledged, suggesting that future research might further refine measurement boundaries. The strong correlation can be theoretically interpreted through the Reflective-Competence Framework, where skill proficiency enhances reflective capacity and vice versa. Instructors with greater analytical and adaptive skills likely experience higher AI self-efficacy, which in turn promotes mindful, responsible, and innovative use of AI tools. This dynamic is consistent with Self-Determination Theory, as increased competence fosters intrinsic motivation for continuous learning and ethical engagement. Moreover, the Diffusion of Innovation Theory helps explain the positive interdependence between competence and awareness: as instructors become more familiar with AI tools, they transition from trial users to informed advocates, capable of promoting responsible and pedagogically meaningful adoption within their institutions. These findings echo those of Jinlei et al (2024). Yun, H. Z., & Worapongpat, N. (2023). who observed that reflective and ethical engagement are strong predictors of sustainable AI use in higher education.

Knowledge Contribution

Graduate-level instructors at private universities in Thailand generally possess a moderate level of understanding regarding artificial intelligence (AI). Individual differences were observed in terms of conceptual understanding and the ability to apply AI in practice. Awareness of integrating AI into teaching and research remains at an early stage, with varying levels of engagement across academic disciplines. In particular, instructors in STEM fields demonstrated significantly higher levels of AI knowledge and awareness compared to those in the humanities and social sciences. Additionally, consistent trends were observed based on academic rank and faculty type, with instructors from technology-oriented faculties exhibiting greater understanding and application of AI. Instructors with higher levels of AI knowledge and skills were also found to be more aware of the potential and importance of AI in relation to their professional roles.

Conclusion and Recommendations

Conclusion

This study investigated the levels of Artificial Intelligence (AI) competency and awareness among graduate-level instructors in private universities across Thailand, focusing on differences by academic discipline, academic position, and faculty, as well as the relationship between AI literacy and AI awareness.

The findings revealed that instructors overall demonstrated high levels of AI literacy ($M = 4.01$) and AI awareness ($M = 4.12$), indicating strong readiness for AI integration in teaching and learning. Among the five competency dimensions, Analytical and Evaluation Skills scored the highest, while

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Instructional Design Skills were comparatively lower—suggesting that instructors are confident in analyzing AI outcomes but require more structured support in curriculum-level integration. In terms of awareness, Ethics and Responsibility ranked the highest, while Fairness, Equity, and Justice received the lowest mean score, signaling a need to strengthen social and ethical dimensions of AI understanding. Differences across disciplines and positions were also evident. Instructors in medicine and interdisciplinary fields exhibited the strongest AI skills and awareness, while senior faculty (professors) displayed lower levels of competency and engagement, highlighting a generational and disciplinary gap. The correlation analysis ($r = .928$, $p < .001$) confirmed a very strong positive relationship between AI competency and AI awareness, supporting the idea that higher proficiency promotes deeper reflective and ethical use of AI tools.

Theoretically, the study extends the Technology Acceptance Model (TAM) and Technological Pedagogical Content Knowledge (TPACK) frameworks by demonstrating that ethical awareness and reflective practice are integral to AI adoption. Practically, it underscores that faculty development and institutional leadership play crucial roles in sustaining responsible, effective AI integration within higher education.

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