

Artificial Intelligence Literacy Among English Language Teachers: Challenges and Opportunities

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Abstract: The emergence of the generative artificial intelligence (GenAI), large language models (LLMs), and AI-powered educational technologies has dramatically altered practices of the English Language Teaching (ELT) through providing personalized learning, automated feedback, and intelligent instruction support. Still, the rising popularity of the AI technologies among students has shown a crucial deficiency of the AI literacy on the side of English language teachers, who typically have some general digital literacy but are lacking the necessary set of skills to use AI technologies in pedagogy. The current study will consider issues and prospects connected to the development of AI literacy in language teachers and suggest a conceptual framework for AI-enabled ELT. The present study is based on the conceptual review of the existing literature on AI literacy, AI applications in the field of language education, and teacher professional development. In particular, the conceptual framework for teacher AI literacy will be provided, which comprises four major aspects of teacher AI literacy: technical literacy, pedagogical integration, ethical governance, and adaptation. The analysis will cover main challenges connected to the topic such as difficulties in matching AI tools with the theory of second language acquisition, ethical issues, and institutional barriers. On the other hand, AI literacy offers transformative possibilities via AI-enabled learning design, automated formative assessment, and innovative teacher professional development approaches. This study stresses the importance of developing AI literacy programs, discipline-specific training, and professional development programs in order to make English language teachers capable of using AI. The results of this research will be valuable for further ELT policies and practices regarding responsible, effective, and sustainable use of AI.

Key Words: AI literacy, english language teaching (ELT), teacher professional development, educational technology, pedagogical challenges

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Introduction

The swift growth of GenAI, LLMs, and various educational technologies based on artificial intelligence has greatly impacted modern classrooms. Innovations including AI writing assistance, automated feedback software, intelligent tutoring systems, and conversational agents are gradually finding their applications in the process of language learning. In this regard, English language education, which is closely associated with communicative competence, writing skills, and constant feedback, presents great possibilities to apply the benefits of these technologies in the educational process. Nonetheless, the

effective use of these technologies by the students is contingent on the teachers' readiness to use, assess, and manage the learning environments provided by artificial intelligence.

In spite of the fast uptake of AI tools by students, most English language teachers face a big problem of lack of AI literacy skills. Although teachers have skills on digital technology generally, they do not have the specific AI literacy skills that will allow them to be able to make use of AI tools in classroom settings effectively. These skills include how to create appropriate AI prompts, understand the output generated by AI, evaluate the reliability of the output, tailor the AI tool according to the learners' needs, and ensure responsible use of AI tools.

Significance and Objectives

The study of AI literacy among teachers becomes extremely relevant against the backdrop of the increased use of AI technologies in English language teaching and learning. Analysis of the teachers' readiness, problems and competencies will contribute to the creation of efficient AI training programs for educational organizations.

Research Objectives Include

- The assessment of the current situation regarding AI literacy among English language teachers and competency gaps in relation to the use of AI-assisted methods of teaching.
- The review of teachers' awareness and application of the GenAI and LLM-based tools for language instruction, assessment and feedback generation.
- The discussion of the problems connected with the implementation of AI technologies in language instruction, such as ethical considerations, reliability issues and pedagogical limits.
- The identification of the key AI literacy dimensions needed for efficient English language education, including prompt engineering, AI assessment, personalization and responsible governance.
- The elaboration of the recommendations for the development of teacher-oriented AI PD programs.

The current paper includes six sections. In the first section, there will be a brief overview of the background, problem statement, and goals of the paper. Section II gives a literature review on the problems of AI literacy, uses of AI in language teaching, and gaps in the teacher training process. Section III introduces the theoretical framework, which includes technical skills, pedagogical implementation, ethical management, and adaptation. Section IV considers the challenges of AI literacy in ELT. Section V discusses transformational opportunities and AI-assisted teaching. Section VI summarizes the paper with recommendations and suggestions for future research.

Literature Review

The Evolving Landscape of Digital and AI Literacy in Education

Digital literacy is greatly expanded due to the emergence of AI technology, going beyond mere competence in handling computers and reaching a higher degree of understanding of AI-based decisions, data analysis, algorithms, and criticism of the intelligent systems. The acquisition of AI literacy requires not only an understanding of AI technology but also the evaluation of the outputs provided by AI, knowing about the limitations and biases built into the system and using the technology in an appropriate and responsible way. In educational terms, it involves the need for teachers to develop competencies such as

data literacy, ethical thinking, computational thinking, and criticism of AI-based recommendations. As previous studies pointed out, the acquisition of AI literacy goes beyond the development of technical skills and includes the development of a complex set of competencies that combine cognitive, ethical, and pedagogical aspects. It is vital for teachers to master such competencies since they serve as intermediaries responsible for the introduction, interpretation, and integration of AI technology (Celik et al., 2022; Su et al., 2023). Studies about AI literacy education also note that systematic training is crucial for improving users' confidence and understanding of AI concepts in various educational contexts (Kong et al., 2021).

AI in English Language Teaching (ELT)

The introduction of AI technology into the sphere of ELT is one of the innovations which contribute to personalized learning, automatic evaluation, practicing and creation of educational materials. AI technologies in the form of writing assistants and automated systems of grammatical correction can assist learners in writing tasks by immediately evaluating their grammar, vocabulary and syntax. Additionally, conversational AI tools and language models can offer interactive speaking practice to students by enabling them to engage in communication situations outside the classroom. The effectiveness of these tools has been recently proven in researches demonstrating how such tools as ChatGPT and other generative AI models can help teachers with the preparation of lessons, generating content and tests as well as activities focused on learners (Kostka & Toncelli, 2023; Hockly, 2023). There are also a number of applications of AI in ELT concerning automated evaluation, adaptive learning and intelligent tutoring based on individual requirements of learners (Sharadgah & Sa'di, 2022; Schmidt & Strasser, 2022). However, it should be noted that the effective application of this technology requires teachers to be aware of the limitations of AI technologies, check content generated automatically and keep control over the process of teaching (Nash et al., 2023; Farrelly & Baker, 2023).

Teacher Professional Development (TPD) Gaps

However, despite the fast-growing application of AI in education, a review of existing literature demonstrates the existence of serious deficiencies in the sphere of teacher professional development in relation to AI implementation. Although many teachers who teach English have a basic level of IT competence, they do not have specific skills in applying AI for pedagogical purposes, prompt generation, AI-generated materials assessment, and responsible governance of AI. Due to the lack of appropriate frameworks for AI training in educational establishments, teachers face problems with implementing AI technology in their work. It is known that institutional barriers, inadequate professional support, lack of AI training opportunities, and poor implementation strategies hinder the successful implementation of AI technology by teachers (Kohnke et al., 2023; Vogt & Flindt, 2023). Besides, psychological factors, including fear of technology, doubts about reliability, replacement at work, and reluctance to change teaching techniques also affect this process (Oran, 2023). Literature on language teacher education highlights the significance of models of ongoing professional development for teachers, which involve technology together with teaching techniques that help boost the confidence of teachers in AI. Additionally, the successful implementation of AI necessitates organizational support, collaborative learning environments, and frameworks that address both technical and affective issues experienced by teachers (Ghafar et al., 2023; Chen & Yuan, 2022). Hence, there is a need to address the gap in teacher AI literacy.

Conceptual Framework

In this research, a conceptual framework strategy is applied in order to analyze the issue of AI literacy of English language teachers in terms of competencies needed for responsible GenAI and LLMs use in

language teaching. Unlike the existing digital literacy approach, which solely concentrates on operational skills, the proposed one assumes a multidimensional aspect of the AI literacy that consists not only of technical issues but also of educational and ethical issues. The model provides an integrated approach to the development of language teacher's competence in using the AI-based learning environment.

Technical Competence Dimension

Technical competence is the aspect that relates to teachers' knowledge of AI technology and their ability to use GenAI tools effectively, comprehend AI concepts, create good prompts, and analyze AI's response output. Unlike simple usage of AI technology, technical competence highlights the fact that teachers should have an understanding of how AI works, how it produces its output, and where it falls short such as with hallucinations, biases, and incorrect suggestions. Technical competence in language teachers will enable them to choose appropriate AI applications and determine their appropriateness in language learning situations.

Pedagogical Integration Dimension

Pedagogical integration is the feature that concerns how teachers can incorporate AI technology in teaching English lessons. The teacher may use the technology in order to assist learners in writing, communication, getting feedback, developing vocabulary, preparing lessons, and in many other ways. Within the framework of the theory, the application of AI technology should be viewed as a tool and not as a replacement of teachers' experience. Therefore, pedagogical integration involves the connection between AI technology, outcomes, proficiency of learners, assessment techniques, and communicative language teaching.

Ethical Governance Dimension

Ethical governance deals with the ability of the teachers to govern the use of AI in the appropriate way within the educational environment. The ethical governance framework comprises topics such as data privacy, academic integrity, algorithm bias, transparency, and dependence of the learners on the technologies of artificial intelligence. It is important that the English language teachers check the accuracy of the content generated by the technologies of AI.

Continuous Adaptation Dimension

The continuous adaptation dimension refers to teachers' capabilities in undertaking lifelong learning and continually updating their knowledge and practice regarding AI. Due to rapid technological changes related to AI technologies, it is imperative for teachers to receive continuous professional development in order to learn new tools, change their instructional practices, and create new learning methodologies.

Proposed AI Literacy Framework for English Language Teachers

AI literacy is considered an integrated competency, which consists of four interrelated dimensions:

Figure 1 presents a four-dimensional model of AI literacy designed specifically for the English language teachers. This model illustrates how Technical Competence serves as a basis for comprehending and using AI tools, which is then followed by Pedagogical Integration, which implies the implementation of the technology into teaching practices of ELT. Ethical Governance is the dimension that is responsible for ensuring that teachers use AI technology in a safe and ethical way, whereas Continuous Adaptation stands for professional growth in line with new technological developments.

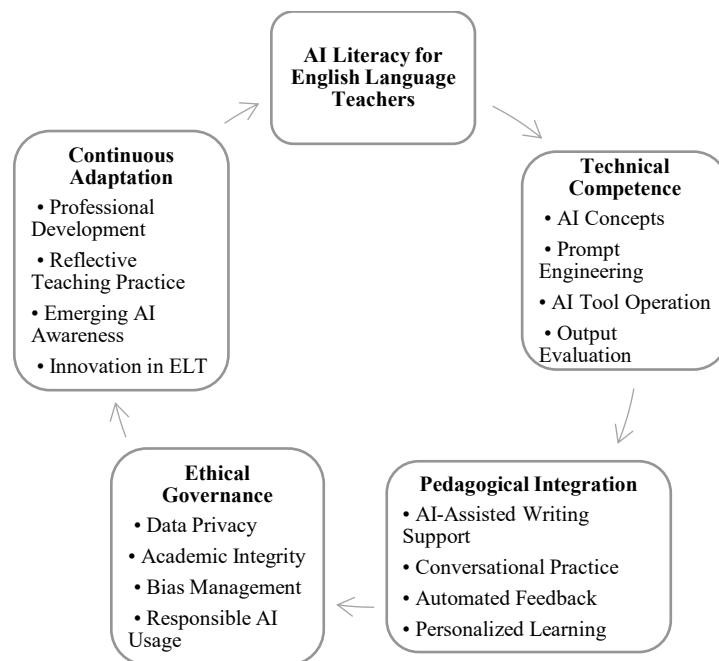


Figure 1: Conceptual Framework of AI Literacy Dimensions for English Language Teachers

Thus, these four dimensions comprise an integrated AI literacy model for the teachers that is aimed at developing readiness toward using AI technology in ELT. It means that to successfully implement AI technology into ELT, it is important not only to be able to work with AI but also apply its potential in pedagogical practice and govern this process ethically. This model can serve as a basis for further empirical studies and training programs.

Key Challenges of AI Literacy in ELT

The implementation of AI in ELT opens up great possibilities in the improvement of language learning; nonetheless, building up proper levels of AI literacy in language teachers is rather difficult. For the successful utilization of AI technology, language teachers have to go further than simple mastering of AI tools and learn to critically assess, modify and implement AI technologies in line with the principles of language teaching.

4.1 Pedagogical Alignment with Language Learning Principles

One of the main problems related to the problem of AI literacy among ELT teachers is associated with the fact that it is hard to align AI applications for the purpose of making sure that they can be used in accordance with the principles of communicative language teaching (CLT) or second language acquisition (SLA). While AI applications can provide certain explanations, prompts, and conversation prompts, they do not necessarily adhere to the requirements of the SLA theory and CLT framework. Therefore, teachers should have enough AI literacy to decide whether certain activities provided by the AI can foster communication, interaction, autonomous learning, and context-based language use. It is essential to make sure that AI technologies are used not only for generating content but also for promoting vocabulary acquisition, grammar learning, speaking skills, and language consciousness (Kostka & Toncelli, 2023; Hockly, 2023; Celik et al., 2022).

4.2 Ethical and Equity Concerns

Ethical and equity-related barriers play an equally important role in the development of AI literacy in ELT contexts. AI models rely on big data sets that can be biased and may have cultural, linguistic, or sociological bias in them. This bias can impact the accuracy and appropriateness of materials produced by AI. For this reason, English language teachers should be able to determine whether any AI-produced output is inappropriate and make sure that AI-generated materials are free of bias. Moreover, data privacy and security become an issue since learners' personal information, writing samples, and interaction history are stored in databases of AI-powered platforms. Another problem for academic institutions is academic integrity since students can misuse AI technology for generating essays and plagiarizing them. English teachers must possess AI literacy in order to create rules concerning the use of AI in the educational process and engage learners critically. Unequal access to IT infrastructure, internet connection, and AI-powered gadgets becomes another barrier for learners.

4.3 Institutional and Resource Barriers

The barriers related to institutional aspects have an impact on the success of the AI literacy development in English language teachers. Educational institutions introduce AI technologies without implementing professional development programs, proper strategies of implementation, and policies. Teachers do not have an opportunity to get necessary training in practical application of AI technologies, prompt design, evaluation of AI technologies, and ethical decision-making. Moreover, financial and technical issues and lack of guidance from educational institutions lead to uncertainty of AI introduction. The time issue is another barrier for AI implementation because English language teachers have to manage their current responsibilities and learn to use AI technologies. Without ongoing professional development and organizational support, the success of AI implementation can be related to personal motivation of English language teachers. Therefore, institutions need to develop AI literacy initiatives which include training in technologies, pedagogy, and ethics and will help English language teachers to develop AI literacy (Nash et al., 2023; Kohnke et al., 2023; Vogt & Flindt, 2023; Zulkarnain & Yunus, 2023).

In general, the barriers to AI literacy in ELT show that the successful AI implementation requires a holistic approach including technological literacy, pedagogical knowledge, ethics, and institutional involvement.

Opportunities and Transformative Pathways

AI literacy obstacles have a lot of hurdles when it comes to successful integration of AI into practice; however, when English language teachers become competent in AI knowledge, there is an incredible chance that their teaching methods will be transformed. Being literate about AI allows them to become active creators rather than mere consumers of technology in order to integrate AI into their instruction. With the combination of pedagogical knowledge and AI, teachers will be able to implement intelligent solutions in English language teaching.

Table 1: Key Challenges and Transformative Opportunities of AI Literacy in ELT

Challenge Area	Major Challenges	AI Literacy-Based Transformative Opportunities
Pedagogical Alignment	Difficulty mapping general AI Tools with SLA Theories and CLT Principles; Limited Understanding of AI-Supported Instructional Design	AI-Assisted Lesson Planning, Differentiated Instruction, Localized Learning Materials, and Learner-Centered Teaching Strategies
Ethical and Equity Concerns	Algorithmic Bias, Privacy Risks, AI Dependency, Plagiarism, Cheating, and Unequal Access to AI Technologies	Responsible AI Governance, Critical Evaluation of AI Outputs, Ethical Classroom Guidelines, and Inclusive AI Practices
Institutional and Resource Barriers	Lack of Formal AI Training, Unclear Institutional Policies, Limited Technical Support, and Teacher Time Constraints	AI-Focused Professional Development, Micro-Credential Programs, Peer-Learning Communities, and Prompt-Engineering Workshops

Barriers to the development of AI literacy and associated opportunities for changing ELT practices through appropriate use of AI are presented in table 1. This table shows that through addressing barriers via AI literacy interventions, AI can be effectively incorporated in language education in a sustainable manner.

5.1 Enhanced Instructional Design through AI Collaboration

AI literacy enables teachers of the English language to use AI technology in collaboration with their teaching. There are numerous ways in which the AI tools can assist teachers in their lesson planning activities. These include providing ideas about the kinds of learning activities the teachers can incorporate into their lesson plan, developing the materials needed in the classroom, creating assessments, and customizing the material in terms of learners' proficiency levels. The AI technology also assists the teachers in coming up with differentiated instructional design techniques that will cater to various learner abilities, preferences, and cultural backgrounds. Finally, AI technology helps teachers to customize the learning materials based on learner context and culture.

5.2 Automated Formative Feedback and Personalized Learning Support

Another area that AI literacy has created an opportunity to reform is the feedback process in the study of the English language. The current process of providing feedback has been restricted because of the high number of students in classes and the lack of time among the teachers to provide the feedback on regular basis and in an individual manner. However, AI technology can help in providing assistance to teachers in detecting the grammatical mistakes, vocabulary problems, structural mistakes in the sentences, and problems at the level of discourse in writing of the students. With the use of more advanced AI models, feedback can be provided to the students related to pragmatics, coherence, argumentation, and context of the language.

5.3 Reimagining Teacher Professional Development (TPD) Models

The emergence of AI requires the emergence of new ways of teachers' professional development. The traditional approach that only focuses on providing teachers with basic technological skills is insufficient for preparing English language teachers for the world of AI. Future TPD programs should involve innovative AI literacy training, including micro-credentialing courses, peer learning communities, and AI

workshops on different subjects. Micro-credentials will help recognize the skills in designing AI lessons, prompt engineering, evaluation of AI, and ethical use of AI. Peer learning communities will help teachers share their experience in working with AI in classrooms and in instruction and the most efficient instruction techniques. Prompt engineering courses that are specifically designed for language teachers will help teachers learn how to design instructions for producing teaching materials, conversation tasks, and evaluation and feedback.

In general, AI literacy acts as an instrument which changes the role of English language teachers from being users of technologies to AI-informed educators. Applying AI for improving their work, providing personalized feedback to students, and continuously developing their skills allows them to build an adaptive and effective learning environment for their students. The future of AI-based ELT is in the possession of teachers with skills of using human knowledge together with technological innovations.

Conclusion and Recommendations

The introduction of Generative Artificial Intelligence (GenAI), LLMs, and AI-enhanced educational technologies is a challenge, as well as an opportunity, for English Language Teaching (ELT). As per the presented study, AI literacy for English language teachers has become a must-have rather than one more technological skill. Even though the application of AI offers numerous advantages such as the possibility of personalization, automatic formative assessment, intelligent instruction design, and innovation in terms of pedagogy, there are many problems with the low level of teachers' AI literacy, poor integration skills, ethical problems, and lack of institutional support that teachers face. The proposed framework for AI literacy includes four aspects which should be considered: technical proficiency, pedagogical integration, ethical governance, and continuous adaptability. To put it simply, the effective introduction of AI requires balance between technological and pedagogical skills of a teacher. The AI literacy can serve as a useful strategy for modernizing ELT since teachers can become adept designers of AI-driven learning environments rather than innovators. In order to ensure sustainability of AI integration in practice, it is suggested for policymakers to adopt and develop AI literacy policies, AI ethics, and equality of access strategies. The curriculum planners are supposed to incorporate AI literacy into the teacher training program by emphasizing the aspects of AI prompts, AI evaluation, and proper use of AI technology. The teacher training institutions should provide continuous professional development opportunities for teachers through micro-credentialing courses, peer learning and teaching with AI. It is also suggested for the future researchers to conduct longitudinal research studies about the development of teachers' AI competency and cross-cultural research on AI readiness and implementation challenges.

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