

RESEARCH ARTICLE

Exploring the Opportunities and Challenges of Artificial Intelligence in Foreign Language Education: Evidence from Moroccan Higher Education

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ABSTRACT

Artificial Intelligence (AI) has become a transformative *force* in education, particularly in foreign language learning. This study examines the dual role of AI in Moroccan higher education, investigating both its potential to enhance language acquisition and the challenges it poses to learners. It aims to assess how AI fosters student engagement and skill development, identify its limitations, and evaluate its overall impact on learning outcomes. The research draws on responses from Moroccan university students across public and private institutions, including Moulay Ismail University (Meknes), Hassan I University (Settat), the National School of Architecture (ENA), and the Euromed University (Fez). Data were collected through a comprehensive Google Forms questionnaire that combined quantitative and qualitative items to capture learners' experiences, perceptions, and attitudes toward AI-driven tools, such as ChatGPT, Duolingo, and automated feedback systems. The findings reveal that while AI supports personalization, motivation, and linguistic accuracy, challenges persist—particularly regarding data privacy, over-reliance on technology, and limited human interaction. Overall, the study highlights the importance of adopting a blended approach that combines AI-driven innovation with human-centered pedagogy. These results provide valuable insights for educators, policymakers, and developers seeking to optimize AI integration in language education and promote inclusive, ethical, and practical learning environments.

KEYWORDS

Artificial Intelligence, Foreign Language Learning, Higher Education, Pedagogy, Student Engagement, Technology Integration

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1. Introduction

Artificial Intelligence (AI) has become a transformative force in language education due to its capacity to simulate authentic conversational practice, deliver instant feedback, and create interactive learning environments. AI-powered applications have demonstrated considerable potential in enhancing learners' communicative competence in English, a skill that requires sustained, contextually varied practice, often lacking in traditional classroom settings (Kessler, 2018). Moreover, AI's ability to automate repetitive assessment tasks reduces teachers' administrative workload, allowing them to focus on individualized instruction and the development of higher-order thinking skills (Mishra & Varshney, 2024).

As AI-driven language learning technologies evolve at an unprecedented pace, their pedagogical effectiveness and ethical implications continue to provoke debate. While intelligent tutoring systems, chatbots, and adaptive learning platforms can enhance motivation and provide personalized feedback (AbuSahyon et al., 2023), concerns remain regarding the accuracy, contextual

appropriateness, and pedagogical reliability of AI-generated content (Song & Song, 2023). Additionally, ethical challenges such as data privacy, algorithmic bias, and the risk of excessive dependence on technology raise questions about the erosion of human-centered instruction, which remains essential for fostering critical thinking and meaningful communication (Mohamed, 2024).

Assess how Despite a growing body of global research on AI in language education, there is a lack of empirical evidence on its actual impact in the Moroccan higher education context. Understanding how Moroccan students and educators perceive, use, and evaluate AI tools is vital for aligning technological innovation with pedagogical effectiveness and cultural relevance.

This study, therefore, examines the dual role of AI in foreign language acquisition within Moroccan universities, exploring both its potential to enhance learning experiences and the challenges it introduces. Specifically, it aims to:

AI fosters students' engagement and skill development in foreign languages.

Identify potential barriers and limitations of AI-driven learning tools;

Evaluate AI's overall impact on language learning outcomes in Moroccan higher education.

By focusing on students from diverse institutions, including Moulay Ismail University (Meknes), Hassan I University (Settat), the National School of Architecture (ENA), and the Euromed University (Fez), this study contributes to the growing discourse on AI's pedagogical implications in multilingual, multicultural contexts.

2. Methodology

This study adopts a mixed-methods research design to explore Moroccan university students' perceptions of Artificial Intelligence (AI) in foreign language learning. The combination of quantitative and qualitative approaches allows for a comprehensive understanding of both measurable patterns and in-depth attitudes toward AI-driven educational technologies.

The study involved seventy-six students from four Moroccan universities: Moulay Ismail University (Meknes), Hassan I University (Settat), the National School of Architecture (ENA), and the Euromed University (Fez). Participants were selected through convenience sampling, ensuring a diverse representation of academic disciplines and proficiency levels.

Data were gathered between February and April 2025 using a structured Google Forms questionnaire. The instrument included both closed-ended questions, using a Likert scale and multiple-choice options, to obtain quantitative data and open-ended questions to capture qualitative insights. Items were designed to examine students' experiences, perceptions, and attitudes toward AI-driven tools, such as language learning applications, automated feedback systems, and adaptive learning platforms. Participation was voluntary and anonymous, with all respondents providing informed consent before completing the survey.

Quantitative data were analyzed using descriptive statistics (frequencies and percentages) and correlation analysis to identify relationships between variables, such as tool usage, motivation, and perceived learning outcomes. Qualitative responses were analyzed through thematic analysis, which enabled the identification of recurring themes related to opportunities, limitations, and ethical considerations in AI-assisted language learning.

The study adhered to the ethical guidelines for educational research. Participants' privacy and confidentiality were safeguarded, and all data were used exclusively for academic purposes.

This methodological framework provides a robust basis for assessing the pedagogical, technological, and ethical dimensions of AI integration in Moroccan higher education, contributing to evidence-based recommendations for language educators and policymakers.

3. Results

3.1 Demographic and Academic Profile

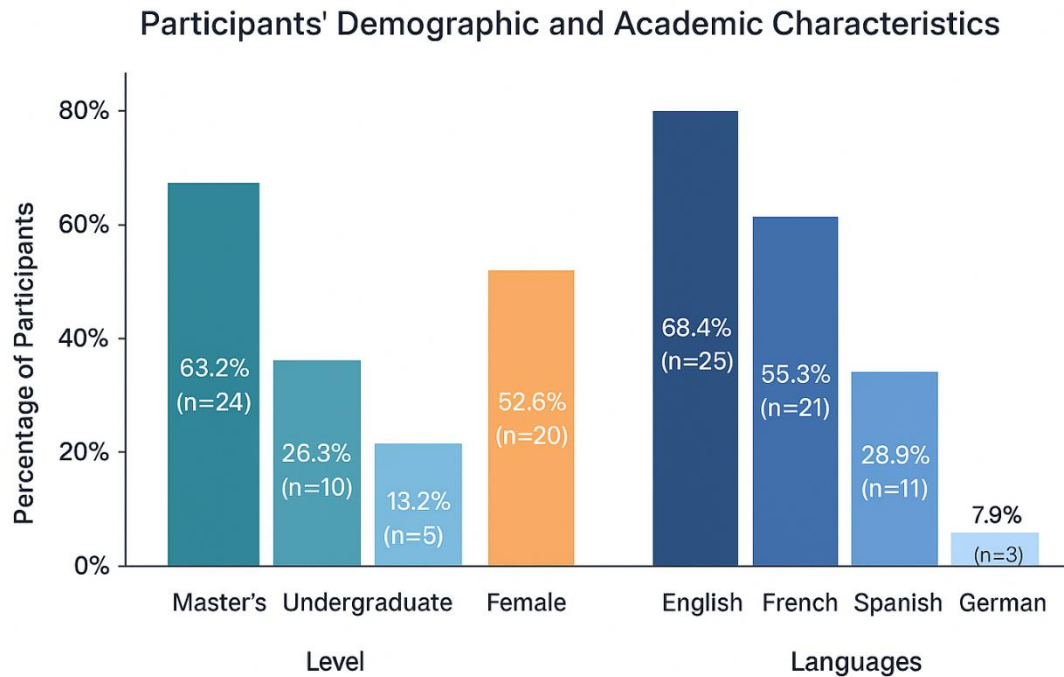


Figure 1. Participants' Demographic and Academic Characteristics.

The respondents were predominantly young, multilingual university students, reflecting a diverse academic and linguistic background. Most participants (63.2%) were master's students, followed by undergraduates (26.3%) and doctoral candidates (13.2%). Females constituted 52.6% of the sample. Participants represented multiple fields, including applied linguistics, computer science, diplomacy, and architecture, illustrating the interdisciplinary appeal of AI-assisted language learning. English (68.4%) and French (55.3%) were the most studied languages, followed by Spanish (28.9%) and German (7.9%), confirming the dominance of global languages in Moroccan higher education.

3.2 AI Awareness and Usage

Most respondents (76.3%) reported regular use of AI tools for language learning, indicating widespread technological integration. Duolingo and Google Translate (each 71.1%) were the most frequently used, followed by ChatGPT (60.5%), Grammarly (23.7%), and speech recognition tools (15.8%). Nearly 42% used AI several times a week, while 16% used it daily. These results suggest that AI tools are becoming increasingly integrated into learners' routines, valued for their flexibility, personalization, and accessibility.

Awareness and Frequency of AI Tool Usage

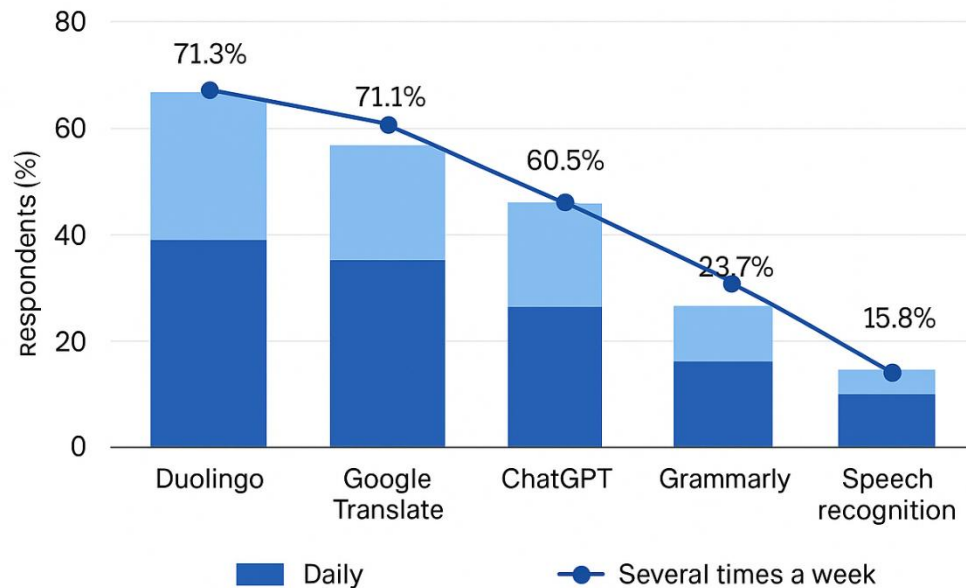


Figure 2. Awareness and frequency of AI tool usage reorpondents.

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3.3 Perceived Benefits of AI in Language Learning

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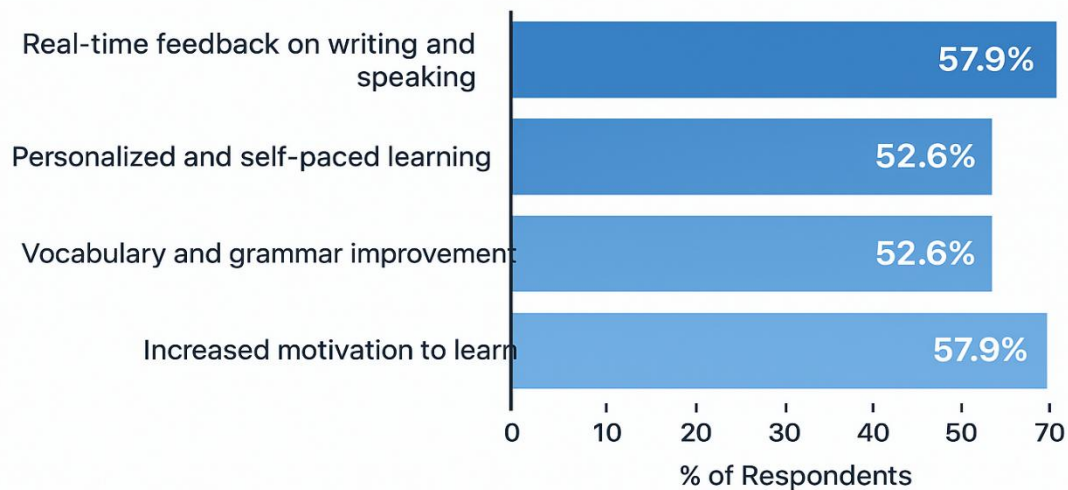


Figure 3. Perceived Benefits of AI in Language Learning.

A large majority (60.5%) considered AI tools highly beneficial, and none found them unhelpful. Reported advantages included real-time feedback on writing and speaking (57.9%), personalized and self-paced learning (52.6%), and improvement in vocabulary and grammar (52.6%). Over half (57.9%) indicated that AI increased their motivation to learn. These findings suggest that AI tools significantly enhance learner autonomy and engagement.

3.4 Challenges and Limitations

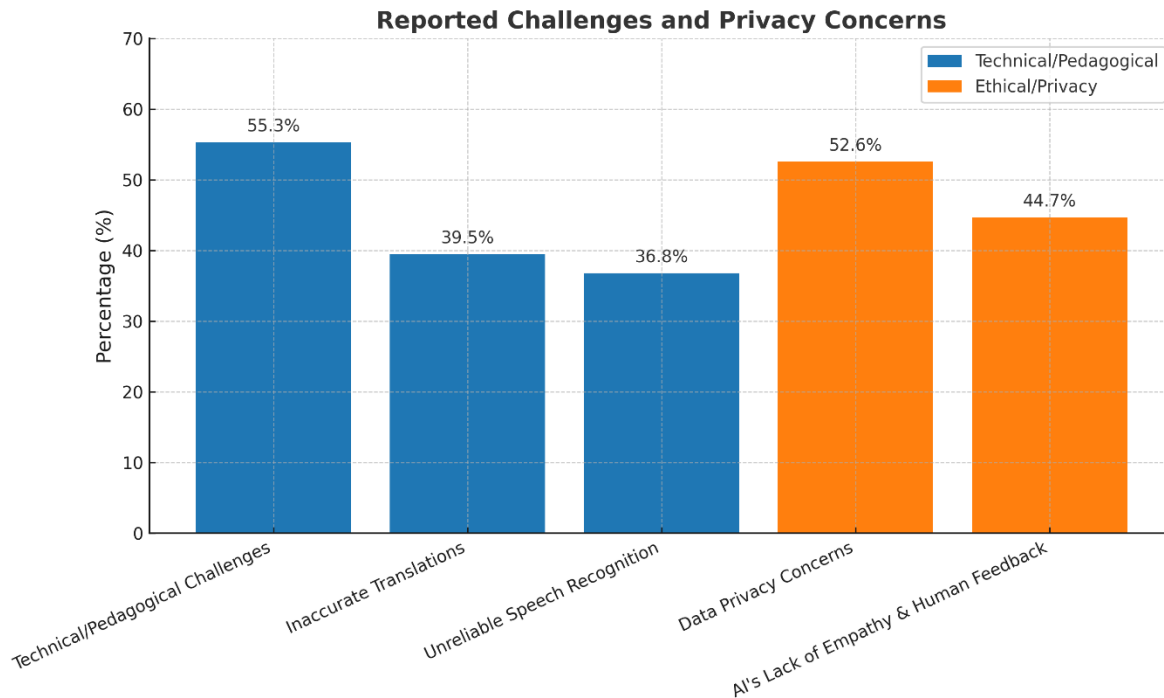


Figure 4. Reported Challenges and Privacy Concerns.

Despite these benefits, 55.3% of respondents experienced technical or pedagogical challenges. Common issues included inaccurate translations (39.5%), unreliable speech recognition (36.8%), and limited contextual understanding. Ethical and emotional challenges were also noted: 52.6% expressed concerns about data privacy, and 44.7% emphasized AI's inability to replicate human empathy and feedback. These findings highlight the continued need for human mediation in language learning.

3.5 Artificial Intelligence (AI) vs. Traditional Learning Approaches

Learners' Preferences: AI-Powered Tools vs. Traditional Methods

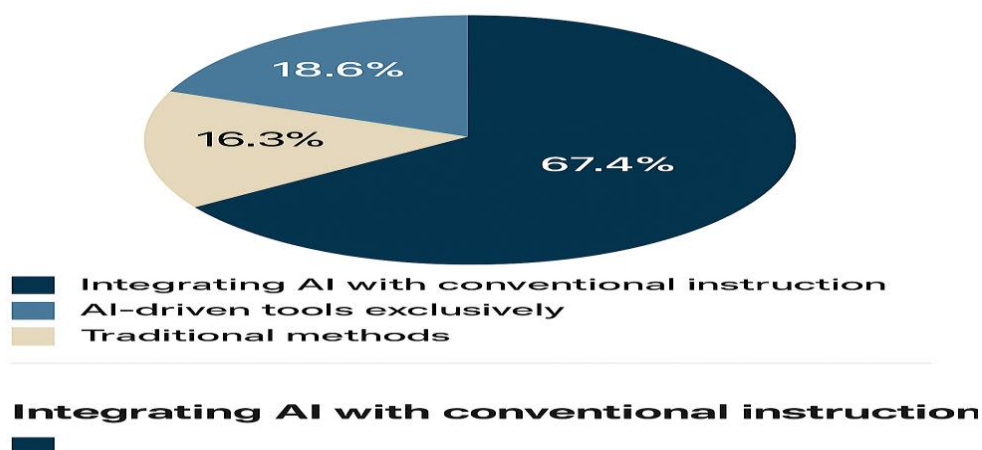


Figure 5: AI-powered tools vs Traditional Methods

When comparing AI-powered tools with traditional learning methods, survey responses revealed a nuanced preference for a blended approach that combines the strengths of both. A notable 67.4% of participants favored integrating AI technologies with

conventional instruction, reflecting an appreciation for AI's benefits, such as instant feedback, adaptive learning, and flexible access, while maintaining the value of human interaction and structured guidance inherent in traditional teaching. This hybrid preference underscores the perception that AI and conventional methods are complementary rather than competing approaches.

While 18.6% of respondents preferred AI-driven tools for their convenience and personalized learning, 16.3% remained committed to traditional methods, citing the continued importance of face-to-face instruction, textbooks, and teacher-led discussions for deep comprehension and skill development.

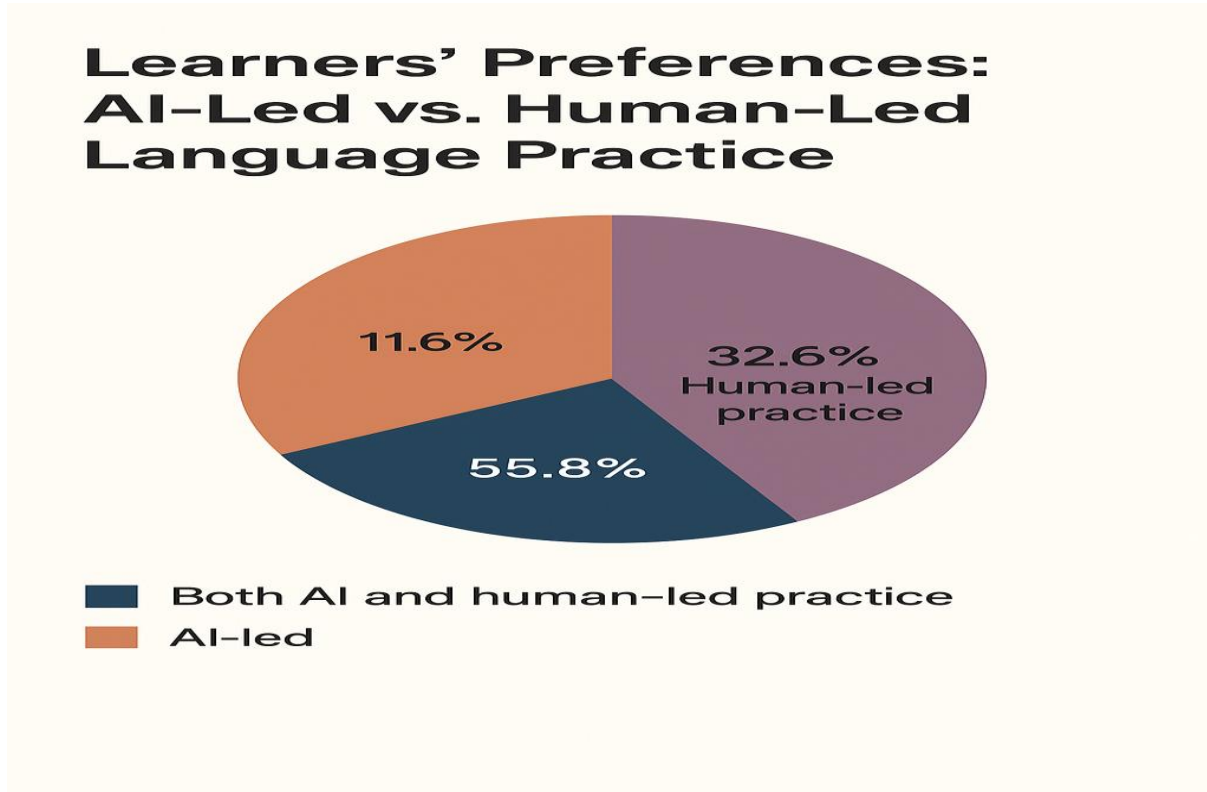


Figure 6: The most preferred learning method

Building on these findings, responses related to foreign-language practice revealed similar patterns. A majority (55.8%) indicated that their preference between AI and human instruction depends on contextual factors, such as proficiency level, task complexity, and learning goals. However, 30.2% selected AI for its non-judgmental environment and reduced anxiety, 32.6% valued human feedback for its emotional intelligence, cultural insight, and nuanced correction.

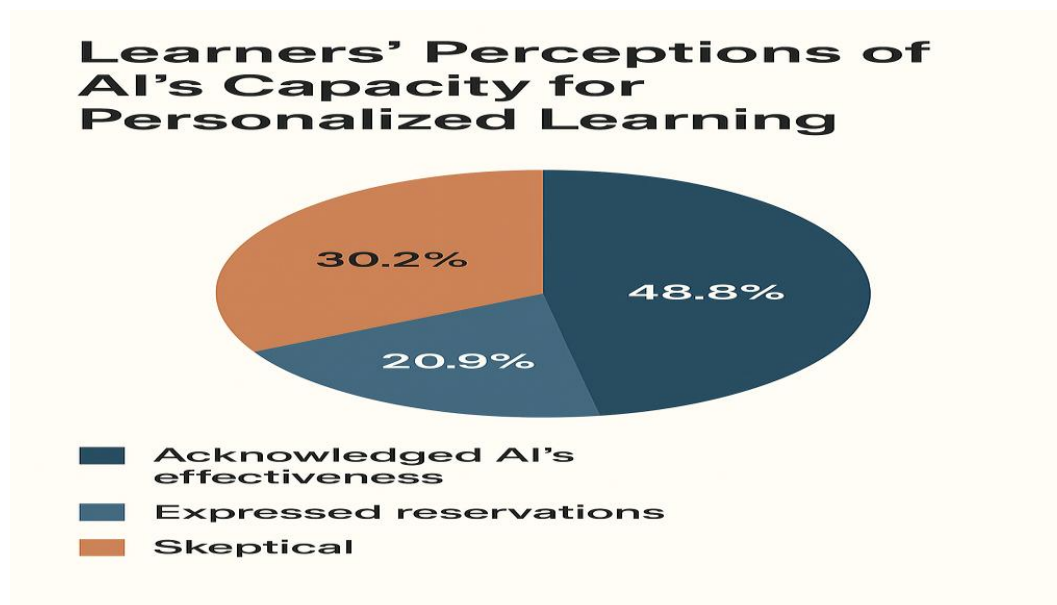


Figure 7: AI tools vs a human teacher in practicing a foreign language

Perspectives on AI's ability to personalize learning echoed this balance. While 48.8% acknowledged AI's effectiveness in tailoring instruction, 30.2% expressed concerns about its limitations in interpreting emotions and handling complex cognitive or cultural variables. A further 20.9% expressed skepticism regarding AI's personalization claims.

Overall, these findings suggest that although AI holds substantial potential to enhance language learning, most learners view it as a supplement rather than a substitute for human instruction. The optimal learning experience, according to participants, lies in a contextual and balanced integration of AI with human-led teaching.

In conclusion, the study highlights the demographic diversity and technological engagement of foreign language learners in Moroccan universities. Participants recognized AI's capacity to enhance autonomy, motivation, and linguistic accuracy, 78% reported increased motivation and 65% perceived performance improvements. Nonetheless, challenges such as technical limitations, data privacy concerns, and reduced emotional interaction temper their enthusiasm. As a result, learners overwhelmingly favour a blended, human-centered model that leverages the efficiency of AI while preserving the irreplaceable value of human educators. This approach aligns with contemporary pedagogical frameworks that prioritize adaptability, guidance, and learner agency.

4. Discussion

The findings of this study confirm the growing integration of Artificial Intelligence (AI) tools in foreign language learning, consistent with recent literature highlighting the expanding role of educational technologies in contemporary pedagogy (Godwin-Jones, 2021; Reinders & Benson, 2017). The high rate of AI usage among respondents (76.3%) reflects a notable shift toward digital learning environments, supporting Connectivist Learning Theory, which emphasizes learning through diverse digital networks and platforms (Siemens, 2005). Platforms such as Duolingo, Google Translate, and ChatGPT, used by over 60% of participants, demonstrate how learners utilize AI for scaffolded learning and real-time language support, aligning with findings on the engagement-enhancing effects of AI through gamification, adaptive feedback, and personalized instruction.

The frequent engagement of 42.1% of learners several times per week, compared with 28.9% who use AI tools occasionally, suggests that these technologies primarily supplement, rather than replace, traditional instruction. This supports the blended learning model, integrating AI's efficiency and accessibility with the interpersonal and cultural depth provided by human educators (Graham, 2006). The absence of respondents who never use AI underscores its increasing ubiquity and reinforces Warschauer's (2004) assertion that technological literacy is central to contemporary language learning.

Respondents identified several benefits of AI, including immediate feedback (57.9%), self-directed learning (52.6%), and targeted support for grammar and vocabulary (52.6%), which aligns with Luo and Gui's (2021) findings on AI's role in enhancing linguistic competence through personalized guidance. Features such as speech recognition and motivational prompts also foster fluency

and engagement, aligning with constructivist and self-determination learning theories (Deci & Ryan, 2000), which emphasize active knowledge construction and learner autonomy.

However, limitations were evident. Over half of respondents (55.3%) reported technological shortcomings, including translation inaccuracies and imperfect speech recognition, echoing concerns about the reliability of AI systems in educational contexts. Additionally, the lack of human interaction (23.7%) and the risk of over-reliance on AI (18.4%) reflect ongoing debates in second language acquisition regarding the importance of sociocultural and emotional dimensions in language learning (Kramsch, 2006). Approximately 26.3% of learners noted AI's inability to interpret cultural nuances and emotions, highlighting the limitations of current AI tools in fostering intercultural competence, a skill best cultivated through human-mediated, situated learning (Byram, 1997; Vygotsky, 1978).

Ethical concerns were also prominent. Over half of respondents (52.6%) expressed apprehension about data privacy, aligning with discussions on surveillance and data commodification in education (Williamson & Hogan, 2020). This highlights the importance of establishing clear policies and implementing robust safeguards to ensure the ethical deployment of AI.

Learners' preference for blended approaches (63.2%) reinforces the enduring value of human educators. While AI is effective for repetitive tasks, human guidance remains essential for tasks demanding critical thinking, cultural sensitivity, and socio-emotional engagement. The potential for passive learning, where learners uncritically accept AI-generated content, highlights the necessity of integrating AI in ways that foster reflection, questioning, and active engagement, in line with critical pedagogy principles (Freire, 1970; Selwyn, 2016).

Future developments should focus on enhancing conversational accuracy, incorporating multimodal learning features, and improving speech recognition, while upholding ethical standards, maintaining transparent data usage, and promoting learner agency. In summary, AI functions as both an enabler and a potential disruptor in language education, offering flexibility, personalization, and accessibility; however, it cannot replace the cultural awareness, emotional intelligence, and critical engagement that human instructors foster. A balanced, blended model represents the most effective approach to contemporary language learning.

5. Implications of Findings

The findings have theoretical and practical implications for language education. The extensive use of AI tools supports Connectivist Learning Theory (Siemens, 2005). It extends Constructivist and Self-Determination perspectives (Deci & Ryan, 2000) by demonstrating learners' autonomy, motivation, and engagement in digitally mediated environments. Moreover, the study highlights AI's current limitations in addressing sociocultural and emotional aspects of language learning, providing critical insights for Sociocultural Theory (Vygotsky, 1978).

Practically, the findings advocate a blended instructional model, integrating AI for repetitive and structured tasks, such as grammar exercises, vocabulary acquisition, and pronunciation practice, while reserving complex tasks, including critical analysis, interpretive assignments, and cultural discussions, for human-guided instruction. This aligns with learners' preferences (63.2%) and emphasizes the indispensable role of teachers in fostering higher-order thinking, creativity, and socio-emotional skills.

For AI developers, the study identifies priority areas, including improved speech recognition, enhanced cultural sensitivity, and transparent data policies. Given respondents' concerns regarding privacy (52.6%), it is essential to have in place ethical safeguards and informed data practices. Educational institutions and policymakers must support AI literacy, ensure equitable access to technology, and establish robust regulatory frameworks to safeguard the ethical integration of AI.

In conclusion, AI's dual role as both facilitator and potential disruptor necessitates a critically informed and balanced approach. While AI enhances learner engagement, flexibility, and access, its integration must preserve human interaction, intercultural competence, and critical thinking to ensure meaningful language learning.

6. Conclusion

This study confirms the widespread adoption of AI tools in foreign language learning, with 76.3% of participants actively engaging with platforms, such as Duolingo, Google Translate, and ChatGPT. These tools enhance structured learning, provide personalized linguistic support, and promote learner autonomy.

Usage patterns suggest that AI is predominantly complementary to traditional instruction, with 42.1% of learners using AI several times per week and 28.9% using it less frequently. A blended model, combining AI with human instruction, emerges as the preferred approach, leveraging both technological efficiency and interpersonal guidance.

Despite AI's advantages, such as instant feedback, individualized pacing, and improved language accuracy, challenges remain. Reported limitations include translation errors, incomplete speech recognition, a lack of authentic human interaction, and the risk of over-reliance, which may impede critical thinking and intercultural competence. Ethical concerns, particularly regarding data privacy (52.6%), highlight the necessity for transparent practices and robust safeguards.

Overall, AI enhances flexibility, accessibility, and engagement but cannot replace the nuanced guidance, cultural awareness, and emotional intelligence provided by human educators. A balanced, blended integration of AI and traditional pedagogy is essential for practical, meaningful, and inclusive language learning. The study reinforces theoretical perspectives on Connectivism, Constructivism, and Sociocultural Theory, and provides valuable guidance for educators, developers, and policymakers on optimizing the role of AI in language education.

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References

- [1] AbuSahyon, A. S. A. E., Alzyoud, A., Alshorman, O., & Al-Absi, B. (2023). AI-driven technology and chatbots as tools for enhancing English language learning in the context of second language acquisition: A review study. *International Journal of Membrane Science and Technology*, 10(1), 1209–1223. <https://doi.org/10.15379/ijmst.v10i1.2829>
- [2] Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- [3] Godwin-Jones, R. (2021). Emerging Technologies: Artificial Intelligence in Language Learning. *Language Learning & Technology*, 25(3), 1–17. <https://doi.org/10.1016/j.llt.2021.07.005>
- [4] Kessler, G. (2018). Technology and the future of language teaching. *Foreign Language Annals*, 51(1), 205–218. <https://doi.org/10.1111/flan.12318>
- [5] Luo, Y., & Gui, L. (2021). Artificial intelligence-assisted language learning: Effects on learners' motivation and performance. *Computer Assisted Language Learning*, 34(5–6), 1–21. <https://doi.org/10.1080/09588221.2020.1843345>
- [6] Mishra, D. R., & Varshney, D. (2024). Comprehensive analysis of human and AI task allocation in education: Defining futuristic roles and responsibilities. *World Journal of Advanced Research and Reviews*, 22(3), 1883–1893. <https://doi.org/10.30574/wjarr.2024.22.3.1949>
- [7] Mohamed, M. S. P. (2024). Exploring ethical dimensions of AI-enhanced language education: A literature perspective. *Technology in Language Teaching & Learning*, 6(3), 1–11. <https://doi.org/10.29140/tltl.v6n3.1813>
- [8] Reinders, H., & Benson, P. (2017). *Research and practice in technology-enhanced language learning*. Springer. <https://doi.org/10.1007/978-3-319-02252-9>
- [9] Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.
- [10] Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology*, 14, 1260843. <https://doi.org/10.3389/fpsyg.2023.1260843>
- [11] Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- [12] Warschauer, M. (2004). Technological change and the future of CALL. In S. Fotos & C. M. Browne (Eds.), *New perspectives on CALL for second language classrooms* (pp. 15–25). Lawrence Erlbaum.
- [13] Williamson, B., & Hogan, A. (2020). Commercialisation and privatisation in/of education in the context of COVID-19. *Education International*.