AI Integration in English Teaching: Reimagining English Teacher Preparation Programs in Japan

Yutaka Fujieda

Abstract

The widespread adoption of artificial intelligence (AI) in language education requires a thorough restructuring of English teacher preparation programs (ETPPs), particularly in English as a Foreign Language contexts like Japan. This paper analyzes how AI technologies affect language teaching and offers a strategic approach for including AI literacy into teacher education curricula. This study highlights the urgent need to modify ETPPs to respond to new technological developments and stresses the importance of helping prospective teachers understand both the benefits and limitations of AI. This research advocates for ETPPs curriculum modifications that critically explore AI's function in educational settings. Key recommendations include creating specialized courses on educational technology that allow aspiring teachers to understand the complexities of AI integration, develop well-informed perspectives, and acquire essential competences. The framework proposed in this study covers teaching methods, evaluation techniques, ethical considerations, and continuous professional development. By addressing the current gap between technological advancement and teacher preparation, this study aims to facilitate a balanced approach to normalize AI in language education. This helps educators use new technologies effectively while maintaining pedagogical integrity.

The rapid progress of artificial intelligence (AI) has transformed the approaches to language teaching and learning, offering both benefits and challenges. Generative AI models, such as ChatGPT, Claude, and Gemini, along with language learning applications, have been drastically changing the environment of English language instruction. Applying AI in language teaching has had major implications for language teachers' role (Kern, 2024; Moorhouse & Kohnke, 2024; Thorne, 2024). In Japan, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) (2024) plans to integrate generative AI in 2025 to enhance English education in elementary and secondary schools. This initiative seeks to improve students' output performance of speaking and writing and promote increased use of English in the classroom.

Accordingly, English education must adapt to these technological developments. This transformation requires a thorough reassessment of conventional English teaching approaches. To prepare future English teachers for AI-integrated teaching practices, they must possess the necessary skills to incorporate AI technologies into their teaching methods. Therefore, this shift requires a comprehensive reconsideration of improving English teacher preparation programs (ETPPs) to help aspiring English teachers become proficient in utiliz-

ing AI tools while retaining fundamental pedagogical principle. Moorhouse and Kohnke (2024) demonstrated that many teachers cannot confront AI repercussions because they lack confidence and sufficient skills. Kessler (2018) stressed that language teachers' training in technological applications has been fraught with difficulties because "it is still often neglected completely or focused on learning to use existing technologies" (Kessler, 2018, p. 215). This gap underscores the need for ETPPs to provide prospective teachers with the necessary skills to navigate AI.

Integrating AI into language teaching enables teachers to engage with authentic linguistic and cultural environments (Kessler, 2018). The growing prominence of AI in education, moving from AI-directed to AI-supported approaches, raises concerns about academic integrity and changes the nature of language production as AI becomes more prevalent in education (Cotton et al., 2024; Ouyang & Jiao, 2021). Starkey (2020) argued for the establishment of new teacher technology skills, such as generic digital competence, technology integration skills, and professional digital competence.

This paper aimed to examine AI's transformative effects on language teaching and propose a framework for incorporating AI literacy into ETPPs in Japan. First, I examined the background of AI integration into language teaching, focusing primarily on English language education. Next, I explored the gap in research and practice regarding ETPPs. This article concludes with a framework for AI integration into ETPPs in Japan, addressing the challenges and opportunities presented by this technological innovation.

Background of AI in Language Teaching

Various tools and applications specifically created to support learners' language development can reflect the current state of AI in language education. These tools can potentially provide personalized instruction and feedback to learners. For instance, AI materials designed for speaking practice offer pronunciation feedback and address certain challenges in language learning (Fryer et al., 2019). As Fryer et al. (2019) argued, these tools enable learners to practice conversations, thereby increasing their engagement and creating additional avenues for language learning outside their classroom. They allow for more individualized attention and practice and complement whole-class communicative activities.

AI technologies have gained popularity among both teachers and learners. Writing-supporting platforms such as Ginger and Grammarly can deliver immediate writing corrections and help learners improve their writing skills. These tools can receive prompt feedback and undergo fast improvement cycles, supplementing teacher workload (Ranalli, 2018).

Incorporating AI into classrooms yields considerable potential benefits. Notably, Kim (2024) highlighted that AI can personalize learning experiences according to individual needs, resulting in increased engagement and better learning performance. Building on this concept, AI's ability to provide immediate feedback on various aspects of language output, including pronunciation and grammar, offers learners constant opportunities for language development and self-directed learning (Taj et al., 2017; Thorne, 2024). Personalized instruction combined with instant feedback creates a powerful environment for language acquisition where students can progress at their own pace while receiving consistent support and guid-

ance. Moreover, AI technologies can facilitate learners' creativity and critical thinking in English as a Foreign Language (EFL) contexts such as those in Japan, "where students often struggle to generate original ideas, express informed opinions, and engage in brainstorming" (Busso and Sanchez, 2024, p. 8).

However, using AI in language teaching poses notable challenges. Moorhouse and Kohnke (2024) stressed that many teachers lack the technical skills or confidence to effectively apply AI tools in their teaching. Hence, professional teacher development is urgently needed. Furthermore, Thorne (2024) argued that language teachers can be at significant risk of excessive reliance on AI tools, leading to the disregard of vital elements of language learning that require social interactions and deep cultural understanding. The appearance of advanced language models such as ChatGPT has promoted inquiries into academic integrity and the need to reconsider evaluation methods in language teaching (Cotton et al., 2024). Considering these challenges and risks, a balanced approach for integrating AI that combines technological innovation with solid educational concepts must be established.

Given the substantial impact of AI on language teaching, aspiring teachers must better prepare for this technological shift. The next section examines how aspiring English teachers can develop AI literacy. This skill is essential for connecting current teaching methods with the future potential of AI-based language instruction.

Developing AI Literacy for English Teachers

English teaching requires a fundamental shift in how to guide pre-service English teachers in integrating AI into teaching. To navigate this shift effectively, aspiring English teachers must cultivate new skills geared toward AI literacy. English teachers possess AI literacy if they can critically evaluate and effectively use AI technologies in classrooms (Walter, 2024). AI literacy includes not only technical knowledge but also the ability to assess the pedagogical implications of AI integration. Its value is crucial in an age wherein AI tools are becoming ubiquitous in educational settings. AI literacy encourages educators to make informed decisions about integrating AI in teaching (Starkey, 2020; Walter, 2024). Future English teachers must understand AI's possibilities and constraints, resolve ethical concerns, and gain practical experience with AI-based pedagogical tools.

As mentioned previously, AI can provide personalized instructions and real-time feedback by accelerating language learning processes. However, the limitations of these technologies must be acknowledged. As Kern (2024) argued, technology should be viewed as a medium that shapes language and communication. AI systems may find subtle aspects of language use, cultural context, and emotional expression difficult to understand. Kessler (2018) emphasized that AI should be used to enhance teaching, especially for complex language and cultural understanding.

Examining ethical concerns and using critical thinking analysis while employing AI in language teaching are significant. These steps include recognizing issues related to data privacy and bias and the potential for AI to strengthen or intensify existing educational disparities (Zawacki-Richter et al., 2019). Critical thinking is necessary for evaluating the suitability and effectiveness of AI tools in teaching. Prospective teachers should contemplate the possible

effects of AI on learners' autonomy and motivation. Moreover, ethical AI literacy requires cultivating consciousness of the broader social implications of AI in education. Aspiring teachers should also inquire about AI's involvement in shaping linguistic norms, its impact on language diversity, and its potential influence on teacher development (Starkey, 2020). This critical engagement aids students in making informed decisions on when and how to integrate AI into their teaching practices.

Practical training on using AI tools for lesson planning and material development is vital for developing AI literacy. Integrating AI literacy into ETPPs requires comprehensive and diverse strategies, involving the infusion of AI-related factors into all aspects of the curriculum or teaching methodology classes. By using AI education tools, aspiring teachers can bridge the gap between theoretical knowledge and practical application. This training should cover various AI tools designed for language learning, writing evaluation, and content production. By doing so, pre-service teachers can assess how AI can assist them in generating personalized learning materials or adopting existing resources to meet learners' diverse needs (Kessler, 2018; Starkey, 2020). Practical training should go beyond mere tool familiarity. Aspiring teachers should acquire the skills to critically assess and modify AI-generated content to align with their teaching goals and students' needs. They need to develop proficiency in AI prompt and combine AI-generated materials with teacher-made content appropriately. They should also learn strategies that guide students in using AI tools and promote responsible AI use in the classroom (Cotton et al., 2024). They must be equipped to critically evaluate how AI-integrated teaching aligns with the class' broader goals, including the development of communicative competence and learner autonomy.

Fostering a deep understanding of AI ensures not only proficiency in managing AI tools effectively but also the critical ability to assess their application, address ethical challenges, and adapt to the rapid change toward the technological environment in language education. This preparation is essential for cultivating a generation of English teachers who can harness the potential of AI while maintaining language teaching and learning methods that prioritize human interactions.

Future of ETPPs in Japan

In anticipation of a period of AI integration, the governing bodies should consider how to prepare prospective teachers for the challenges and opportunities posed by AI integration in ETPPs in Japan. ETPPs need to be structured to develop students' flexibility in relation to technology advancement while fostering innovation and creativity in English language teaching.

Given that Japan has prioritized English education, ETPPs should prepare teachers to be skillful in using AI tools that align with the educational goals of improving students' communicative proficiency.

The rapid progress of AI technologies necessitates teachers' continuous learning and flexibility. ETPPs should focus on developing a mindset related to technology adoption. Prospective teachers should be able to view challenges in technology integration as opportunities for professional growth rather than as insurmountable obstacles. For instance, by training teach-

ers using AI-driven speaking practice tools, they can supplement the limited opportunities for authentic English conversation in classes (Busso & Sanchez, 2024). Practical techniques for cultivating this mindset involve engaging with various technological platforms within the programs while emphasizing AI's fundamental concepts. This approach can help future teachers acclimate to emerging technologies. Moreover, discussions on technology disruptions can help these educators improve their problem-solving skills and adapt to AI-integrated instruction.

Promoting innovation and creativity by using technological items in English instruction is essential for the future of education. AI tools present several opportunities, but their successful implementation requires innovative instructional approaches. One such approach is to allow future teachers to design active teaching methodologies for their students. This process can help students develop skills for identifying their needs and aid teachers in refining AI-driven teaching approaches (Norton & Hathaway, 2015). For example, teachers can create AI-supported classroom activities that facilitate classroom interactions and expand more learning environments, complemented by their instructional interventions.

Implications and Recommendations for ETPPs in Japan

The previous sections highlight the rapid implementation of AI in language teaching, the requirement for AI literacy among prospective English teachers, and the unique challenges and opportunities that AI brings to the Japanese educational context. Building on these insights, this section elaborates on the significant implications and suggestions for the future of ETPPs in Japan.

Incorporating AI into English education in Japan and EFL settings requires substantial modifications to ETPPs and ongoing professional development (Kim, 2024; Molefi et al., 2024; Starkey, 2020). Thus, several key implications and recommendations arise.

First, ETPP's curriculum transformations in Japan require major adjustments to address AI literacy and AI-enhanced teaching. By implementing specific modules on AI in teaching, aspiring teachers can address both theoretical foundations and practical applications. ETPP classes should encourage prospective teachers to deeply understand AI capabilities and limitations, ethical considerations, and practical experiences with AI technologies for language teaching (Kern, 2024; Kessler, 2018; Ouyang & Jiao, 2021). Moreover, current courses in English teaching methodology classes should include AI-related topics (e.g., incorporating AI-assisted feedback methods for English writing and exploring AI-enhanced resource building). This integrated approach suggests that AI should be regarded not as a separate entity but as an integral part of modern methodology.

Continuous professional development for in-service teachers is also essential to ensure ETPP progress in tandem with technology improvements (Cotton et al., 2024; Molefi et al., 2024; Starkey, 2020). In-service teachers should facilitate self-directed learning opportunities and use AI concepts in the classroom to promote knowledge exchange and practical skill development while accommodating time constraints (Kessler, 2018; Ouyang & Jiao, 2021; Thorne, 2024). Furthermore, introducing examples of AI-integrated activities in ETPP classes can foster experiential learning. By applying these approaches to in-service teachers,

aspiring teachers may improve their AI literacy and pedagogical practices progressively without requiring extensive formal training. This comprehensive strategy seeks to overcome the current limitations in professional development among in-service teachers while promoting a culture of ongoing learning and adaptation in response to technological developments in education (Kern, 2024; Kim, 2024; Starkey, 2020).

ETPPs' curriculum should be modified to substantiate the implications of AI in education. Concrete case studies that demonstrate the effectiveness of AI-based teaching practices and their associated research results are urgently needed. Specialized classes, such as teaching methodology, should be incorporated into the curriculum where these emerging issues can be critically examined and deliberated upon by prospective teachers. Such courses may provide a forum for prospective teachers to engage with the complexities of AI integration in educational settings and develop informed perspectives on its implementation.

Conclusion

This paper proposes a comprehensive framework for incorporating AI into ETPPs in Japan, addressing the current gap between technological advancements and teacher development. As AI continues to be integrated into language teaching, the concept of "normalization" remains a relevant goal, where technology becomes a discreet yet integral part of the language learning process (Bax, 2003). To achieve the balance of using AI in teaching, teachers should carefully consider both the benefits and concerns and continue exploring effective methods of integrating technologies into existing pedagogical frameworks and curricula. ETPPs require a foundation of AI literacy, encompassing pedagogical skills, assessment strategies, classroom management, ethical consideration, and continuous professional development.

By systematically integrating AI into ETPPs, future educators can gain the knowledge, skills, and adaptability required to thrive in an AI-enhanced educational landscape. Successful implementation of this framework requires commitment to continuous evaluation and adaptation to maintain ETPPs' relevance and effectiveness during rapid technological transformation.

However, AI development is deemed to pose a threat to humans. Notwithstanding the numerous educational advantages noted, current teachers perceive AI as a substitute for human instructors and maintain a negative disposition, thereby dismissing AI use while eschewing it. Nonetheless, considering that the time to teach AI-native students is approaching, discussions and research about AI-integrated approaches and practices are becoming increasingly essential.

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