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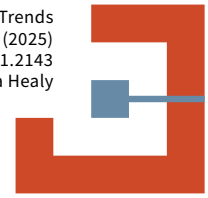

Castledown

Exploring AI integration in Japanese EFL classrooms: Insights and challenges

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This study addresses a significant gap in generative artificial intelligence (GenAI) research by examining Japanese tertiary students' perceptions of AI-enhanced English language acquisition, diverging from the Western-centric literature predominant in the field. Our longitudinal mixed-methods inquiry (N = 30) integrated multiple AI platforms (ChatGPT, DreamStudio AI, Suno AI, and Luma AI) within Vygotskian socio-cultural and Intelligence Augmentation (IA) theoretical frameworks. Thematic analysis revealed robust empirical evidence of positive engagement and instructor-AI symbiosis. The findings elucidate culturally situated responses within an educational context characterized by hierarchical pedagogical traditions. Participants appreciated AI's role in reducing anxiety and enhancing creativity but preferred human instruction in areas requiring affective intelligence. This research contributes non-Western empirical evidence to transhuman discourse, advancing theoretical understandings of culturally responsive AI technological integration in language education pedagogy.

Keywords: AI education, intelligence augmentation, ChatGPT pedagogy, transhumanism, Japanese higher education

Introduction

The emergence of generative artificial intelligence (GenAI) has significantly reshaped research on computer-assisted language learning (CALL). Pedagogical discourse increasingly highlights a shift from traditional, teacher-centered instruction to dynamic, learner-driven approaches facilitated by advanced language models. This transformation, termed "PedAIgogy" (Clark, 2023), requires a socio-cultural lens to examine AI-mediated instruction in diverse educational contexts, particularly in non-Western settings.

Existing research demonstrates AI's potential to transform education through student-centered learning. Clark (2023) and Kim (2020) emphasize that AI enables just-in-time learning and fosters cognitive engagement through Socratic questioning. Large language models (LLMs) like ChatGPT personalize instruction, stimulate creativity, and enhance critical thinking (Cao & Dede, 2023; Clark, 2023, 2024; Stanford Graduate School of Education, 2023). Kohnke (2022) also highlights the benefits of ChatGPT's interactivity for English Foreign Language (EFL) learners. However, ethical concerns persist, as ChatGPT's American-centric training data may introduce cultural bias, underscoring the need for research on AI integration in non-Western educational contexts (Vaccino-Salvadore, 2023).

This study is grounded in Vygotsky's (1978) socio-cultural theory, where AI enhances collaborative learning through simulated dialogue, feedback, and inquiry-based approaches (Mohebi et al., 2024). It also incorporates the Intelligence Augmentation (IA) framework, which emphasizes leveraging AI for routine tasks while maintaining human oversight and ethical judgment (Hassani et al., 2020). Students examined AI's impact on creativity and provided critical feedback.

The study further explores students' perspectives on AI within the context of Japan's traditionally hierarchical and exam-driven education system, which has historically emphasized rote learning (Takemura, 2023). By analyzing their experiences with AI tools, this research aims to provide insights into how technology interacts with established pedagogical norms and learning expectations. Specifically, it addresses two key questions: How do Japanese university students perceive the benefits and challenges of AI tools in language learning? and how does AI influence their creativity and engagement in an EFL context?

Method

The research took place at a national university in Japan, involving 30 first-year EFL students (62% male, 35% female, 3% other), aged 18 to 19, enrolled in a compulsory English course. Over a 30-week period, participants engaged with AI-enhanced tools (ChatGPT, DreamStudio AI, Suno AI, and Luma AI) alongside traditional teaching methods, primarily through group work. The course incorporated prompt engineering exercises to explore creative processes, and AI literacy instruction covered fundamental AI concepts. To examine students' perceptions, a qualitative approach was adopted, with journal reflections serving as the primary data source. These journals featured open-ended questions about their experiences with AI in language learning, focusing on motivation, creativity, and self-efficacy. Thematic analysis was conducted using MAXQDA v.14 software to identify key patterns and insights. This study adhered to institutional ethical guidelines with written informed consent obtained from all participants prior to data collection. All personal identifiers were removed during analysis, and data were stored securely.

Results

The study revealed six key themes regarding the integration of AI tools in Japanese language education as shown in Table 1.

Table 1. Student reflections on AI integration

Theme	Mentions
Positive student perceptions of AI	170
Significance of teacher-AI collaboration	104
AI's role in personalized & efficient learning	79
AI's impact on critical thinking & creativity	60
General AI engagement & student reflections	40
Challenges of AI adoption & ethical concerns	26

The analysis of student reflections on AI integration in EFL classrooms revealed six dominant themes ranked by frequency. The most frequently mentioned theme, Positive Student Perceptions of AI, highlights AI's ability to reduce anxiety, enhance engagement, and introduce new creative possibilities. Many students viewed AI as an interactive and supportive tool for generating ideas, creating multimedia content, and facilitating learning in a stress-free environment. One student remarked, "AI can instantly access large amounts of data, providing perspectives and ideas that we may not have thought of. It also provides us with new designs and illustrations… and can compose music and edit videos."

The significance of teacher-AI collaboration emerged as the second most prevalent theme, reinforcing students' belief that AI should complement, not replace, human instructors. While AI offers efficiency and automation, students emphasized the need for teacher involvement in guiding ethical use, providing emotional support, and ensuring meaningful learning experiences. "Although it is difficult for AI to consider emotions and personal backgrounds, it can make studying very efficient if it is thought of as a dedicated assistant for each student. I think that teachers should do what only humans can do," one student explained.

AI's role in personalized and efficient learning, including its practical applications, was another key finding. AI tools were praised for their adaptability, real-time feedback, and ability to support self-paced learning. Many students found AI particularly useful for language translation, pronunciation training, and conversation simulations. One student noted, "AI tools are very useful and I am very happy with the results. I think it's good because it saves time when creating presentation materials and frees up time for other things." Beyond engagement and efficiency, students also described AI as a tool that prompted self-reflection on their learning strategies, reinforcing its potential role in metacognitive development. Some students noted that AI-generated feedback encouraged them to critically evaluate their responses, adjust their learning approaches, and refine their reasoning processes.

However, concerns about AI's impact on critical thinking and creativity also surfaced. While AI encouraged exploration and creativity, some students feared overreliance on AI could limit deep thinking and originality. As one participant cautioned, "AI is certainly convenient, but if we leave everything to AI, we may lose the ability to think for ourselves, which may result in a lack of creative processes and results."

Varied student opinions and reflections on AI highlighted the diversity of AI perceptions. While some viewed AI as a motivational tool, others worried it reduced independence and engagement in traditional learning activities. One student

explained, "While it has become more convenient, it has also reduced our independence," contrasting with another who saw AI as "a new way to learn English, so it is fun and proactive."

Finally, the study identified several challenges of AI adoption and ethical concerns, including algorithmic bias, misinformation, and over-reliance on technology. Some students struggled to adapt to AI tools and expressed skepticism about the accuracy of AI-generated content. These concerns suggest that AI literacy and ethical training must be integrated into learning environments to ensure responsible AI use.

Discussion

This study provides critical insights into Japanese university students' perceptions of AI tools, a largely underexplored area in non-Western educational research. The longitudinal findings reinforce AI's role in student-centered learning, aligning with prior research on its engagement-enhancing potential (Clark, 2023; Stanford Graduate School of Education, 2023). Increased student engagement and reduced anxiety further validate AI's effectiveness in interactive language learning (Kohnke, 2022). Students also valued AI's ability to foster creativity, particularly in generating ideas and multimedia content. However, concerns about over-reliance on AI highlight the need for a balanced AI-human instructional model that fosters independent thinking. Students acknowledge a need for a teacher-AI dynamic to emphasize the importance of guided AI integration to support, rather than replace, cognitive development. Furthermore, AI's efficiency and personalization address growing demands for tailored education (Cao & Dede, 2023; Clark, 2023), advancing the emerging framework of "PedAIgogy."

Conclusion

To fully harness AI's potential in education, future research should prioritize structured AI student literacy training and culturally responsive implementation strategies. Additionally, further studies should examine AI's long-term influence on critical thinking, problem-solving, and learner autonomy across diverse educational settings. Teacher involvement is essential to mitigate AI's metacognitive risks and ensure responsible integration—an approach that supports rather than replaces human cognition, fostering ethical, adaptive, and student-centered learning.

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