



AI Literacy, Wise Use of AI, and Academic Integrity Among College Students in Indonesia and Thailand: A Cross-National Comparative Study

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ABSTRACT

This study compares how Artificial Intelligence (AI) literacy influences responsible AI use and academic integrity among college students in Indonesia and Thailand. Using a descriptive qualitative method, this study synthesizes peer-reviewed literature (2021–2025) from Scopus, ERIC, ScienceDirect, Google Scholar, and SINTA. Thematic analysis reveals that while higher AI literacy correlates with responsible engagement, this still requires support from governance frameworks and assessment design. Indonesia prioritizes integrity education and detection technologies, while Thailand emphasizes governance and security mechanisms. This study provides cross-national insights and policy implications for integrating AI literacy and ethics into higher education curricula in Southeast Asia.

INTRODUCTION

The rapid integration of generative Artificial Intelligence (AI) tools into higher education has fundamentally transformed the way students access, process, and produce academic work. AI literacy, the ability to critically and ethically understand, evaluate, and apply AI technology, has emerged as a key competency for 21st-century learners (Nugraheni, 2022). In both Indonesia and Thailand, cross-national attitudinal data indicate that students with stronger AI literacy tend to use AI more ethically and are better prepared to adopt it for legitimate learning purposes, rather than as a shortcut to academic dishonesty (Pratama et al., 2024). Further research indicates that this literacy is strongly influenced by broader national traditions in scientific and digital education (Alhusni et al., 2024). Despite this promising relationship, a critical question remains: What is the relationship between AI literacy and responsible AI use among students in these two national contexts?

Academic integrity faces unprecedented challenges as access to AI-based writing and problem-solving tools becomes increasingly easy, blurring the line between legitimate academic assistance and misconduct (Isiaku et al., 2024). Evidence from higher education in Indonesia indicates significant levels of academic dishonesty and plagiarism among undergraduate and graduate students, underscoring the importance of integrity-focused education as a systemic priority rather than an afterthought (Arsyad et al., 2022). In Thailand, the shift to remote and hybrid assessment environments during and after the COVID-19 pandemic exposed additional vulnerabilities in academic integrity governance, with studies identifying spiritually and value-based deterrents as culturally embedded responses (Sholikhah et al., 2023). These distinct yet interrelated challenges raise a second fundamental question: How is academic integrity currently upheld in higher education in Indonesia and Thailand amid the widespread use of AI tools?

Integrity education and institutional policy reforms, including awareness workshops, academic codes of ethics, and AI-specific guidelines, have proven effective in reducing academic misconduct and reinforcing ethical behavior across disciplines and national contexts (Miron et al., 2021). In the Southeast Asian context, formal integrity policies and curricula can be strategically integrated with AI literacy modules to create a coherent framework for ethical academic practices (Nuangchalerm et al., 2022). Technical preventive measures, including intrinsic plagiarism detection systems and location-sensitive hashing algorithms, further reinforce educational approaches by providing institutional enforcement mechanisms (Manzoor et al., 2023). However, there is significant variation in how these strategies are adopted and implemented across different national systems, highlighting the importance of systematic cross-national analysis.

The urgency of this research is heightened by the rapid pace at which AI tools are being integrated into academic curricula before adequate governance frameworks have been developed (Güneş & Kaban, 2025). Without a systematic cross-national understanding of how literacy, behavior, and institutional safeguards interact, universities in developing countries risk implementing

fragmented and ineffective responses that neither protect academic integrity nor promote responsible use (Dogaru et al., 2025). Most importantly, evidence suggests that AI literacy alone does not provide uniform protection against academic misconduct contextual factors, including incentive structures, dependency behaviors, and institutional culture, which significantly moderate the relationship between literacy and ethical behavior (Dogaru et al., 2025). These findings imply that delays in establishing complementary safeguards carry real ethical consequences for the academic community.

Incorporating AI ethics into teacher education is equally urgent, given that prospective teachers serve as role models whose attitudes toward AI use will shape future norms of integrity in the classroom and institutional culture (Raptopoulou, 2025). Research on pre-service teachers' perceptions of generative AI reveals complex interactions between dependence, perceived benefits, and ethical concerns, suggesting that teacher preparation programs must address these tensions explicitly and systematically (Putri & Naf'ihima, 2025). Cross-national insights can guide interventions such as integrity-conscious writing curricula that align academic norms with the expressive possibilities enabled by AI (Tawil et al., 2024). Although the international literature on AI ethics and academic integrity continues to grow, comparative studies specifically focusing on Indonesia and Thailand within an integrated Southeast Asian analytical framework remain scarce, creating a theoretical gap and a practical policy deficit.

Based on the above analysis, this study is guided by the following research questions:

RQ1: What is the relationship between AI literacy and the responsible use of AI among students in Indonesia and Thailand?

RQ2: How is academic integrity maintained in higher education in Indonesia and Thailand in the context of AI tool integration?

RQ3: What cross-national lessons can be drawn to strengthen higher education policies regarding AI literacy and academic integrity in Southeast Asia?

LITERATURE REVIEW

AI Literacy

AI literacy refers to the ability to understand, evaluate, and apply AI tools critically and ethically, and is increasingly recognized as a fundamental dimension of digital citizenship in higher education (Nugraheni, 2022; Pratama et al., 2024). This competency goes beyond a basic technical understanding of AI systems to include the ability to assess the ethical implications, limitations, and appropriate application of AI-generated content in an academic context. The Delphi-based framework proposed by Güneş and Kaban (2025) advocates institutionalizing AI literacy in higher education, so that systematic competency development replaces ad hoc individual learning. In the contexts of Indonesia and Thailand, AI literacy is closely tied to broader traditions of scientific and digital literacy that shape how students perceive and evaluate emerging technologies (Alhusni et al., 2024). The multidimensional nature of AI literacy which encompasses technical knowledge, ethical reasoning, and critical evaluation means that isolated informational

interventions are unlikely to produce sustainable behavioral change without institutional reinforcement.

Responsible AI Use

Responsible use of AI is defined as behavior in which students utilize AI as a legitimate and limited aid for purposes such as brainstorming, language assistance, or idea development while consciously avoiding overreliance and deceptive practices (Isiaku et al., 2024; Wang et al., 2023). Research on generative AI in higher education indicates that these tools pose serious integrity risks because their outputs can supplant students' original intellectual contributions if used without ethical boundaries (Isiaku et al., 2024). A study on pre-service teachers' perceptions reveals an ongoing tension between perceptions of utility, the development of dependence, and ethical discomfort, suggesting that responsible use is a developed attitude, not an automatic result of exposure or awareness (Putri & Naf'ihima, 2025). International students face an additional dimension of this tension as they navigate a foreign academic culture while accessing AI tools that may alleviate linguistic challenges but not intellectual ones (Wang et al., 2023).

Academic Integrity and Preventive Measures

Academic integrity encompasses the principles of honesty, fairness, trust, and responsibility in scholarly work (Arsyad et al., 2022). These principles are increasingly threatened by artificial intelligence (AI) technology, which enables the creation of undetectable academic content, thereby effectively lowering the practical barriers to ethical violations (Forgas et al., 2023). Integrity education embedded within institutions has been shown to raise student awareness and reduce violation rates when delivered as part of a coherent academic culture, rather than merely as compliance training (Miron et al., 2021). Technical prevention mechanisms, including intrinsic plagiarism-detection algorithms and location-sensitive hashing approaches tailored for code and text, constitute complementary layers of institutional defense (Karnalim, 2023). Governance mechanisms such as exam proctoring and identity authentication provide additional structural safeguards, though they raise ethical questions about student surveillance, privacy, and the nature of trust in educational relationships (Khalil et al., 2022).

Cross-National Perspectives

A comparative study of Thai and Indonesian students highlights shared attitudes toward science, ethics, and learning, making cross-national analysis meaningful (Pratama et al., 2024). Broader international evidence emphasizes that integrity education involving various stakeholders and clear policies is a necessary complement to literacy as AI is integrated into the curriculum (Wang et al., 2023). On the other hand, some evidence warns that the impact of AI literacy on integrity depends on context and does not always provide uniform protection, thereby calling for careful comparative analysis (Dogaru et al., 2025).

Conceptual Framework

Drawing on the theoretical foundations above, this study proposes a conceptual framework in which AI literacy functions as the foundational input that shapes responsible AI use behaviors. The relationship between literacy and use is positively associated; higher literacy tends to promote wiser engagement, but this association is moderated by three key institutional factors: governance mechanisms, assessment design, and integrity education. These moderating factors interact dynamically with AI literacy to produce academic integrity as an outcome. This framework organizes the thematic synthesis and cross-national comparison presented in the findings section.

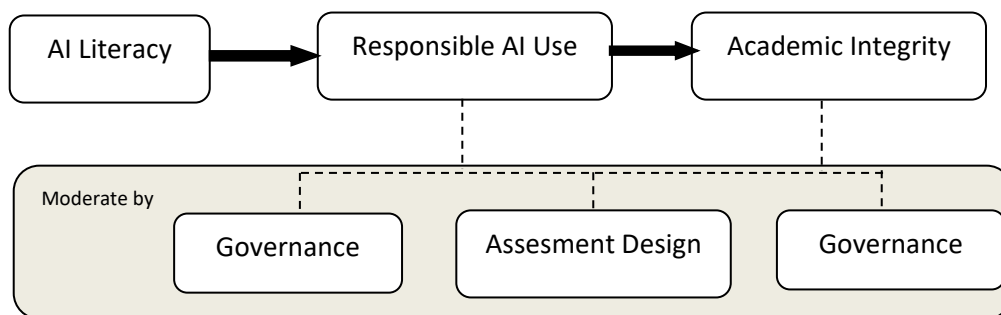


Figure 1: Conceptual Framework

METHODOLOGY

Research Design

This study employs a descriptive qualitative approach through a systematic literature review. A descriptive qualitative design is appropriate for research aimed at describing, comparing, and interpreting existing evidence, rather than establishing statistical relationships or testing hypotheses (Creswell & Creswell, 2023). In this design, the systematic literature review methodology ensures that the process of searching for, screening, evaluating, and synthesizing studies is conducted rigorously, transparently, and in a replicable manner (Snyder, 2019). This approach aligns with the nature of the three research questions, which aim to describe and compare AI literacy behaviors and integrity practices in two national contexts without manipulating variables.

Data Sources

Data were collected from peer-reviewed journal articles, academic reports, and credible policy documents published between 2021 and 2025 that address AI literacy, the use of generative AI, academic dishonesty, plagiarism detection, and integrity governance in Indonesia, Thailand, and comparable international higher education contexts. The literature was obtained from five academic databases: Scopus, ERIC, ScienceDirect, Google Scholar, and SINTA. These sources were selected purposefully based on their relevance to the three main constructs and their national or cross-national scope. Inclusion and Exclusion Criteria: To ensure methodological rigor and relevance, the following

Inclusion and Exclusion Criteria

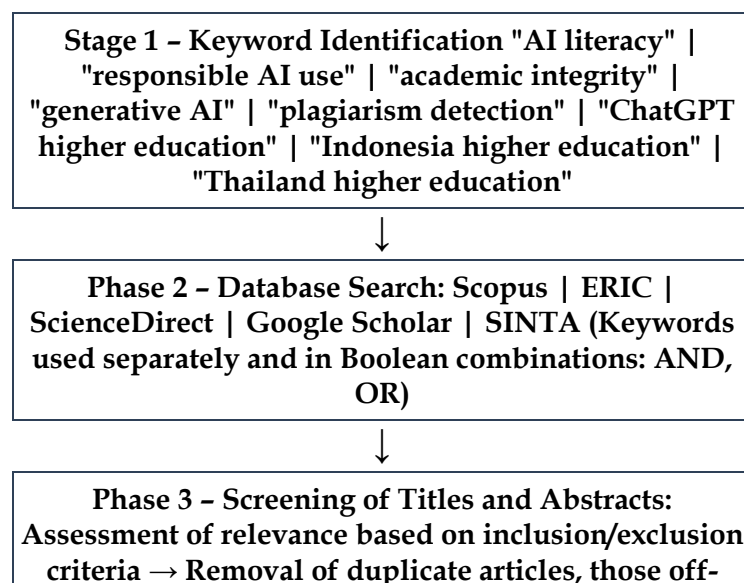
To ensure methodological rigor and relevance, the following inclusion and exclusion criteria were applied:

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication period	2021–2025	Before 2021 or after 2025
Source type	Peer-reviewed journals, credible institutional reports (UNESCO, OECD, CASEL)	Non-peer-reviewed, gray literature, editorial opinion pieces
Thematic relevance	AI literacy, responsible AI use, and/or academic integrity in higher education	Topics unrelated to AI in academic contexts
Geographic scope	Indonesia, Thailand, or comparable national/international higher education contexts	Studies with no national or regional contextualization
Language	English or Bahasa Indonesia	Other languages without available translations
Education level	Higher education (undergraduate/postgraduate)	Studies exclusively addressing K-12 education

Data Collection Procedure

The literature search was conducted systematically using a four-step procedure. First, relevant keywords were identified based on the three research questions. Second, databases were searched using those keywords, both individually and in Boolean combinations. Third, the search results were screened based on titles and abstracts. Fourth, full-text articles were reviewed and assessed for quality before being included in the final synthesis. The complete procedure is illustrated in Figure 2 below



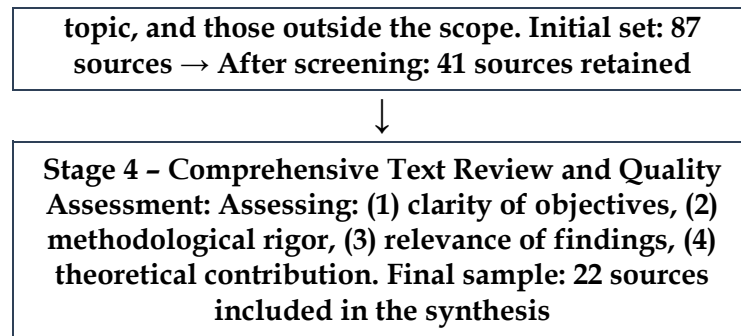


Figure 2: Data Collection Process

The quality of the articles was evaluated using criteria adapted from Snyder (2019): clarity of the research question or objective; appropriateness of the methodology used; credibility and coherence of the findings and conclusions; and direct contribution to at least one of the three main constructs. A total of 22 sources met all inclusion criteria and quality standards and were therefore retained for the final thematic synthesis.

Data Analysis

Data analysis was conducted through thematic synthesis, a qualitative method appropriate for identifying patterns, themes, and conceptual relationships across a body of literature (Braun & Clarke, 2022). Each included source was read in full and coded into one or more of three analytical categories: (1) AI literacy dimensions and measurements, (2) wise AI use behaviors and influencing factors, and (3) integrity safeguards and policy responses. Codes were then grouped into recurring themes that cut across multiple studies and national contexts.

Cross-national comparison was conducted by systematically contrasting Indonesia-specific and Thailand-specific evidence within each theme, following the structured framework outlined by Nuangchalerms et al. (2022) for Southeast Asian comparative analysis. Theory triangulation was applied throughout, cross-referencing emerging themes against the theoretical frameworks of AI literacy, responsible technology use, and academic integrity governance to validate interpretive consistency and minimize researcher bias. Findings are presented in narrative form, supported by a literature review findings table (Table 1) and a cross-national comparison table (Table 2).

RESULTS AND DISCUSSION

The results of the systematic literature review are organized around the three research questions guiding this study. Table 1 presents a summary of findings from the 22 sources included in the final synthesis, followed by a thematic narrative for each research question.

Table 2. Summary of Literature Review Findings on AI Literacy, Responsible AI Use, and Academic Integrity

No.	Researchers & Year	Journal/ Source	Focus Area	Main Finding
1	Nugraheni (2022)	Gramatika STKIP PGRI	AI Literacy, Indonesia- Thailand	Cross-national AI literacy is linked to ethical engagement in academic contexts; pedagogical design influences uptake.
2	Pratama et al. (2024)	IJERE	AI Literacy, Cross-national	Thai students learning Indonesian face challenges that reflect AI literacy gaps; higher awareness leads to ethical engagement.
3	Isiaku et al. (2024)	Journal of University Teaching & Learning Practice	Responsible AI Use	ChatGPT raises critical integrity concerns; AI output can supplant original student work when literacy is low.
4	Arsyad et al. (2022)	JOALL	Academic Integrity	Significant dishonesty and plagiarism among Indonesian students; postgraduates more aware than undergraduates.
5	Alhusni et al. (2024)	E3S Web of Conferences	AI Literacy Basis	Scientific literacy bibliometric analysis reveals that scientific-literacy traditions shape Indonesian students' AI appraisal.
6	Miron et al. (2021)	Journal of Academic Ethics	Integrity Education	Institutionally embedded integrity education reduces violations when integrated into academic culture, not only compliance.
7	Güneş & Kaban (2025)	Higher Education Quarterly	AI Literacy Governance	Delphi study: institutionalizing AI literacy and ethics frameworks in higher education is a priority; gaps identified in policy.
8	Wang et al. (2023)	Applied Sciences	Responsible AI Use	Generative AI significantly affects international students' academic behaviors and complicates integrity governance.
9	Dogaru et al. (2025)	Frontiers in AI	AI Impact on Learning	AI literacy's protective effect on academic integrity is highly context-dependent; literacy alone insufficient.
10	Putri & Naf'ihima (2025)	EduLink	Teacher Education, AI Use	Pre-service teachers show tension between AI dependency, perceived benefit, and ethical concern; training needed.
11	Raptopoulou (2025)	European Journal of Education	AI in Academic Literacy	ChatGPT supports academic literacy when integrated within integrity-conscious pedagogical frameworks.
12	Nuangchalerm et al. (2022)	IJSES	Cross-national Attitudes	Thai and Indonesian students share scientific and ethical attitudes,

				validating a comparative analytical approach.
13	Karnalim (2023)	Education Sciences	Plagiarism Detection	Locality-sensitive hashing effectively detects academic dishonesty in programming; adaptable to broader AI-generated text.
14	Khalil et al. (2022)	Journal of Computer Assisted Learning	Governance / Proctoring	Proctoring raises ethical tensions between integrity enforcement and student privacy; surveillance concerns noted.
15	Manzoor et al. (2023)	IEEE Access	Plagiarism Detection	Comprehensive review of intrinsic plagiarism detection techniques applicable to AI-mediated academic content.
16	Forgas et al. (2023)	Praxis Educativa	Academic Integrity	Automatic paraphrasing tools create new integrity challenges beyond traditional plagiarism detection scope.
17	Sholikhah et al. (2023)	Journal of International Education in Business	Thailand Integrity	Spiritual and values-based deterrents (fraud triangle framework) reduce online cheating among Thai university students.
18	Tawil et al. (2024)	Jurnal Penelitian & Pengembangan	Teacher Education	Virtual lab-based learning models improve scientific attitudes and process skills, supporting responsible academic practices.
19	Gusni et al. (2023)	Media Ekonomi dan Manajemen	Cross-national Behavior	Behavioral patterns in cross-national academic settings influence ethical decision-making in Indonesia and Singapore.
20	Alhusni et al. (2024)	E3S Web of Conferences	Scientific Literacy	Impact of literacy-based education on academic quality confirmed over decades; foundational for AI ethics.
21	Putri & Naf'ihima (2025)	EduLink	Teacher Preparation	Embedding GenAI ethics in pre-service programs strengthens future classroom integrity norms; dual role identified.
22	Güneş & Kaban (2025)	Higher Education Quarterly	Policy Framework	National AI literacy standards recommended; collaborative stakeholder policy identified as essential for sustainability.

Theme 1: AI Literacy as a Foundation for Responsible AI Use

In both countries, the synthesized evidence consistently portrays AI literacy as a foundational competency that shapes subsequent behavior: students with stronger literacy interpret AI outputs more critically, apply better ethical judgment in the use of AI tools, and are better prepared to distinguish between legitimate and illegitimate AI applications in their academic work (Nugraheni, 2022; Pratama et al., 2024). In Indonesia, this literacy is often embedded within an established

tradition of scientific literacy, thereby creating a disciplinary context in which critical evaluation of AI tools is a natural extension of students' existing epistemic practices (Alhusni et al., 2024). In Thailand, AI literacy is discussed alongside readiness for online and distance learning, reflecting the national higher education system's rapid adaptation to a digitally mediated learning environment (Sholikhah et al., 2023).

However, this synthesis reveals that the relationship between literacy and behavior is neither linear nor deterministic. Dogaru et al. (2025) provide compelling evidence that the protective effect of AI literacy on integrity behavior is highly context-dependent; even students who demonstrate AI literacy may engage in academic misconduct when motivational incentives or structural vulnerabilities are present. Isiaku et al. (2024) further demonstrate that generative AI actually increases integrity risks in contexts where students are aware of the tool's capabilities but lack ethical commitment or accountability structures. Putri and Naf'ihima (2025) identify pre-service teachers as a particularly illuminating population: despite having relatively high levels of AI awareness, many of them exhibit a dependence on AI and ethical ambivalence that cannot be fully addressed through training alone. Collectively, these findings suggest that AI literacy is a necessary but insufficient condition for responsible use, and that behavioral and governance factors must accompany its development. Cross-national comparisons reveal that both Indonesian and Thai students exhibit this fundamental gap between literacy and behavior, although its manifestations differ. Indonesian students tend to be more exposed to formal scientific and digital literacy curricula, which provide a stronger conceptual foundation for evaluating AI (Alhusni et al., 2024). In contrast, Thai students are more directly influenced by the opportunities and constraints of a distance-learning environment, where AI tools are easily accessible but more difficult to monitor (Sholikhah et al., 2023). In both contexts, evidence suggests that AI literacy training is a critical starting point, but it must be reinforced by behavioral norms, assessment designs, and institutional accountability systems to consistently foster the ethical use of AI.

Theme 2: Integrity Safeguards in Indonesia and Thailand

The second thematic group discussed how academic integrity is maintained within each country's higher education system amid the widespread use of artificial intelligence (AI) tools. The discourse on integrity in Indonesia is dominated by two complementary strategies: an education-based approach and a detection-based approach. From an educational perspective, integrity education is increasingly recognized as an institutional necessity, not merely an optional add-on, with various studies documenting significant levels of dishonesty and plagiarism at both the undergraduate and graduate levels (Arsyad et al., 2022). Institutionally integrated integrity education delivered through orientation programs, discipline-specific ethics modules, and enforcement at the faculty level has been shown to reduce violation rates and enhance students' ethical awareness (Miron et al., 2021). From a detection perspective, technical tools such as intrinsic plagiarism-detection systems and context-sensitive hashing algorithms provide institutional mechanisms for identifying violations that might be missed by

conventional detection software, particularly in AI-generated and paraphrased content (Karnalim, 2023; Manzoor et al., 2023; Forgas et al., 2023).

The discourse on academic integrity in Thailand emphasizes governance mechanisms and assessment security over primarily education-oriented or detection-based approaches. Exam monitoring systems and identity authentication technologies are key components of the academic integrity infrastructure at Thai universities, reflecting the country's rapid shift toward remote assessment and its engagement with institutional oversight mechanisms (Khalil et al., 2022). However, Khalil et al. (2022) note that exam monitoring raises significant ethical tensions between upholding integrity and protecting student privacy and autonomy, tensions that are particularly acute in the Southeast Asian cultural context, where trust and relational dynamics play a crucial role in educational settings. Sholikhah et al. (2023) make a unique contribution by identifying spiritually and value-based deterrents as culturally embedded integrity mechanisms in Thai higher education, demonstrating that the cheating triangle theory can explain cheating behavior even in digitally mediated environments. These findings suggest that integrity governance in Thailand is not merely technocratic but also relies on moral and cultural frameworks. Both national contexts conclude that literacy must be complemented by institutional policies and assessment designs to uphold academic integrity (Güneş & Kaban, 2025). Raptopoulou (2025) reinforces these findings from an international perspective, arguing that an effective academic integrity ecosystem requires the involvement of various stakeholders, including students, faculty, administrators, and policymakers, as well as a clear, consistently enforced policy framework.

Wang et al. (2023) add an important dimension by noting that AI literacy and integrity norms are significantly influenced by students' national educational backgrounds, underscoring the need for cross-national awareness among faculty and institutions for fair and effective governance.

Theme 3: Cross-National Lessons for Higher Education Policy

This cross-national comparison shows that Indonesia and Thailand share a common rationale AI literacy enables prudent use, which supports academic integrity although the two countries differ in terms of the specific institutional mechanisms they prioritize and the cultural contexts that shape their implementation (Karnalim, 2023; Khalil et al., 2022). Rather than undermining the comparative analysis, these differences serve as a foundation for mutual learning and policy exchange. Table 2 summarizes the key dimensions of this cross-national comparison

Table 3. Cross-National Comparison of Indonesia and Thailand

Dimension	Indonesia	Thailand
Basis of AI literacy	Rooted in scientific/digital literacy traditions (Alhusni et al., 2024)	Linked to online and remote-learning readiness (Sholikhah et al., 2023)
Dominant integrity concern	Documented dishonesty and plagiarism in traditional and AI-	Online cheating and identity fraud in remote and hybrid assessment (Sholikhah et al., 2023)

Dimension	Indonesia	Thailand
	assisted contexts (Arsyad et al., 2022)	
Primary safeguard strategy	Integrity education and technical detection tools (Karnalim, 2023; Manzoor et al., 2023)	Proctoring, identity authentication, and values-based deterrents (Khalil et al., 2022; Sholikhah et al., 2023)
Teacher education focus	Embedding GenAI ethics in pre-service teacher preparation (Putri & Naf'ihima, 2025)	Developing ethical AI modeling capacities among future educators (Putri & Naf'ihima, 2025)
Cultural integrity factor	Academic community norms and institutional accountability systems	Spiritual and values-based deterrents; relational trust frameworks (Sholikhah et al., 2023)
Policy implication	National AI-literacy standards and curricula integration (Güneş & Kaban, 2025)	Governance frameworks balancing enforcement with ethical assessment design (Khalil et al., 2022)

As illustrated in Table 2, the two systems offer complementary lessons. Indonesia's emphasis on integrity education and detection technologies can strengthen Thailand's governance-focused approach by fostering the ethical dispositions necessary to achieve effective governance. Conversely, Thailand's assessment and security practices, along with its values-based framework, can strengthen Indonesia's educational strategy by providing more robust institutional enforcement and a moral foundation aligned with local culture (Arsyad et al., 2022; Khalil et al., 2022). These complementary strengths align with international calls for an integrity ecosystem that involves various stakeholders and has clear policies (Raptopoulou, 2025; Wang et al., 2023) and demonstrate that regional cooperation and policy exchange between the two countries can strengthen both systems simultaneously.

The Relationship Between AI Literacy and Responsible Use of AI

These findings consistently indicate that AI literacy is a necessary but insufficient condition for the responsible use of AI among college students in both Indonesia and Thailand. These findings align with international evidence that the protective effect of literacy on integrity-related behavior is moderated by contextual and motivational factors (Dogaru et al., 2025). Students with high AI literacy may still engage in academic dishonesty when the perceived benefits of cheating outweigh the perceived costs, when patterns of dependence have formed through habitual use, or when institutional accountability is weak (Isiaku et al., 2024; Putri & Naf'ihima, 2025). This means that AI literacy enhancement programs, while essential, must be designed with the explicit expectation that they will not be effective if implemented in isolation.

The implication for higher education institutions in both countries is that literacy must be integrated into a broader behavioral and normative framework. Güneş and Kaban (2025) convincingly argue for the need to institutionalize AI literacy, moving beyond one-off workshops or informational campaigns toward systematic curricular integration across all disciplines. This approach ensures that AI literacy is not merely declarative knowledge but is actively applied through

targeted practices in contexts that exemplify ethical use and establish accountability for violations. Wang et al. (2023) expand on this argument by noting that international and cross-cultural student populations may require differentiated literacy interventions that are sensitive to their specific educational backgrounds and cultural attitudes toward authority and originality. The relationship between AI literacy and responsible use also has important implications for teacher education. Putri and Naf'ihima (2025) demonstrate that pre-service teachers in Indonesia and Thailand are not automatically prepared to use or teach with AI ethically, even though they possess a technical understanding of these tools. Therefore, teacher preparation programs represent a critical point of influence: if prospective teachers internalize the responsible use of AI as a professional norm during their training, they will disseminate these norms into the classroom environments they will eventually create (Raptopoulou, 2025). This dual role of teachers as both ethical users and ethical role models makes teacher education one of the areas with the greatest potential impact for investing in the development of AI literacy across the entire education system

Academic Integrity Maintained in Indonesia and Thailand

The second research question reveals that Indonesia and Thailand have developed integrity maintenance systems that are structurally different yet complementary. Indonesia's approach is primarily educational and detection-based: integrity education programs raise student awareness and foster ethical dispositions, while technical detection tools provide institutional enforcement for cases where dispositions alone prove insufficient (Arsyad et al., 2022; Karnalim, 2023). This two-pronged approach reflects Indonesia's recognition that academic dishonesty is a deeply rooted cultural and systemic problem requiring both normative change and structural enforcement (Miron et al., 2021). However, a significant limitation is that integrity education without robust governance can foster awareness without reliable behavioral change, especially in high-pressure academic environments where achievement metrics remain the top priority.

Thailand's governance-centered approach introduces an important additional dimension. The use of exam proctoring and identity authentication in remote assessment reflects an institutional response to the specific vulnerabilities of the digital learning environment (Khalil et al., 2022). The addition of spiritual and values-based deterrents identified by Sholikhah et al. (2023) is highly significant, as it demonstrates that integrity governance in Thailand operates through cultural and moral channels as well as administrative ones. The "triangle of cheating" framework applied by Sholikhah et al. (2023), which identifies opportunity, pressure, and rationalization as the three conditions that facilitate cheating, provides a powerful analytical tool for understanding why AI-mediated violations occur and for systematically disrupting them. When opportunities are reduced through oversight, pressures are managed through the redesign of assessment processes, and rationalizations are addressed through values education, the conditions for committing fraud are significantly weakened. Both countries face the same challenge: the rapid evolution of AI-generated content outpaces the technical capabilities of existing detection systems. Manzoor et al.

(2023) document that intrinsic plagiarism detection, which analyzes inconsistencies in style and structure within a document rather than comparing it to a corpus, is becoming increasingly important for identifying AI-generated content that conventional tools miss. Forgas et al. (2023) also note that automatic paraphrasing tools have created a new category of academic dishonesty that challenges traditional plagiarism detection frameworks. These technical developments underscore that effective integrity maintenance requires continuous adaptation and investment in detection technologies, alongside stable educational and governance frameworks.

Cross-National Lessons for Higher Education Policy in Southeast Asia

This cross-country comparison shows that Indonesia and Thailand offer complementary lessons; when combined, these lead to a comprehensive model for integrating AI literacy and academic integrity governance into higher education in Southeast Asia. Each country's approach on its own is insufficient: Indonesia's educational focus requires stronger governance and assessment safeguards, while Thailand's emphasis on governance requires a more robust educational foundation that fosters intrinsic ethical commitment alongside extrinsic prevention (Arsyad et al., 2022; Sholikhah et al., 2023). A synthesis of these two approaches leads to an integrated model in which literacy, education, detection, governance, and value-based frameworks are applied as mutually reinforcing layers within a coherent integrity ecosystem.

Three cross-national policy lessons stand out. First, regional cooperation between Indonesia and Thailand in developing a joint AI literacy framework can accelerate both countries' progress toward institutionalized AI ethics education. The shared cultural and educational contexts identified by Nuangchalerms et al. (2022) provide a foundation for collaborative curriculum development and joint capacity-building. Second, the redesign of assessment is a critical yet underutilized tool for maintaining integrity in both countries: assessments that require demonstrable original thinking, process documentation, or oral explanations are far more resilient to AI-mediated violations than purely outcome-based evaluations (Güneş & Kaban, 2025). Third, integrity governance must involve students not only as the subjects of policy but also as participants in its development and enforcement, thereby fostering the shared sense of institutional ownership required by intrinsic deterrents such as values-based education (Khalil et al., 2022; Wang et al., 2023). The integration of AI ethics into teacher education programs has emerged as a shared priority in this region. Putri and Naf'ihima (2025) emphasize that pre-service teachers in both countries are in the process of forming their professional identities, making teacher preparation an unparalleled opportunity to establish the responsible use of AI as a core professional norm. Programs that explicitly model the ethical use of AI, require ethical reflection as part of assessment, and provide structured experiences with pedagogical designs mindful of integrity will produce graduates ready to disseminate these norms throughout the education system. This generational investment in teacher preparation represents the policy intervention with the greatest and most

sustainable impact available to higher education systems seeking to uphold academic integrity in AI-infused learning environments.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that AI literacy is a necessary but insufficient foundation for responsible AI use and academic integrity among college students in Indonesia and Thailand. Evidence suggests that higher AI literacy correlates with more ethical AI engagement; however, behavioral and contextual factors, including incentive structures, patterns of dependence, and institutional culture, significantly moderate this relationship and can undermine integrity even among well-informed students. Both countries share the same underlying logic linking literacy to responsible use and integrity, but differ in the institutional mechanisms they prioritize: Indonesia emphasizes an education- and detection-based approach, while Thailand prioritizes governance mechanisms, assessment, and security. These differing emphases are complementary, not competitive, and together demonstrate a comprehensive model for AI integrity governance in Southeast Asia.

Three policy recommendations emerge from these findings. First, higher education institutions in Indonesia and Thailand should adopt a nationally standardized AI literacy curriculum that integrates ethical assessment alongside technical competencies, ensuring that literacy development is systematic and institutionalized, rather than left solely to individual initiatives. Second, integrity education must be integrated into all academic disciplines and explicitly linked to AI ethics modules, rather than treated as a standalone compliance training, thereby creating a coherent, discipline-specific context for applying ethical reasoning to real-world decisions about AI use. Third, these institutions must adopt complementary, multi-layered safeguards that combine educational, technical, and governance strategies, recognizing that no single approach is sufficient to uphold academic integrity in an AI-infused learning environment. Teacher preparation programs in both countries must be redesigned to include explicit and assessable components on the responsible use of AI and integrity-conscious pedagogy, ensuring that the next generation of educators is prepared to serve as role models and disseminate ethical norms in the classrooms of the future. Regional cooperation between Indonesia and Thailand to develop a joint AI literacy framework and conduct cross-national integrity research can accelerate progress and serve as a model for broader Southeast Asian education policy. These recommendations, if implemented collectively, offer a path toward an academic integrity system that is robust enough to prevent misuse while remaining flexible enough to support the legitimate educational benefits that AI tools truly provide.

FURTHER STUDY

This study has several limitations that must be acknowledged. It was conducted using a systematic literature review approach, which depends on the availability, quality, and scope of published studies. Although the sources reviewed were obtained from leading databases and met strict inclusion and quality criteria, these findings cannot establish a causal relationship between AI

literacy, responsible usage behavior, and academic integrity outcomes. Most of the available empirical studies were conducted within the context of a single country, which limits the depth of genuine cross-national comparisons that can be made only through secondary synthesis. Furthermore, the rapidly evolving landscape of AI tools means that some findings may no longer be relevant due to technological developments that occurred after the publication of the reviewed studies. Future research should conduct primary comparative surveys or field experiments that directly measure levels of AI literacy, AI usage behavior, and integrity outcomes among student populations in Indonesia and Thailand, thereby enabling causal inferences that secondary syntheses cannot provide. Mixed-method and longitudinal designs are essential for tracking how the relationship between literacy and integrity evolves as students gain experience with AI tools throughout their academic careers. Future studies should also examine which specific combinations of literacy interventions, governance, and assessment designs are most effective in maintaining integrity across different academic disciplines and institutional contexts, thereby providing evidence-based guidance for targeted policy implementation. Expanding research in the context of elementary and secondary education in Indonesia is also important, as the development of literacy from an early age shapes the academic dispositions that students bring with them to higher education.

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