DIGITAL TRANSFORMATION AND AI INTEGRATION IN MODERN LANGUAGE TEACHING AND INTERPRETING PRACTICE

Diyora UROKOVA
Master's Student at UzSWLU
aryoidgd20u@mail.ru

Abstract. *AI integration and digital transformation are reshaping language education and interpreting by providing adaptive learning systems, speech recognition, and computer-assisted tools that enhance personalized instruction, practice opportunities, and professional preparation. While these technologies improve efficiency and learner engagement, their effectiveness depends on informed human oversight, ethical use, and the educator's or interpreter's expertise to mediate AI-generated feedback and maintain pedagogical integrity.*

Key words: *digital transformation, artificial intelligence (AI), language education, interpreting, adaptive learning, speech recognition, computer-assisted interpreting, generative AI, personalized learning, teacher mediation.*

Language education and interpreting have undergone significant change over the last decade as a result of digital transformation. The development of artificial intelligence (AI) – adaptive learning systems, neural machine translation (NMT), automatic speech recognition (ASR), and computer-assisted interpreting (CAI) – has expanded significantly the number of digital resources available for learning, teaching, and interpreting.

Adaptive learning systems and Intelligent Tutoring Technologies are two major ways that AI has impacted the field of Language Education. Recent systematic reviews have documented increasing capabilities of AI-support tools for diagnosing learner challenges and generating individualised learning pathways, additionally, they provide automated feedback to assist with ongoing improvement (Zawacki-Richter et al., 2019). As AI-supported systems provide instruction based on student performance, they improve overall efficiency in delivery of education, while also supporting differentiated instruction. More recent analysis found continual growth and refinement of AI-supported learning in Higher Education, including development of increasingly sophisticated Adaptive Tools for Language Learning (Xing et al., 2024). The advantages for these types of tools are that they allow learners to receive content that addresses their individual needs, as well as allowing instructors the ability to monitor learners' progress and provide timely interventions.

The advent of accurate automatic speech recognition (ASR) has had a significant impact on the way educators teach spoken language. Research has shown that when using ASR as part of their training programs, students are able to receive immediate feedback on their speaking skills (fluentness, pronunciation, self-regulation) which helps them improve these areas (Xiao et al., 2025). ASR has enabled students to practice speaking more than they would in a conventional classroom setting by providing them with different examples of how to speak through many variations of practice. Therefore, using ASR will lead to students having more confidence in their ability to speak and will

enhance their accuracy when doing so. Additionally, as well as providing students with timely feedback, ASR has the ability to support the use of traditional teaching methods for developing a student's independence, by enabling students to learn in a way that is both self-paced and multi-modal.

While many language learning processes utilizing AI technologies are a result of educator mediation, there is still strong evidence that the success of AI in education relies heavily on the educator's ability to analyze the automated feedback generated by AI-based products, create authentic assignments, projects and activities based on that analysis, and monitor how ethical the use of the tool is (Zawacki-Richter et al., 2019, Xing et al., 2024). Furthermore, the competencies associated with assessing learner needs, locating errors, developing critical digital literacy, etc., are a significant aspect of a professional educator's role, therefore, the role of the educator is evolving to assure that the relationship between human and AI is facilitating responsible and effective engagement with the latest technology.

Digital transformation in interpreting is most clearly seen as the result of the increased use of computer-assisted interpreter (CAI) systems to assist interpreters, such as InterpretBank, in managing terminology, creating glossaries, preparing for specific domains, and allowing interpreters to better prepare for complex or specialised content. According to Fantinuoli (2017), CAI tools have improved both the quality of preparation and decreased cognitive load through the use of CAI tools that assist in the real-time retrieval of lexical items during the interpreting process. This change to technology supported workflow processes has led to the predominance of amateur interpreting in those industries where a high level of specificity is necessary in terms of terminology.

In addition, AI-enhanced speech technologies, such as automatic speech recognition (ASR) and text-to-speech (TTS), are also emerging as key tools for interpreter training. Interpreters can use these systems to practice with flexible speech input, adjust the pace of delivery, and simulate different accents and speaking styles. Studies have demonstrated that, as a result of AI-supported practice simulations, interpreter trainees have improved their ability to remember previously interpreted material, corrected errors and developed strategies for self-correction (Xiao et al., 2025, Hatiarová, 2025). Given that interpreters often work under time constraints and with a wide range of speakers, the availability of customisable AI-enabled training materials supports more extensive skill development.

Generative AI is fast becoming a powerful tool in training and preparing interpreters. From practice speeches to generating topic highlights or assisting with automated term extraction, Hatiarová describes different approaches to using generative AI and large language models as part of this process. Although the use of such tools provides valuable scaffolding for interpreters, human oversight of the material generated is critical to ensure its accuracy and relevance. Thus, while generative AI enables interpreters to practice more frequently, it will also require them to develop skills to assess the machine-generated materials.

In both interpreting and language learning, the integration of AI offers several key benefits. In both interpreting and language learning, the integration of AI offers several key benefits. AI facilitates **improved efficiency** through quicker feedback cycles,

automated evaluation, and streamlined preparation (Fantinuoli, 2017). AI can also facilitate **individualised learning** by providing various learning pathways that adapt to each student's or interpreter's unique requirements (Zawacki-Richter et al., 2019). Additionally, the use of AI tools opens up **avenues for more practice resources** that give learners and interpreters exposure to multiple forms of language and engaging environments. Overall, these benefits will generate a more flexible and student-centred learning environment.

However, AI integration also presents significant challenges. Accuracy continues to be a significant constraint, as AI-generated feedback may include inaccuracies or misinterpretations necessitating meticulous human assessment. Bias in AI models can affect tool performance, particularly for low-resource languages or underrepresented varieties. Educational institutions must also address issues of academic integrity, ensuring that learners use AI tools ethically rather than substituting machine output for authentic language production. All these issues highlight the way educators must foster AI literacy, develop the ability to critically evaluate their AI functions, and incorporate responsible teaching practices in their classrooms.

Modern language instruction and interpreting are being transformed with the aid of AI technology, which allows for customized lessons, more diverse opportunities to practice, and greater preparation. Although AI will enhance the abilities of both educators and interpreters, it cannot replicate the intricate interrelationship of cognitive, cultural, and pedagogical knowledge that an educator or interpreter possesses. AI's value will depend upon the ongoing use of educated management, continued emphasis on the quality of the AI, and the development of digital skills. The most successful methods for implementing AI will utilize technology while relying on human reasoning and pedagogical integrity as the primary principles of education.

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