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DIGITAL TECHNOLOGIES IN MODERN FOREIGN LANGUAGE EDUCATION: OPPORTUNITIES AND CHALLENGES

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Abstract: The rapid development of digital technologies has significantly influenced contemporary foreign language education. Digital learning platforms, mobile applications, computer-assisted language learning systems, artificial intelligence, online communication tools, virtual environments and automated assessment technologies have created new opportunities for developing learners' linguistic and communicative competence. This thesis examines the principal opportunities and challenges associated with the integration of digital technologies into modern foreign language education. Particular attention is paid to personalized learning, accessibility of educational resources, development of productive language skills, learner autonomy and interaction. At the same time, technological integration presents challenges related to the digital divide, teacher digital competence, data privacy, academic integrity, reliability of artificial intelligence-generated content and the risk of replacing pedagogical interaction with technology. Recent systematic research indicates a positive overall effect of emerging technologies on English as a foreign language learning outcomes, although the effectiveness varies according to educational level, technology type and learning objective [1]. Therefore, digital technologies should be regarded not as a replacement for teachers but as pedagogical instruments whose effectiveness depends on appropriate instructional design, teacher competence and responsible implementation.

Keywords: digital technologies, foreign language education, CALL, mobile learning, artificial intelligence, online learning, digital competence, language teaching, educational technology.

Introduction.

Digital transformation has become an important component of contemporary education. The development of information and communication technologies has changed the ways in which teachers provide instruction and learners access educational materials. In foreign language education, technology has contributed to the development of computer-assisted language learning (CALL), mobile-assisted language learning (MALL), online learning environments and, more recently, artificial intelligence-based educational applications [2]. These developments have expanded language learning beyond the physical classroom and created opportunities for learners to access authentic materials, communicate with other users and receive immediate feedback.

Systematic research confirms that digital technologies have become an established area of investigation in language education. A review of research on distance language teaching published between 2011 and 2020 identified 197 empirical studies and demonstrated the diversity of technologies, contexts and methodological approaches used in distance language education [3]. More recent evidence also demonstrates that emerging technologies can have a positive influence on foreign language learning outcomes, although the magnitude of this influence depends on the specific educational context and technological intervention [1].

The relevance of digital technologies is particularly evident in foreign language education because language acquisition requires continuous exposure, practice, interaction and feedback. Digital environments can provide learners with additional opportunities to practice reading, listening, writing and speaking beyond conventional classroom hours. Mobile applications can

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

facilitate vocabulary learning and repeated practice, while online platforms can support synchronous and asynchronous communication. Artificial intelligence systems can provide automated feedback and simulate conversational interaction, although their educational use requires careful pedagogical and ethical consideration [4].

Methodology.

The thesis is based on a qualitative analysis of scientific literature, systematic reviews, international educational reports and scholarly publications concerning digital technologies and foreign language education. The analysis focuses on empirical and review-based evidence rather than hypothetical examples. Particular attention is given to research on CALL, distance language education, mobile-assisted language learning, artificial intelligence and emerging technologies in English as a foreign language instruction.

The methodological approach includes comparative analysis, synthesis of findings and examination of documented opportunities and limitations. UNESCO recommendations concerning artificial intelligence in education are also considered because they emphasize human agency, inclusion, equity, linguistic and cultural diversity, data protection and pedagogically appropriate implementation [4].

Results.

The analysis demonstrates several important opportunities provided by digital technologies in foreign language education.

First, digital technologies increase access to learning resources. Online educational platforms allow learners to use electronic textbooks, audiovisual materials, interactive exercises and authentic language resources. This can extend learning beyond the classroom and support independent learning. Distance language teaching research demonstrates that digital technologies are used in a wide range of educational contexts and for different target languages and learner groups [3].

Second, digital technologies can support personalized learning. Digital platforms may allow learners to work at an individual pace and repeat activities according to their learning needs. Mobile-assisted language learning is particularly relevant because smartphones provide learners with access to language-learning resources in different locations and at different times. Recent systematic research identifies mobile learning applications among the most prevalent emerging technologies used in foreign language education [1].

Third, digital technologies can increase opportunities for communication. Online communication tools enable learners to interact synchronously or asynchronously through text, audio and video. Such interaction can provide additional opportunities for using the target language in meaningful contexts. Digital environments can therefore support the development of communicative competence when activities are appropriately designed.

Fourth, artificial intelligence has introduced new possibilities for language learning. AI-powered chatbots and other systems can generate language-related responses, provide feedback and support conversational practice. The recent systematic review of emerging technologies in TEFL identifies AI-powered tools, including chatbots, automated writing evaluation and intelligent tutoring systems, as significant areas of research [1].

However, the use of AI also introduces significant challenges. UNESCO emphasizes that generative AI should be implemented through a human-centred and pedagogically appropriate approach [4]. The organization identifies concerns relating to privacy, copyright, educational assessment, human agency, linguistic and cultural diversity, and the reliability and appropriateness of AI-generated outputs [4].

Another important result concerns immersive technologies. Virtual and augmented reality can create simulated environments in which learners interact with objects, situations or communicative scenarios. Recent meta-analytic evidence indicates that VR/AR has demonstrated particularly promising effects among the emerging technologies examined in TEFL research [1].

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

Nevertheless, the implementation of immersive technologies may require specialized equipment, teacher preparation and appropriate institutional infrastructure.

Analysis and Discussion.

The evidence indicates that digital technology itself does not automatically guarantee improved language learning. Its educational value depends largely on how it is integrated into pedagogical practice. Technology should serve clearly defined learning objectives rather than become an objective in itself.

One of the principal challenges is the digital divide. Learners do not always have equal access to reliable internet connections, appropriate devices and digital learning resources. Consequently, technological approaches may unintentionally increase educational inequality if institutions fail to consider differences in learners' technological access and digital competence.

Teacher competence is another critical factor. Teachers need not only technical skills but also the ability to select appropriate digital resources, design technology-supported activities and critically evaluate digital content. Effective integration therefore requires continuous professional development.

Academic integrity represents another challenge, particularly with the increasing availability of generative AI. Students may use AI systems to produce written assignments without demonstrating the underlying language skills themselves. UNESCO consequently emphasizes the need to reconsider assessment practices in light of generative AI and to protect human agency in educational processes [4].

Data privacy is also an important issue. Digital platforms and AI systems may process personal and educational information. UNESCO has emphasized the importance of protecting users' data and developing appropriate regulatory and institutional frameworks for the educational use of generative AI [4].

At the same time, digital technologies should not be viewed exclusively through the perspective of risks. When appropriately implemented, they can complement teachers' work by providing additional learning materials, opportunities for practice and forms of feedback. The teacher remains responsible for establishing learning objectives, selecting appropriate pedagogical strategies, monitoring learner progress and evaluating the quality of learning outcomes.

Recent evidence supports a generally positive relationship between emerging technologies and TEFL outcomes. A 2026 systematic review and meta-analysis of 33 experimental and quasi-experimental studies involving 3,181 participants reported an overall Hedges' g of 0.38 (95% CI [0.26, 0.50], $p < 0.001$), while also identifying substantial heterogeneity between studies ($I^2 = 90.14\%$) [1]. These findings are important because they demonstrate both the potential value of emerging technologies and the fact that their effectiveness is not uniform across all educational settings.

The findings also indicate that productive skills such as speaking and writing may benefit particularly from certain emerging technologies, while vocabulary and grammar learning can also be supported [1]. Nevertheless, technological interventions should be matched with specific language-learning objectives. For example, a vocabulary application may be highly suitable for lexical repetition but insufficient for developing spontaneous communicative competence. Similarly, an AI chatbot can provide conversational practice but cannot completely reproduce the cultural, interpersonal and pedagogical dimensions of communication with a human teacher or interlocutor.

Therefore, the most appropriate model is not technology-centred education but pedagogy-centred technology integration. In this model, digital tools complement rather than replace established principles of language teaching. Teachers remain central to curriculum design, interaction, feedback and assessment, while digital resources extend the possibilities available to both teachers and learners.

Conclusion.

Digital technologies have become an important component of modern foreign language education.

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

Evidence from systematic reviews demonstrates that mobile learning, artificial intelligence, virtual and augmented reality and other emerging technologies can contribute positively to foreign language learning when they are appropriately integrated into instruction [1]. Their principal opportunities include increased access to resources, personalized learning, additional communication opportunities, autonomous learning and new forms of feedback and practice.

At the same time, technological integration involves substantial challenges, including unequal access to digital resources, insufficient teacher digital competence, privacy risks, academic integrity concerns and the reliability of AI-generated content. UNESCO therefore recommends a human-centred approach that protects human agency, inclusion, equity, linguistic and cultural diversity and data privacy [4].

Consequently, the effectiveness of digital technologies in foreign language education depends not simply on technological innovation but on the quality of pedagogical implementation. Digital tools should complement teachers, support clearly defined learning objectives and be evaluated according to their educational value. The future development of foreign language education therefore requires a balanced approach in which technological innovation is combined with sound pedagogy, teacher expertise and responsible use of digital technologies.

References

1. Liu, M., Hashim, H., Sulaiman, N. A. A systematic review of emerging technology applications for teaching English as a foreign language across different educational levels. *Educational Research Review*, 2026, Vol. 52, Article 100795, pp. 1–31.
2. Chapelle, C. A. *Computer Applications in Second Language Acquisition: Foundations for Teaching, Testing and Research*. Cambridge University Press, 2001, pp. 1–13, 44–67.
3. Dooly, M., Vinagre, M. A systematic review of research on distance language teaching (2011–2020): Focus on methodology. *System*, 2022, Vol. 105, Article 102753, pp. 1–15.
4. Miao, F., Holmes, W. *Guidance for Generative AI in Education and Research*. UNESCO, 2023, pp. 1–44.
5. Hubbard, P. *Computer Assisted Language Learning: Critical Concepts in Linguistics*. Routledge, 2009, pp. 1–20.
6. Stockwell, G. *Mobile Assisted Language Learning: Concepts, Contexts and Challenges*. Cambridge University Press, 2022, pp. 1–24.
7. Godwin-Jones, R. Emerging technologies: Mobile apps for language learning. *Language Learning & Technology*, 2011, Vol. 15, No. 2, pp. 2–11.
8. Kukulska-Hulme, A., Shield, L. An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, 2008, Vol. 20, No. 3, pp. 271–289.
9. Warschauer, M., Healey, D. Computers and language learning: An overview. *Language Teaching*, 1998, Vol. 31, No. 2, pp. 57–71.
10. Blake, R. J. *Brave New Digital Classroom: Technology and Foreign Language Learning*. Georgetown University Press, 2013, pp. 1–23, 45–70.
11. UNESCO. *AI and Education: Guidance for Policy-makers*. UNESCO, 2021, pp. 1–60.
12. UNESCO. *Recommendation on the Ethics of Artificial Intelligence*. UNESCO, 2021, pp. 1–42.
13. European Commission. *Digital Education Action Plan 2021–2027: Resetting Education and Training for the Digital Age*. European Commission, 2020, pp. 1–20.
14. Council of Europe. *Common European Framework of Reference for Languages: Learning, Teaching, Assessment – Companion Volume*. Council of Europe Publishing, 2020, pp. 1–235.