International Journal of Trendy Research in Engineering and Technology
Volume 10 Issue 1 February 2026
ISSN No. 2582-0958

ASSESSING AI LITERACY AND ATTITUDES TOWARD AI AMONG BACHELOR OF SECONDARY EDUCATION - ENGLISH MAJOR STUDENTS IN A PHILIPPINE UNIVERSITY

Ayub U. Mirasol Justine, Chloe V. Manalo, Jason N. Ybarrita, and Mr. Clark Dominic L. Alipasa
College of Education, De La Salle University-Dasmariñas, Cavite, Philippines

Received 19 January 2026 Received in revised form 25 January 2026 Accepted 26 January 2026
Available Online 27 January 2026

ABSTRACT

This study examined the levels of artificial intelligence (AI) literacy and attitudes toward AI among Bachelor of Secondary Education–English major students at De La Salle University–Dasmariñas and explored the relationships between these constructs. AI literacy was conceptualized as a multidimensional construct comprising Know & Understand AI, Use & Apply AI, Detect AI, and AI Ethics, while attitudes were measured across positive and negative dimensions. Data were collected from 13 pre-service teachers using the Meta AI Literacy Scale (MAILS) and the General Attitudes toward Artificial Intelligence Scale (GAAIS). Results indicate that participants demonstrated moderate overall AI literacy, with the highest scores in conceptual understanding and ethical awareness, moderate detection skills, and weakest performance in practical application. Attitudinal findings revealed a cautiously skeptical stance: positive attitudes were low, while negative attitudes were moderate, reflecting ambivalence rather than outright opposition to AI. Correlational analysis showed a significant positive relationship between Use & Apply AI and positive attitudes ($\rho = .58$, $p = .038$), while other literacy dimensions were not significantly associated with attitudes. The findings highlight the critical role of hands-on experience in shaping positive orientations toward AI and underscore the need for teacher education programs to integrate structured, practice-oriented AI learning that bridges conceptual knowledge, ethical reflection, and practical competence.

Keywords: AI literacy, attitudes toward AI, pre-service teachers, AI ethics, experiential learning

1. INTRODUCTION

Background of the Study

The rapid development of artificial intelligence (AI) has brought significant transformations across various sectors, including education. AI integration in educational settings has been seen as both an opportunity and a challenge for teachers and students alike. As pre-service teachers prepare to enter the workforce, their understanding, perception, and literacy in AI can directly influence their readiness to leverage AI tools effectively in teaching and learning contexts [1,2].

Students today regularly interact with AI systems through search engines, recommendation algorithms, chatbots, virtual assistants, translation tools, and adaptive learning platforms. These technologies shape how learners communicate, access information, and participate in digital spaces [3,4]. Globally, this growing presence of AI has contributed to a fundamental shift in the meaning of literacy, expanding it from traditional reading and writing skills to include competencies necessary for effective participation in technologically saturated environments [1,3].

In the Philippines, AI literacy has not yet been formally integrated into teacher education programs. Pre-service teachers are left to develop understanding through informal exposure rather than systematic instruction [5,6]. Despite the increasing relevance of AI in education, research on pre-service teachers' understanding of AI concepts, their ability to use AI critically and ethically, and their attitudes toward these technologies—particularly in the Philippine context—remains limited [7,8].

Rationale of the Study

Understanding AI literacy and attitudes toward AI among pre-service teachers is essential to develop targeted interventions, curricula, and professional development programs. AI literacy is conceptualized as a multidimensional construct encompassing knowledge and understanding of AI, practical use and application, detection skills, and ethical awareness [2,5,6]. Ethical awareness is particularly important for educators, as it guides responsible AI use in teaching and learning contexts.

Attitudes toward AI also play a critical role. Teachers' perceptions and willingness to adopt AI can shape the integration of AI into pedagogy and affect students' learning experiences. Pre-service teachers with higher AI literacy and positive attitudes toward AI are more likely to integrate AI effectively into their instructional practices, fostering enhanced learning outcomes [7,9].

Objectives of the Study

This study aims to assess the levels of AI literacy and attitudes toward AI among Bachelor of Secondary Education – English major students in a Philippine university. Specifically, it seeks to:

1. Assess BSEd-English students' AI literacy across the dimensions of Know & Understand AI, Use & Apply AI, Detect AI, and AI Ethics.

2. Examine students' attitudes toward artificial intelligence.

3. Determine how the dimensions of AI literacy relate to pre-service teachers' attitudes toward AI.

By addressing these objectives, the study provides baseline evidence to guide teacher education curriculum design, professional development initiatives, and policies for responsible AI integration in Philippine teacher preparation programs [1,3,5,7].

2. METHODS

Research Design

This study employed a quantitative, non-experimental correlational research design to examine AI literacy and attitudes toward AI among Bachelor of Secondary Education-English major students at De La Salle University–Dasmariñas. The study analyzed relationships among four dimensions of AI literacy (Know & Understand AI, Use & Apply AI, Evaluate AI, and AI Ethics) and students' attitudes toward AI (positive and negative dimensions). Given the small sample size, the study was exploratory, emphasizing effect sizes, descriptive trends, and rank-based correlations rather than broad generalizations.

Research Locale

The research was conducted at De La Salle University–Dasmariñas, specifically within the College of Education. The university actively integrates technology-enhanced learning tools and AI-supported platforms such as chatbots, digital learning management systems, and automated feedback systems. This environment made it appropriate for examining students' AI literacy and attitudes toward AI.

Population and Sampling Technique

The target population consisted of all Bachelor of Secondary Education - English major students officially enrolled at De La Salle University–Dasmariñas during Academic Year 2025–2026. This population includes students across all year levels (first year through fourth year) who are preparing to become licensed English teachers in Philippine secondary schools.

A purposive sampling method was used to select respondents who met the following criteria: Officially enrolled as a BSE–English Major student; Available during the data collection period; Provided informed consent; Able to comprehend instructions in the survey questionnaires. A total of 13 BSE–English Major students participated in the study. Two validated instruments were used to measure the study variables, both utilizing a 4-point Likert scale (1 = Strongly Disagree, 4 = Strongly Agree).

Participants were informed of the study's purpose, risks, and confidentiality protections before providing voluntary consent.

Survey Administration. The questionnaires were administered digitally via a secure online form, typically requiring 7-10 minutes to complete. Responses were checked for completeness. Data were coded, tabulated, and organized in spreadsheets for analysis.

Data Analysis

Descriptive statistics were employed to summarize the data, with means and standard deviations computed for the relevant variables. The mean (M) represented the average score and was obtained by dividing the sum of all scores ($\sum x$) by the total number of observations (n). The standard deviation (SD) was calculated to measure the variability of individual scores (x) around the mean, providing an index of score dispersion within the sample.

Reliability analysis was conducted to determine the internal consistency of the instruments used in the study. Specifically, Cronbach's alpha coefficients were computed for each subscale of the MAILS and GAAIS. In this analysis, k referred to the number of items in the scale, σ^2_i represented the variance of individual items, and σ^2_t denoted the total variance of the scale.

For inferential analysis, correlational procedures were applied to examine the relationships among variables. Spearman's rho was utilized due to the small sample size and the ordinal nature of the data. In computing Spearman's rho, d represented the difference between the ranks of corresponding paired values, while n indicated the number of paired observations. Statistical significance for all analyses was set at $p < .05$.

Ethical Considerations

The study adhered to institutional research ethics guidelines and the Data Privacy Act of 2012. Participation was voluntary, anonymous, and confidential. Respondents could withdraw from the study at any point without penalty.

3. RESULTS

The results of the study based on the detailed methodology are as follows:

Table 1: AI Literacy of the respondents

Table 1. AI Literacy Descriptive Statistics

	Mean	Std. Deviation
Know & Understand AI	3.487	0.376
I am aware of the concepts of AI.	3.462	0.519
I can assess AI's limitations and opportunities.	3.462	0.519
I can imagine possible future uses of AI.	3.538	0.519
Use & Apply AI	2.744	0.474
I can operate AI applications in everyday life.	2.615	0.768
I can use AI meaningfully to achieve my goals.	3.077	0.641
AI influences my work and assessments.	2.538	0.519
Detect AI	3.179	0.399
I can tell if I am dealing with an AI application.	3.154	0.555
I can distinguish devices that use AI from devices that do not.	3.154	0.376
I can distinguish if I interact with an AI or a "real human."	3.231	0.439
AI Ethics	3.385	0.356
I can assess the societal impact of AI.	3.231	0.439
I consider ethics when using AI-generated data.	3.538	0.519
I can evaluate AI applications for ethical issues.	3.385	0.506
AI Literacy Index	3.199	0.214

Table 1 presents the descriptive statistics for participants' AI literacy dimensions and overall AI literacy index. Overall, participants demonstrated a moderate level of AI literacy (M = 3.20, SD = 0.21). Among the four AI literacy dimensions, Know and Understand AI showed the highest mean score (M = 3.49, SD = 0.38), indicating relatively strong conceptual awareness of AI-related concepts and potential applications. Items within this dimension suggest that participants were generally aware of AI concepts, could assess AI's opportunities and limitations, and could imagine future uses of AI.

The AI Ethics dimension also showed comparatively high scores (M = 3.39, SD = 0.36), reflecting participants' perceived ability to consider ethical issues and societal impacts when engaging with AI. In contrast, Detect AI yielded a moderate mean score (M = 3.18, SD = 0.40), suggesting some uncertainty in participants' ability to identify AI systems and distinguish AI-driven interactions from human ones. The lowest mean was observed for Use and Apply AI (M = 2.74, SD = 0.47), indicating comparatively weaker confidence in operating AI applications and using them meaningfully in everyday or academic contexts.

Table 2. Attitudes toward AI Descriptive Statistics

	Mean	Std. Deviation
Positive Attitudes	2.179	0.555
AI can have positive impacts on people's well-being	2.769	0.439
AI systems perform better than human beings.	2.000	0.816
I would rather interact with AI than with a human.	1.769	1.092
Negative Attitudes	2.410	0.512
I find the use of AI to be unethical and dangerous.	2.462	0.519
I believe AI will eventually take over human jobs.	2.538	0.877
AI is used to spy on people.	2.231	0.927

Table 2 reports descriptive statistics for attitudes toward AI. Participants' positive attitudes toward AI were relatively low (M = 2.18, SD = 0.56), particularly for items related to preferring AI over human interaction. Negative attitudes toward AI were slightly higher (M = 2.41, SD = 0.51), with moderate concern expressed regarding ethical risks, surveillance, and job displacement.

Internal consistency reliability for the scales is summarized in Tables 3-8. The Detect AI subscale demonstrated good reliability (α = .83), suggesting acceptable internal consistency among its items. The remaining AI literacy subscales—Know and Understand AI (α = .55), Use and Apply AI (α = .56), and AI Ethics (α = .56)—showed low to moderate

reliability, indicating that results involving these subscales should be interpreted with caution. The wide confidence intervals further reflect measurement uncertainty, likely influenced by sample size and scale length.

The attitude scales demonstrated low internal consistency, with α = .39 for Positive Attitudes and α = .29 for Negative Attitudes. One item ("AI is used to spy on people") showed a negative item–total correlation within the Negative Attitudes scale, which may have contributed to reduced reliability. Given these values, correlations involving attitude measures are interpreted conservatively. Spearman's rho correlations among AI literacy dimensions, attitudes toward AI, and the overall AI literacy index are presented in the table on the left.

A significant positive correlation was found between Positive Attitudes toward AI and Use and Apply AI (ρ = .58, p = .038), indicating that participants with more favorable views of AI tended to report greater confidence in using and applying AI tools. No other significant correlations were observed between positive attitudes and the remaining AI literacy dimensions or the AI literacy index.

Negative attitudes toward AI were not significantly correlated with any AI literacy dimensions or with the overall AI literacy index. This suggests that higher levels of concern or skepticism about AI were not directly associated with lower AI literacy in this sample

Within the AI literacy dimensions, several strong and significant interrelationships were identified. Know and Understand AI was strongly correlated with AI Ethics (ρ = .82, p < .001) and with the AI Literacy Index (ρ = .78, p = .002), indicating that conceptual understanding of AI was closely linked to ethical awareness and overall AI literacy. Additionally, Detect AI showed significant positive correlations with AI Ethics (ρ = .64, p = .018) and with the AI Literacy Index (ρ = .63, p = .022). Finally, AI Ethics demonstrated a strong association with the AI Literacy Index (ρ = .80, p = .001), underscoring the central role of ethical reasoning within the broader construct of AI literacy.

4. DISCUSSION

This study explored the levels of AI literacy and attitudes toward artificial intelligence among Bachelor of Secondary Education–English major students at De La Salle University–Dasmariñas, as well as the relationships between these constructs. Given the exploratory nature of the research and the small achieved sample size, the discussion emphasizes observed trends, effect sizes, and meaningful associations rather than broad generalizations. The research accommodated 13 respondents out of the planned 26. The lack of participation from the year levels is understandably caused by the students' busy schedules. Similar challenges in participation have been documented in qualitative studies in the Philippine context [1].

AI Literacy Levels Among BSEd-English Students (RQ1)

Overall, the findings indicate that participants demonstrated a moderate level of AI literacy, suggesting that while students possess foundational awareness of AI, their competencies are uneven across the four measured dimensions. This pattern of uneven development has important implications for teacher education curriculum design. Current gaps in the Philippine English curriculum may contribute to this uneven development [2].

The highest mean score was observed in the Know and Understand AI dimension, indicating that respondents are generally familiar with basic AI concepts, terminology, and potential applications. This finding aligns with the increasing visibility of AI in academic discourse, digital platforms, and popular media, all of which may contribute to conceptual awareness even among students without formal AI training. Pre-service teachers today encounter AI terminology regularly through news coverage of ChatGPT and other generative AI tools, discussions of AI in their social networks, and exposure to AI-powered features in everyday applications and through prior experiences with virtual learning and faculty-led eLearning programs, like Netflix recommendations, Spotify playlists, and social media feeds [3,4].

The strong conceptual awareness among BSEd-English students at DLSU-D may also reflect the university's technology-enhanced learning environment, where students regularly interact with AI-powered platforms such as learning management systems, automated feedback tools, and institutional chatbots. These interactions are shaped by the institution's core values and ethical orientation [5]. These exposures, while not constituting formal AI education, appear sufficient to develop basic conceptual familiarity. However, it is important to note that conceptual understanding alone does not automatically translate into the practical competencies needed to use AI effectively in pedagogical contexts or to teach students about AI responsibly. The gap between knowing and doing emerges clearly in other dimensions.

The relatively high scores in AI Ethics suggest that participants are capable of reflecting on ethical, social, and moral issues related to AI use, such as fairness, algorithmic bias, accountability, privacy protection, and societal impact. This finding is particularly encouraging given that ethical reasoning represents higher-order critical thinking and is essential for responsible AI integration in educational settings [2].

This may be attributed to the humanities-oriented nature of English education, where critical thinking, ethical reasoning, and social awareness are emphasized. The strong association between conceptual understanding and ethical awareness further supports the idea that knowing how AI works is closely tied to recognizing its ethical implications [2,5].

The moderate score in Detect AI further implies some uncertainty in participants' ability in recognizing AI systems or distinguishing AI-generated outputs from human-generated ones, which is a critical skill in an era of generative AI. This may reflect the inherent difficulty of this task. Even experienced educators and AI researchers sometimes struggle to distinguish high-quality AI-generated text from human writing, particularly when students use AI strategically (e.g., generating drafts and then revising them, using AI for ideation but writing themselves, or blending AI suggestions with original content) [6]. Pre-service teachers' uncertainty about detection may therefore represent an honest assessment of a genuinely difficult competency.

The lowest mean score was observed for Use and Apply AI, falling just above the lower-moderate range. This indicates comparatively weaker confidence in operating AI applications and using them meaningfully in everyday or academic contexts. Despite being exposed to AI-powered systems within the university environment and despite having moderate-to-high conceptual understanding, students do not perceive themselves as active, competent, or confident users of AI tools. This suggests a gap between theoretical awareness and hands-on application, highlighting a potential area for curricular intervention [2].

The pattern of uneven AI literacy observed in this study—stronger conceptual and ethical awareness, moderate detection skills, weaker practical application—aligns with findings from several recent studies of educators and pre-service teachers [7].

Importantly, a recent large-scale study of 423 Philippine university students across disciplines provides valuable comparative data from the same national context [1]. Reyes et al. [8] reported an overall AI literacy mean of 3.58, slightly higher than the 3.20 observed in this study. The dimensional patterns showed notable similarities with one important difference: Both studies identified Application as the weakest dimension (M = 3.32 in Reyes et al.; M = 2.74 in this study) and Detection in the middle range (M = 3.53 vs. M = 3.18). However, the two strongest dimensions were ranked differently: Reyes et al.'s participants scored highest on Ethics (M = 3.77) followed by Understanding (M = 3.70), while this study's participants scored highest on Understanding (M = 3.49) followed by Ethics (M = 3.39) [8].

The reversal in Ethics/Understanding rankings may reflect disciplinary differences: English education programs emphasize critical thinking and ethical reasoning as core humanities competencies, potentially explaining why Understanding slightly edges out Ethics in this study. Conversely, a diverse sample may include more students from programs where ethical frameworks are explicitly taught or emphasized, elevating Ethics scores. Alternatively, the difference may stem from measurement timing or contextual factors during data collection periods [1].

Importantly, both Philippine studies converge on the critical finding that practical application skills lag significantly behind conceptual knowledge. The Application gap is even more pronounced among BSEd-English students (2.74) compared to the broader university population (3.32), suggesting that humanities-focused programs may provide fewer opportunities for hands-on AI engagement than STEM or technology-oriented disciplines. This interpretation aligns with findings that STEM teachers report higher levels of AI literacy and cognitive understanding than non-STEM educators, further suggesting that disciplinary context significantly shapes AI literacy development [7].

The moderate overall AI literacy found in this study (M = 3.20) is consistent with Filipino pre-service teachers rating their AI literacy at moderate-to-high levels [7]. The curriculum context, influenced by policy shifts and challenges in Philippine grade school language education, may also shape AI literacy development [2]. However, it is important to note that these are self-reported perceptions rather than objective performance measures, and students may overestimate or underestimate their actual competencies. The relatively high standard deviations observed across dimensions also indicate considerable variability among participants, suggesting that some students are much better prepared than others.

Attitudes Toward AI Among BSEd-English Students (RQ2)

Participants' positive attitudes toward AI were relatively low (M = 2.18, SD = 0.56), falling below the scale midpoint of 2.5 and indicating weak agreement with statements expressing enthusiasm, preference, or optimism about AI. The lukewarm positive attitudes do not necessarily indicate rejection of AI, but rather suggest that these pre-service teachers are not yet convinced of AI's value for their specific professional context. They may need to see concrete, discipline-specific examples of how AI can enhance rather than threaten English teaching before they develop stronger positive attitudes [1].

Negative attitudes toward AI were slightly higher than positive attitudes (M = 2.41, SD = 0.51), though still moderate, indicating some level of concern regarding ethical risks, surveillance, job displacement, and potential misuse. However, the moderate level of negative attitudes suggests that concerns have not crystallized into categorical opposition. Participants appear to hold a "wait-and-see" stance, recognizing potential risks without necessarily believing AI is inherently harmful or should be avoided entirely [1].

Interestingly, one item from the Negative Attitudes scale showed a negative item-total correlation: "AI is used to spy on people." This item's poor performance may indicate that participants did not strongly associate this surveillance concern with their general negative attitudes toward AI, or that the item tapped into a different dimension of concern (privacy-specific fears rather than general skepticism). This measurement issue warrants attention in future research [1].

Taken together, the attitude findings suggest that BSEd-English students at DLSU-D hold a cautiously skeptical stance toward AI. They are neither enthusiastic early adopters nor resistant refusers, but rather ambivalent observers who recognize both potential benefits and significant risks. This ambivalence may actually represent an appropriate, critically reflective attitude for educators-in-training [1].

However, it also suggests that teacher education programs cannot assume students will eagerly embrace AI integration. Curriculum designers must address concerns, provide evidence of AI's pedagogical value, and create safe spaces for experimentation that allow students to develop informed attitudes through experience rather than relying solely on abstract discussions [1].

The cautiously ambivalent attitudes observed in this study differ somewhat from patterns reported in other Philippine research. While some studies found highly positive attitudes among pre-service and in-service teachers [1,7], large-scale studies provide important nuance. An overall attitude mean of 3.38 in other studies would fall in the moderate-positive range rather than highly positive. Their dimensional analysis revealed that cognitive attitudes (understanding AI's benefits) scored highest, while affective (emotional engagement) and behavioral (willingness to use) dimensions were notably lower—a pattern suggesting recognition of AI's utility without corresponding enthusiasm or active engagement. This mirrors the lukewarm positive attitudes observed in this study, though the present study's lower mean may reflect measurement differences or the specific characteristics of English education majors [1].

The convergence suggests that cautious, ambivalent attitudes may be more common among Philippine university students than earlier studies indicated. While students recognize AI's cognitive benefits, they show "discernible lack of emotional investment and active AI use," suggesting apprehension or caution. This interpretation aligns closely with findings from the present study [1].

Relationships Between AI Literacy and Attitudes (RQ3)

The correlational analysis revealed a selective pattern of associations between AI literacy dimensions and attitudes toward AI, with one dimension showing a meaningful relationship while others did not. These findings provide important insights into how knowledge, skills, and attitudes interact in meaningful ways [1].

The most important finding was a significant positive correlation between Positive Attitudes toward AI and Use and Apply AI ($\rho = .58$, $p = .038$). This moderate-to-strong association indicates that participants who reported greater confidence in using and applying AI tools in real-life contexts tended to hold more favorable views of AI. The correlation coefficient of .58 represents a meaningful effect size, particularly given the small sample [1].

Despite relatively high scores on conceptual understanding ($M = 3.49$), Know and Understand AI did not significantly correlate with either positive or negative attitudes toward AI. This is particularly noteworthy because this dimension represents foundational awareness—understanding AI concepts, terminology, and potential applications—which might be expected to shape how students evaluate the technology. The finding suggests that simply knowing about AI may be insufficient to influence attitudes; students can possess conceptual understanding while remaining ambivalent or uncertain in their evaluative orientations [1].

More broadly, none of the AI literacy dimensions—including the overall AI Literacy Index—showed significant correlations with attitudes (except for Use and Apply AI with positive attitudes). This overall pattern contradicts international studies suggesting that AI literacy and attitudes are positively related. Some studies found significant associations between teachers' overall AI literacy and both positive and negative attitudes, while others documented substantial positive correlations between comprehensive AI literacy measures and attitudes [1]. Despite students demonstrating high AI literacy and moderately positive attitudes, the correlation between these constructs was negligible and non-significant. In fact, some analyses revealed that attitudes toward AI explained only a tiny fraction of the variance in AI literacy, leading researchers to conclude that "AI literacy is affected by more complicated and varied factors than just attitudes" [1].

5. CONCLUSION

This study assessed the levels of AI literacy and attitudes toward artificial intelligence among Bachelor of Secondary Education–English major students at De La Salle University–Dasmariñas and examined the relationships between these constructs. The findings provide baseline evidence on how future English teachers in the Philippine context understand, evaluate, and engage with AI technologies.

Overall, BSEd-English students demonstrated a moderate level of AI literacy, with notable variation across dimensions. Participants exhibited relatively strong conceptual understanding of AI and ethical awareness, suggesting that exposure to AI discourse and the humanities-oriented emphasis on critical reflection have fostered foundational knowledge and moral sensitivity. However, weaker performance in the Use and Apply AI dimension indicates a persistent gap between theoretical awareness and practical competence. Students may understand what AI is and recognize its ethical implications, yet lack confidence in using AI tools meaningfully in academic or pedagogical contexts.

Attitudinal findings revealed a cautiously skeptical stance toward AI. Positive attitudes were relatively low, while negative attitudes were moderate, reflecting ambivalence rather than outright resistance. This balanced yet hesitant orientation suggests that pre-service English teachers recognize AI's potential benefits but remain concerned about its risks, particularly regarding ethics, academic integrity, and professional identity. Such caution may reflect thoughtful deliberation rather than deficiency, but it also indicates that positive engagement with AI is not yet fully established.

The correlational analysis revealed a selective pattern between AI literacy and attitudes. Among the four literacy dimensions, only Use and Apply AI demonstrated a significant positive association with positive attitudes toward AI. This finding highlights the importance of hands-on experience: students who feel more capable of using AI tools tend to view AI more favorably. In contrast, conceptual understanding, detection skills, and ethical awareness alone did not significantly influence attitudes. These results suggest that knowledge without practical application is insufficient to foster confidence or a positive orientation toward AI, emphasizing the need for experiential learning.

Taken together, the findings indicate that AI literacy and attitudes among BSEd-English students are shaped by complex, multidimensional factors. While students possess foundational awareness and ethical sensitivity, limited opportunities for applied engagement may contribute to ambivalence and restrained enthusiasm. These results underscore the need for teacher education programs to move beyond abstract discussions of AI and toward structured, discipline-specific, and practice-oriented learning experiences that develop both competence and confidence. Such experiences may include AI-supported instructional interventions aimed at enhancing English language proficiency in classroom contexts [1].

Recommendations:

1. Integrate AI literacy systematically into the curriculum. Teacher education programs, particularly in English education, should embed AI literacy across courses rather than treating it as a standalone topic. Learning outcomes should target practical AI use, ethical reasoning, and pedagogical application.

2. Prioritize hands-on, guided AI experiences. Given that Use and Apply AI was both the weakest literacy dimension and the only one significantly associated with positive attitudes, programs should provide opportunities to use AI for lesson planning, formative feedback, differentiated instruction, and writing support, accompanied by structured reflection on limitations and ethical considerations.

3. Contextualize AI literacy to English language teaching. Pre-service teachers should receive training on AI-assisted writing, plagiarism detection, feedback systems, and multilingual support. Discipline-specific examples increase relevance and reduce skepticism.

4. Reinforce ethical awareness through applied activities. Case studies, policy analysis, and classroom simulations can help pre-service teachers translate ethical principles into professional judgment and classroom practice.

5. Support faculty professional development. Teacher educators should be trained in AI literacy to model informed, critical, and balanced AI use, shaping students' attitudes, confidence, and willingness to experiment.

6. Develop national or institutional AI literacy standards. Higher education institutions and policymakers, including CHED and DepEd, should establish clear guidelines to reduce reliance on informal exposure and ensure equitable preparation across institutions.

7. Future research directions. Studies should involve larger, more diverse samples across multiple teacher education institutions and explore longitudinal changes in AI literacy and attitudes. Mixed-methods research can provide deeper insights into how beliefs, experiences, and professional identity shape AI engagement. Refining and validating AI attitude instruments within the Philippine context is also recommended to improve measurement reliability.

6. CONFLICT OF INTEREST

The paper was written in partial fulfilment of a technical writing course in the said university wherein the course facilitator has been included as one of authors. No funding, external support, and other notable circumstances deem necessary to be declared as a potential conflict of interest.

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