UNDERSTANDING THE ARTIFICIAL INTELLIGENCE LITERACY BETWEEN NOVICE AND EXPERIENCED ENGLISH TEACHERS IN INDONESIA

Nur Arifah Drajati[a], Dewi Cahyaningrum[b], Ellisa Indriyani Putri Handayani[b], Anis Handayani[b]
([a]nurarifah_drajati@staff.uns.ac.id; [b]dewicahyaningrum@staff.uns.ac.id, [c]ellisaindriyani@staff.uns.ac.id, [d]anishandayani@uny.ac.id)

[a, b, c]Universitas Sebelas Maret,
Jalan Ir. Sutami No.36, Jebres, Surakarta, Central Java, Indonesia, 57126

[d]Universitas Negeri Yogyakarta
Jalan Colombo No.1, Karang Malang, Depok, Sleman, Yogyakarta, Indonesia, 55281

Abstract: The massive utilization of artificial intelligence (AI) in educational settings has been a research trend for years. However, literature on AI literacy was lacking despite its potential effect on AI implementation in class. Responding to this gap, this sequential explanatory mixed-method study examined the AI literacy of in-service teachers (novice and experienced teachers) in Indonesia. An online survey of AI literacy was administered to 176 EFL teachers, consisting of novice teachers (n = 75) and experienced teachers (n = 101). The survey adopted the Artificial Intelligence Literacy Scale (AILS) proposed by Wang et al. (2023), which includes 12 items covering four constructs of AI literacy: awareness, usage, evaluation, and ethics. Follow-up interviews were then conducted with 20 selected participants: ten novice teachers and ten experienced teachers. An independent sample t-test was performed to analyze the quantitative data while thematic analysis was applied to analyze the follow-up qualitative data. Our results mainly revealed that teachers were least proficient in using AI and most knowledgeable about the potential misuse of AI. Several differences in the AI literacy between the two groups were also noted and need to be considered to develop an effective and suitable future teacher professional development program. Further implications for future research and pedagogy are discussed.

Keywords: artificial intelligence literacy, educational technology, teacher professional development

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Artificial intelligence (AI) enables computers to carry out tasks designed for humans (Ertel, 2018). It is an intelligent machine that has ability to reason, learn, gather information, communicate, manipulate, and perceive the objects (Pannu, 2015). With the global integration of AI into education, various forms of AI were rapidly utilized to support teaching and learning process. For students, AI may facilitate automated scoring, improve engagement, provide learning content, and help evaluate students' comprehension. For teachers, AI can support them

in designing learning materials to meet students' individual needs and in facilitating collaboration, feedback, and teaching evaluation (Liang et al., 2021).

Particularly, in second language (L2) learning, the potential benefits of AI have also been noted. In the teaching and learning of writing, for example, Ranalli (2021) highlights the value of automated writing evaluation (AWE) in providing immediate feedback on students' writing, while cautioning that students must critically assess the accuracy of the feedback. Similarly, Rad et al. (2024) examined the use of AI-powered application *Wordtune* in second language (L2) learning and reported that it positively impacted students' writing engagement, feedback literacy, and writing outcomes. In the teaching and learning of speaking, conversational AI applications have shown potential in enhancing students' speaking ability while reducing teachers' workload (Ji et al., 2023).

Despite the promising potential of AI-based applications, several studies have pointed out the challenges in their use. Crompton et al. (2022) revealed that teachers' lack of AI knowledge and technology capability frequently hindered the effective use of AI in education. Teachers, as the users, need to adapt to automation and computation which some may not be used to (Wang & Wang, 2019). Many of them also tend to be worried about students' negative perceptions of their mistakes in utilizing AI technology in teaching that it discourages their AI utilization (Henderson & Corry, 2021).

Privacy concerns further emerge as another issue in this technological integration (Chung & Lee, 2019). AI users should be aware of critical issues of academic integrity, privacy and data protection, equity and bias, and the impact on teacher-student relationships (Leta & Vancea, 2023). Also, as AI potentially produce misleading or low-quality outputs (Zeer et al., 2023), the overuse of AI in education may negatively affect students' critical thinking skills, autonomy, and ethical decision-making (Saylam et al., 2023).

Besides, the cost of accessing the AI technology has been another challenge in AI-based learning. Ali (2020) reported that students need to have access to Google Assistant by purchasing the account to be able to enjoy the features to enhance their oral language skills. This creates an additional barrier for students from economically disadvantaged backgrounds. The lack of appropriate school policies and supporting facilities has also been highlighted as a challenge (Ifinedo & Kankaanranta, 2021).

As prior studies indicate both the successful utility and challenges of AI-based applications in language education, in-service teachers need to acquire the ability to selectively choose, utilize, and evaluate the applications appropriately. This specific capability is frequently named as AI literacy. Wang et al. (2023) proposed a framework of AI literacy consisting of four constructs: (1) *Awareness*—the ability to identify and comprehend AI technology during the use of AI-related applications, (2) *Usage*—the ability to apply and exploit AI technology to accomplish tasks, (3) *Evaluation*—the ability to analyze, select, and critically evaluate AI applications and their outcomes proficiently, and (4) *Ethics*—the ability to be aware of the responsibilities and risks associated with the use of AI technology. Teachers' adequate AI literacy potentially predicts the success of AI utility in education.

However, due to the heavy academic workload teachers face (Wall & Hall, 2017), they may not receive adequate training on how to utilize AI effectively. It potentially leads to inadequate AI literacy which predicts negative outcomes of AI utility. As technological development has

brought a new era of AI in education, it becomes critical for teachers to acquire AI literacy. Like many other countries, Indonesia has recently begun exploring the use of AI in education. Efforts have been made to strengthen internet connectivity to support AI-based teaching and learning, despite ongoing challenges (Machmud et al., 2021). However, Indonesian teachers are still in need of training to carry out AI-based teaching appropriately (Hastungkara & Triastuti, 2020). Anticipating this issue, today's teachers need to acquire AI literacy –"an ability to properly identify, use, and evaluate AI-related products under the premise of ethical standards" (Wang et al., 2023, p. 1324). This AI literacy enables teachers to make proper use of AI-based applications in their teaching.

As AI-based applications have been globally adopted in education, research interest in AI literacy has recently increased in response to their growing popularity. Kong et al. (2021) examined a university-level AI literacy course in fostering students' AI literacy with diverse backgrounds. Their study resulted in gain for students' AI concepts, literacy, and empowerment after taking the course despite their diverse background and prior knowledge of programming. Wang et al. (2023) developed and validated AI literacy scale (AILS), which is adopted in this study, for measuring users' AI literacy levels. In 2023, Kong et al. (2023) further studied their AI literacy courses and found out that project work successfully supported students' learning of AI concepts, literacy, empowerment, and ethical awareness. Furthermore, Su and Ng (2023) evaluated an AI literacy program for early childhood education. Their study uncovered that early childhood students were able to learn the basic concepts of AI and that AI literacy contributes positively to their AI-driven future.

Teachers as key agents in the success of education play a critical role in utilizing AI in their classes, which is potentially affected by their teaching experience. Related to this, Nazari et al. (2019) revealed that novice teachers outperformed the experienced teachers in terms of technological knowledge (TK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and technological pedagogical and content knowledge (TPACK). This may suggest that novice teachers, who are generally younger, tend to have greater capability in utilizing educational technology, including AI. Basantes-Andrade (2020) similarly revealed that teachers' digital competence highly depended on their generations. It was found that generation Z has the most promising digital competence compared to the prior generations.

A review of previous studies has been focused on AI literacy programs and their impact on students from early childhood to university levels. However, those previous studies have disregarded the AI literacy levels acquired by in-service teachers as one key predictor for successful AI integration. Moreover, drawing on the work of Nazari et al. (2019), novice and experienced teachers potentially have different levels of digital competence, which could lead to varying degrees of AI literacy. In this regard, drawing on the AI literacy scale (AILS) proposed by Wang et al. (2023), this sequential explanatory mixed-method study aims to investigate the AI literacy of in-service English teachers in Indonesia, both novice and experienced, as well as the factors influencing it. This study not only reveals the AI literacy levels of in-service English teachers in Indonesia but also opens up broader avenues for exploring AI-based applications in education. This study was explicitly guided by the following research questions:

1. How does AI literacy differ between novice and experienced in-service English teachers?
2. What factors influence the AI literacy levels of in-service English teachers?

METHOD

We employed sequential explanatory mixed-methods research design, as the initial quantitative results inform the subsequent qualitative data collection (Cresswell, 2009). Specifically, the findings from the independent samples t-test, which revealed differences in AI literacy levels were further explored through follow-up semi-structured interviews. The qualitative data provided deeper insights into the factors influencing these differences.

Participants and Setting

We conducted this study in the setting of a virtual teacher professional development program in Indonesia. A total of 176 English teachers comprising 130 female (73.9%) and 46 male teachers (26.1%) from various school levels—elementary school (5 teachers, 2.8%), junior high school (15 teachers, 8.5%), senior high school (135 teachers, 76.7%), and university (21 teachers, 11.9%)— participated in an online teacher professional development (oTPD) program in 5 meetings. The program provides opportunities for the participants to integrate AI (e.g., ChatGPT and Quillbot) in their teaching and learning process. Although the participants represented different educational levels, for the purposes of this study they were categorized as novice or experienced based on years of teaching experience. We acknowledge that teaching context (e.g., school vs. university level) may also shape AI literacy and integration practices, which is addressed in the interpretation of our findings.

The participants were divided into two categories: novice and experienced teachers. Drawing on Palmer et al. (2005), we identified experienced teachers as those who have at least five years of teaching experience. Hence, a total of 101 teachers were identified as experienced teachers (57.4%). For the novice teacher category, we employed the theory of Farrell (2012) which identified novice teachers as ones having less than three years of teaching experience. Hence, the remaining 75 teachers fell into the novice teacher category. Furthermore, the teachers acquired various education degrees: bachelor degree (94 teachers, 53.4%), master degree (77 teachers, 43.8%), and doctoral degree (5 teachers, 2.8%). However, this arrangement left a small subset of teachers, those with three or four years of teaching experience, in a potential classification gap. To maintain conceptual and methodological clarity, we chose to exclude these "in-between" cases from either category for the purposes of comparative analysis between novice and experienced teachers. This approach ensures that the two groups represent clearly differentiated stages of professional development.

Instruments

We adapted the Artificial Intelligence Literacy Scale (AILS) proposed by Wang et al. (2022) consisting of 12 items covering the four constructs of AI literacy: awareness, usage, evaluation, and ethics to collect our quantitative data (See Appendix 1). The original English questionnaire was translated into Indonesian to avoid misinterpretation. It was subsequently back-translated

into English by two external experts with expertise in teacher motivation to ensure the accuracy and validity of the instrument's implementation across cultural contexts. To ensure its validity and reliability, a pilot testing involving 30 participants (N=30) was conducted. Referring to the analysis results, we acquired $r_{obtained}$ in the range of 0.37-0.75 and Cronbach's alpha of 0.80 which is higher than r_{table} (0.36) with significance level of 5% and accordingly confirmed the instrument's validity and reliability.

For collecting the qualitative data, we developed an interview guideline guided by the results of the questionnaires. We deliberately asked for further information to the ten selected participants for semi-structured interviews (see table 1). Thus, the participants consisted of five experienced teachers with moderate levels of AI literacy and five novice teachers with high levels of AI literacy (according to the results of quantitative findings). We prepared some follow-up questions to identify the participants' views related to the barriers and motivational factors that are potentially different between novice and experienced teachers with different levels of AI literacy. The two main follow-up questions are (1) *What makes it difficult for you to use AI in your teaching?*; and (2) *Why do you want (or not want) to keep learning about AI?*

Table 1. The Selected Participants for Interviews

Participant ID	Pseudonym	Teaching Level	Years of Experience	AI Literacy Level	Group
N1	Dimas	Elementary	2	High (3.8)	Novice
N2	Sena	Junior high	1	High (4.6)	
N3	Rian	Senior high	3	High (3.9)	
N4	Dea	Higher education	2	High (4.1)	
N5	Diana	Higher education	2	High (4.5)	
E1	Heru	Elementary	18	Moderate (2.7)	Experienced
E2	Jaka	Junior high	14	Moderate (3.3)	
E3	Dewi	Senior high	20	Moderate (3.0)	
E4	Ridho	Higher Education	22	Moderate (2.6)	
E5	Ana	Higher Education	11	Moderate (3.4)	

Data Collection

After receiving approval from the institutional review board, the third author administered the survey during the final fifth meeting of the oTPD. After the quantitative data were collected, we proceeded with follow-up semi-structured interviews involving ten novice and ten experienced English teachers. The participants were chosen based on their AI literacy levels. For instance, the first author purposely interviewed the experienced teachers who scored above the average of the AI literacy test ($M > 3.51$). Similarly, the second author also interviewed the novice teachers who scored above the average of the AI literacy test ($M > 3.51$). Hence, the

interview data provided deeper insights into the survey findings and addressed the second research question on the factors influencing teachers' AI literacy. The interviews were conducted individually through Zoom Meeting application to accommodate participants who lived in various regions. Each interview lasted approximately 15 to 20 minutes.

Data Analysis

As the quantitative data were collected, we first calculated the mean AI literacy levels of novice and experienced teachers to determine the overall AI literacy of both groups. The levels are categorized as low (M = 1.00 - 2.49), moderate (M = 2.50 – 3.49), and high (M = 3.50 – 5.00). Then, to probe deeper into the difference of both groups in the aspects of AI literacy and answer the first research question, the data were submitted to the IBM SPSS Statistics 25. As the data were confirmed to be normal (Sig. = 0.10 for novice teachers and 0.08 for experienced teachers > 0.05) and homogeneous (Sig. = 0.09 > 0.05), we then performed an independent t-test to examine the differences (mean, standard deviation, t-value, and 95% of confidence interval) between novice and experienced teachers with respect to their AI literacy levels.

To address the second research question, the interview data were transcribed using the Sonix application. We then employed member checking (Birt et al., 2016) to ensure the transcription accuracy. Employing thematic analysis, we coded the data based on the four aspects of AI literacy proposed by Wang et al. (2023): awareness, usage, evaluation, and ethics. We discussed the coding discrepancies and resolved them through mutual consensus among us and two other expert coders, resulting in an inter-rater reliability score of 86%. We presented the excerpts which allowed us to make relevant and meaningful interpretations of the quantitative data, particularly regarding the factors influencing differences in the novice and experienced teachers' AI literacy levels, in the findings section. Furthermore, pseudonyms were used to protect our participants' privacy.

FINDINGS AND DISCUSSION

Findings

Levels of In-service Teachers' AI Literacy in Indonesia

According to the data collected from 176 participants comprising both novice and experienced teachers, the mean AI literacy scores of novice teachers was found to be 3.54 (SD = 1.08), whereas for experienced teachers it was 3.48 (SD = 1.10). Referring to the established level categorization, novice teachers fall within the high level of AI literacy (M = 3.50–5.00), while experienced teachers are categorized under the moderate level (M = 2.50–3.49). To further investigate potential differences across specific dimensions of AI literacy, an independent samples t-test was conducted using SPSS version 25.

Differences in AI Literacy between Novice and Experienced English In-Service Teachers

The results of the independent sample t-tests indicate no significant difference between novice and experienced teachers in the *awareness* construct as the t-value (t (174) =.59, p >.05,

CI = -.13 to.25; CI = confidence interval) exceeds the threshold of significance (p >.05) (see Table 2). A closer examination of the awareness construct reveals that the first item (*'I can distinguish between smart devices and non-smart devices'*) received the highest mean scores among the three items for both novice teachers (M = 3.85, SD = 1.18) and experienced teachers (M = 3.91, SD =.94) (see Table 3).

Table 2. AI Literacy of Novice and Experienced English Teachers across Awareness, Usage, Evaluation, and Ethics Constructs

Constructs	Novice teachers (n = 75)		Experienced teachers (n = 101)		t-value	95% confidence interval
	M	SD	M	SD		
AWARENESS	3.61	1.17	3.55	1.13	.59	-.13 to.25
USAGE	3.39	1.09	3.29	1.16	.97	-.09 to.29
EVALUATION	3.51	.96	3.33	1.01	1.9	.00 to.34
ETHICS	3.65	1.09	3.76	1.02	-1.21	-.29 to.06

Table 3. Statistical Analysis of Novice and Experienced English Teachers' Responses to Individual Items of AI Literacy Constructs

Constructs	Novice teachers (n = 75)		Experienced teachers (n = 101)		t-value	95% confidence interval
	M	SD	M	SD		
AWARENESS-1	3.85	1.18	3.91	.94	-.35	-.37 to.25
AWARENESS-2	3.45	1.16	3.40	1.19	.26	.30 to.40
AWARENESS-3	3.54	1.15	3.35	1.16	1.07	-.15 to.53
USAGE-1	3.54	1.10	3.33	1.15	1.21	-.13 to.55
USAGE-2	3.14	1.07	3.14	1.13	-.01	-.33 to.33
USAGE-3	3.48	1.08	3.39	1.20	.47	-.26 to.43
EVALUATION-1	3.46	.99	3.19	1.07	1.69	-.04 to.58
EVALUATION-2	3.54	.94	3.44	.95	.69	-.18 to.38
EVALUATION-3	3.52	.97	3.36	1.00	1.01	-.14 to.45
ETHICS-1	3.76	1.02	3.97	.85	-1.48	-.49 to.06
ETHICS-2	3.33	1.06	3.39	1.15	-.367	-.40 to.27
ETHICS-3	3.86	1.11	3.93	.93	-.41	-.36 to.24

Similarly, no significant difference was found in the *usage* construct (t(174) =.97, p >.05, IC = -.09 to.29). A closer look at the individual items within this construct shows that item USAGE-2 "*It is usually hard for me to learn to use a new AI application or product*" received

the lowest scores among the 12 items, with both novice teachers (M = 3.14, SD = 1.07) and experienced teachers (M = 3.14, SD = 1.13).

In contrast to the previous constructs, a significant difference emerged in the *evaluation* construct (t(174) = 1.9, p <.05, IC =.00 to.34). Further analysis of the individual items revealed that novice teachers scored higher on EVALUATION-1 "*I can evaluate the capabilities and limitations of an AI application or product after using it for a while*" (M = 3.46, SD =.99), EVALUATION-2 "*I can choose a proper solution from various solutions provided by a smart agent*" (M = 3.54, SD =.94), and EVALUATION-3 "*I can choose the most appropriate AI application or product from a variety for a particular task*" (M = 3.52, SD =.97). This suggest that novice teachers demonstrated greater capability in evaluating AI applications compared to the experienced teachers.

In the *ethics* construct, there was also no significant difference between novice and experienced teachers (t (174) = -1.21, p >.05, IC = -.29 to.06). However, the analysis of individual items revealed higher scores among experienced teachers for ETHICS-1 "*I always comply with ethical principles when using AI applications or products*" (M = 3.97, SD =.85), ETHICS-2 "*I am never alert to privacy and information security issues when using AI applications or products*" (M = 3.39, SD = 1.15), and ETHICS-3 "*I am always alert to the abuse of AI technology*" (M = 3.93, SD =.93). ETHICS-3 showed the greatest difference among all 12 items, indicating that both novice and experienced teachers were mostly aware of ethical issues, particularly concerning the misuse of technology in the application of AI tools.

Factors Influencing In-Service English Teachers' AI Literacy

The quantitative analysis revealed a slightly higher mean AI literacy score for novice teachers (M = 3.54, SD = 1.08), categorized as high, compared to experienced teachers (M = 3.48, SD = 1.10), categorized as moderate. To explore the underlying factors contributing to this difference, semi-structured interviews were conducted with ten purposefully selected participants: five novice teachers with high AI literacy and five experienced teachers with moderate AI literacy. These participants represented a variety of educational levels from elementary to higher education, and their background information is summarized in Table 1. These findings further justify the factors influencing both novice and experienced teachers' AI literacy levels, focusing on the barriers to developing AI literacy and motivating factors in learning AI.

Barriers to developing AI literacy

Despite their different levels of experience, both novice and experienced teachers reported similar systemic barriers to developing AI literacy: lack of school facilities, limited access to training, and financial constraints. As shown in Table 4, these barriers were mentioned consistently across both groups.

Table 4. Summary of Factors Contributing to Teachers' Barriers to Acquiring AI Literacy

No.	Influential factors	Novice teachers (N)	Experienced teachers (N)
1.	Lack of school facilities (e.g., internet connection)	4	4
2.	Lack of AI related training programs	3	4
3.	High costs of AI application or subscription	4	2

A novice teacher, teaching in a private high school in the border area of Indonesia reported that her school did not provide adequate internet connection that she rarely utilized technology in her teaching.

> "*In my school, it is quite difficult to get online teaching resources, so AI is too much high-tech to use here*." (Sena, N2)

This result was supported by an experienced teacher's statement lived in one big city in Indonesia that even in big cities, AI was rarely utilized by teachers.

> "*Even if the facility [internet connection] was there, teachers are hesitant to utilized AI since we knew little about it [how to utilize AI in teaching]*." (Dewi, E3)

As reported, lack of knowledge on how to utilize AI has been another issue in AI utilization. School support in providing training programs to support teachers' knowledge has been missing. A novice teacher highlighted the importance of taking training programs in AI utilization despite its rare existence.

> "*I think joining a TPD program on AI in teaching will be helpful in mastering AI in my teaching. However, since there is rarely a TPD program focusing on that aspect and my school did not provide such training, it leaves confusion, hesitance, and anxiety to utilize AI in my class*." (Rian, N3)

Another issue from experienced teachers is their bare-minimum capacity in utilizing educational technology. A teacher with 14 years of teaching experience reported that he only used PowerPoint slides as his practice in using technology in teaching.

> "*I generally only used PPT (PowerPoint slides) as I asked to use technology in my teaching (laugh). So, AI has never crossed my mind [as one educational technology]*". (Jaka, E2)

Prices for acquiring full features of AI-based applications was also a reason for teachers' inexperience in utilizing AI. They reported that to acquire features that can accommodate their teaching, they need to pay for high prices. No adequate financial support from schools to accommodate the application was mostly reported by the teachers. Dimas, a novice teacher teaching in an elementary school, reported that he was interested in using AI in his teaching, but

since many applications required high prices, he neglected this technology and prefer using more affordable or free application.

> "*Using AI should be more interesting for my students, but AI-based applications charge quite high price to enjoy its features. So, I just used something [other applications] that is more affordable or even free to use*." (Dimas, N1)

> "*High price for the application features makes me think twice before using the application (Heru, experienced)*." (Heru, E1)

Another teacher reported that they used the application for free but he stopped using it if it started charging for payment.

> "*I often use it when it is free, but once it is charged, I stop using it (laugh).”* (Dea, N4)

Motivational factors in learning AI

Despite the barriers, motivational factors helped explain why novice teachers had higher AI literacy. As shown in Table 5, novice teachers showed strong motivation to learn new tools, improve student engagement, and stay current with technology. In contrast, while experienced teachers also reported motivation, it was often driven by external concerns (e.g., student misuse of AI).

Table 5. Summary of Motivational Factors in Learning AI

No.	Influential factors	Novice teachers (N)	Experienced teachers (N)
1.	Willingness to learn something new	4	5
2.	Potential students' academic misconduct using AI-based applications	3	4
3	Willingness to improve students' learning experience	4	2

One novice teacher realized that she was a new teacher and required a lot of learning experiences to increase her professionalism as a teacher. Therefore, she willingly learned AI applications to improve her teaching practices.

> "*A new teacher like me needs to learn a lot of things [including how to utilize AI] to make my class more interesting for my students*." (Diana, N5)

Unsurprisingly several experienced teachers agreed with the sentiment. Despite their massive experience in teaching, they eagerly learned new technology to support their teaching practices and improve students' learning experiences.

> "*Learning something will make me more professional in teaching and set a good example for my students to always learn something new."* (Heru, E1)

Due to the massive changes in technology, including in education, students nowadays frequently use AI to help them finish their assignment. This phenomenon has driven the teachers' motivation to learn AI and its usage in education. They are afraid that their students will 'deceive' them in finishing the school assignments using AI-based applications.

> "*My students could know more about AI than me … so, let's say, they finish their assignments using AI but reported it to me saying that it is their own work, it will be somehow "funny". So, I need to learn about AI so that I can be aware of my students' work process and control their capacity in using AI*." (Sena, N2)

An experienced teacher also pointed out a similar sentiment of their fear of being deceived by their students.

> "*Students now can use many applications on the internet, right? I am afraid that AI will be the one doing their work and they [the students] did not get a thing [something to learn] from the assignments."* (Ridho, E4).

Teachers nowadays need to upgrade their teaching techniques and learning assessment to properly evaluate students' learning progress since they frequently used AI to support their learning.

> "*Assessing my students' works now should be quite different [from traditional assessment] that I need to learn how AI works and support my students' learning."* (Rina, E1)

A novice teacher supported the previous statement by reporting her willingness to make her class more interesting by using AI-based applications in her teaching practices.

> "*Using AI in my class makes my class more interesting. My students will not only receive something from me [traditional teacher-center] but they can experience real-world problems and discover the knowledge by themselves by using AI*." (Dea, N4)

Discussion

This study was designed to investigate the AI literacy of novice and experienced teachers in Indonesia and their influential factors. Four significant findings were highlighted. First, novice and experienced teachers were found to have the lowest score on the *usage* construct of AI literacy with no significant difference between the two groups. The interview data reported the lack of school support in facilitating teachers to acquire the skill of using AI-based applications appropriately. Novice teachers particularly noted the lack of school facilities, training programs, and the application's high price leading to inadequate exposure, practices, and skills of using the applications. This finding is in conformation with Ali (2020) and Chung and Lee (2019) that users need to purchase an account to acquire the features in AI-based

applications. These issues lead leads to low exposure and skills among both teachers and students. Also, as reported by S. C. Kong et al. (2023), a training focusing on how to utilize AI is highly demanded to provide adequate knowledge and practices for teachers on using AI-based applications.

Second, both groups reported the highest scores on the *ethics* construct of AI literacy with experienced teachers scoring slightly higher than the novice teachers; however, the differences were not statistically significant. Drawing on the qualitative data, the most prominent factor appears to be the teachers' awareness of students' unregulated use of AI that may negatively affect their learning outcomes. Both novice and experienced teachers have been anxious about their students' "new cheating technique" –using AI to do their school assignments. This factor motivates teachers to learn about the ethics of using AI, with the aim of guiding students toward more responsible and controlled use of AI. This finding supports Day (2023) who highlights the importance of double-checking the results the users acquired from an AI-based application. He revealed the "wrongdoing" of ChatGPT in providing fake references and citations. Also, another study conducted by Sison et al. (2023) revealed that using ChatGPT can be considered a "weapon of mass deception" (WMD) since many students uncontrollably used this application and submitted its output as their own work. This highlights the urgent need for teachers to be more vigilant in supervising students' ethical use of AI so that they can ensure proper and responsible use of AI in students' learning process.

Third, in the evaluation construct, a significant difference was noted between novice and experienced teachers with novice teachers outnumbered the experienced teachers. It indicates that novice teachers perceived themselves to be more capable in evaluating and choosing the appropriate AI-based applications than experienced teachers. While one plausible explanation lies in differences in technological knowledge as novice teachers are generally younger and more recently trained with digital tools (Mouza et al., 2017), the qualitative data also support this finding. Experienced teachers often expressed limited confidence and familiarity when it came to critically evaluating AI tools. Their use of technology was frequently described as basic or habitual, and many had little prior exposure to AI or similar innovations. This limited experience may have contributed to their hesitancy in exploring or assessing the usefulness of AI in teaching. In contrast, novice teachers demonstrated a greater openness to experimentation and professional growth. Their willingness to explore new tools and reflect on their use in the classroom contributed to stronger evaluative engagement with AI. Thus, differences in evaluation skills appear to stem not only from levels of technological knowledge, but also from teachers' confidence, adaptability, and reflective teaching orientation.

However, the ability to critically evaluate and select appropriate AI tools goes beyond mere technological familiarity Experienced teachers often face considerable cognitive and emotional demands in managing classrooms, assessments, and administrative tasks, which can lead them to favor tools that offer efficiency and ease of use over those requiring deeper scrutiny. This reliance on convenience may contribute to automation bias, in which users overtrust AI outputs simply because they appear objective or time-saving. (Zhang et al., 2024). It potentially has tendency in the uncritical AI integration that is not pedagogically aligned or that reinforce existing biases, ultimately limiting their transformative potential in the classroom. To address this issue, a targeted professional development is necessary not only to enhance technological

proficiency but also foster critical digital literacy and reflective evaluation skills among experienced teachers.

Lastly, intrinsic motivation to learn something new emerged as a key factor driving both novice and experienced teachers to learn more on how to use AI appropriately. This supports Han's (2016) assertion that teachers generally have a natural disposition toward continuous learning. As AI has been massively used in education, they are motivated to develop the necessary knowledge and skills to integrate it in their classrooms. One way to achieve the goals is by participating in a training program on how to utilize AI appropriately in the classroom. This is in line with the finding from S. C. Kong et al. (2021), which indicates the effectiveness of a training program with flipped classrooms in developing teachers' understanding of AI concepts and literacy, as well as their skills in using AI.

CONCLUSION

This study has examined the AI literacy of novice and experienced English teachers and subsequently its influential factors. The results reveal that both novice and experienced teachers scored lowest on the *usage* construct, which was attributed to a lack of school support, limited facilities, and the high cost of AI applications. Overall, teachers generally acquired AI literacy as a result of their willingness to learn new things and their awareness of potential misuse of AI. A comparison between the two groups also reveals that novice teachers were more capable of evaluating AI-based applications than was the case for experienced teachers. However, in the *ethics* construct, experienced teachers scored slightly higher, indicating a greater awareness of the potential misuse of AI. These findings suggest the need to provide experienced teachers with more exposure to AI concepts and practical evaluation strategies, while focusing more on ethical considerations in using AI for novice teachers.

Despite its contributions, this study has several limitations that should be addressed in future research. As the AI literacy examined in this study is based solely on teachers' self-perceptions, as reflected in their questionnaire responses, future studies could consider incorporating objective measures, such as performance-based assessments or practical tasks, to more accurately evaluate teachers' actual AI literacy. In addition, examining AI literacy across gender could provide insights into potential differences and the strategies to address them. Finally, while this study solely focused on teachers' AI literacy, future studies could extend this inquiry by examining students' AI literacy to gain a more comprehensive understanding of AI integration in educational contexts, particularly within English language education. Such research would provide valuable insights into how both teachers and learners engage with AI tools, and how their combined competencies influence teaching effectiveness and learning outcomes.

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APPENDIX

Appendix 1. The Research Instrument

No.	Question items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I can distinguish between smart devices and non-smart devices.					
2	I do not know how AI technology can help me.					
3	I can identify the AI technology employed in the applications and products I use.					
4	I can skillfully use AI applications or products to help me with my daily work.					
5	It is usually hard for me to learn to use a new AI application or product.					
6	I can use AI applications or products to improve my work efficiency.					
7	I can evaluate the capabilities and limitations of an AI application or product after using it for a while.					
8	I can choose a proper solution from various solutions provided by a smart agent.					
9	I can choose the most appropriate AI application or product from a variety for a particular task.					
10	I always comply with ethical principles when using AI applications or products.					
11	I am never alert to privacy and information security issues when using AI applications or products.					
12	I am always alert to the abuse of AI technology.					