AI IN LANGUAGE EDUCATION

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Abstract
This research paper explores the transformative role played by Artificial Intelligence (AI) in shaping language education. The study covers multiple aspects of language learning such as pronunciation, vocabulary building, speaking, reading, writing, listening, and feedback mechanisms. The paper highlights the diverse applications of AI tools, including Automatic Speech Recognition Technology for pronunciation improvement, and platforms like ChatGPT, Duolingo, Quizlet, and Google Translate, which help customize content to individual proficiency levels and create engaging learning experiences. The paper discusses how AI can simplify the task of lesson planning and content sequencing for teachers. This paper explores the developments in language education through the advent of AI, discussing its potential to enhance student engagement, support teaching processes, and enable continuous improvement in student performance.
Keywords: *artificial intelligence, language learning, customise content, student engagement, teaching processes.*

Introduction

Artificial Intelligence (AI) is transforming teaching/ learning by enriching learning experiences and streamlining teaching practices. It is instrumental in offering personalized learning, increasing accessibility and student engagement thereby improving the performance of the students. Further, it has reduced the cost of education.

AI technology offers customized instruction through intelligent tutoring systems. Virtual learning environments and immersion learning enrich learning experiences and improve student engagement. The adaptive feedback from AI-powered educational tools and provides immediate feedback for improvement and results in better performance of students. For educators, AI tools are instrumental not only in streamlining course design and lesson plans but also in developing, evaluating and refining teaching materials. AI tools help reduce the work of teachers by providing customized feedback and assist them in grading students' work. AI tools help teachers in focusing on interacting with the students and discussing concepts by relieving them from routine work.

There are different kinds of tools offering unique capabilities catering different needs. While Google's AI Hub provides an innovative learning environment, IBM Watson Education offers personalised learning experiences. Other digital platforms like Edmodo, Content Technologies Inc., and Quill leverage AI to make learning more personalised, effective, and engaging. Platforms like Duolingo and Quizlet engage students through interactive learning experiences, and tools like Microsoft's Immersive Reader and SymbMath use AI to support specific skill development.

AI Technologies for improving Pronunciation and Grammar

In the case of L2 students, pronunciation and grammar issues may hinder message comprehension and lead to communication breakdowns. Improving pronunciation is essential for effective speech delivery (Crowther et al., 2015). Automatic Speech Recognition (ASR) technology is

an excellent means to address pronunciation and grammar issues.

Carlet and Kivistö-de Souza (2018) note that L2 phonological awareness is enhanced by giving practice in activities that raise students' consciousness of the target language phonology, enabling them to reflect on their pronunciation and develop self-monitoring skills. Liu et al. (2019) also highlight that ASR technology is effective in helping students improve their accents in a foreign

language. According to Deykeyser (2015), practice leads to procedural knowledge, which eventually becomes automatic, facilitating fluent and spontaneous speech.

Therefore, it is important to explicitly teach pronunciation during the learning process (Darcy, 2018; Derwing, 2018). ASR technology offers exercises at the word, sentence, and real-life dialogue levels, providing learners with private, individualised, and instant feedback to help them develop their pronunciation skills. In traditional language teaching, teachers often have limited time to assess pronunciation and provide personalised feedback, making

ASR-based feedback valuable for educators (Eshani & Knodt, 1998; Neri et al., 2002).

It also provides timely and personalised feedback after students speak for pronunciation improvement (Cucchiarini et al., 2012). This feedback helps learners identify and correct pronunciation errors, preventing the formation of incorrect pronunciation habits (Eskenazi, 1999). By offering instant feedback, ASR technology aids students in enhancing their speaking skills.

Carlet and Kivistö-de Souza (2018) note that L2 phonological awareness can be enhanced through activities that raise students' consciousness of target language phonology, enabling them to reflect on their pronunciation and develop self-monitoring skills. Liu et. al. (2019), also highlight that ASR technology is effective in helping students improve their accents in a foreign language.

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pronunciation errors, preventing the formation of incorrect pronunciation habits (Eskenazi, 1999). By offering instant feedback, ASR technology aids students in enhancing their speaking skills. When integrated with language learning tools like mobile apps, online platforms, and virtual reality environments, ASR technology creates a more immersive and engaging experience for learners.

A study conducted by Mccrocklin (2016), Tu and Chen (2011), and Neri et al. (2003, p.1157) on the impact of ASR technology on students' pronunciation showed that ASR technology helps students practice speaking in a low-stress environment. L2 students who have a fear of people judging their speech can practice words and phrases without fear of judgment. The feedback that they receive on their

pronunciation, intonation, and other speech elements, gives confidence and improves fluency.

AI Technologies for Improving Listening Skills

Vocabulary, grammar, tone, intonation, and context are crucial for understanding spoken English. Effective listening helps learners grasp these and understand language in real life. By improving their listening skills, L2 learners can understand language from various forms of media, from podcasts to movies and gain confidence to participate in conversations.

AI can improve L2 learners' listening skills through games and gamified learning experiences and make them more enjoyable. Games incorporate "rewards, challenges, and progress tracking," to motivate and engage students when they are practicing listening skills.

Further, Automatic Speech Recognition (ASR) technology offers extensive practice in listening skills through targeted exercises by first exposing students to language presented in the form of podcasts, interviews, and conversations and later analyzing their speech sounds and intonation patterns, providing instant feedback on their pronunciation.

AI applications facilitate interactive listening activities for students. Chatbots with natural language processing can mimic conversations, creating a comfortable setting for enhancing listening skills. Language apps like Zeno Chat enhance pronunciation, reading, listening, and writing abilities, while personal assistants like Alexa support listening and comprehension, all contributing to a more flexible learning experience.

AI-Powered Chatbots to Improve Speaking Skills

Today, we have Chatbots that simulate real-time conversations. AI-driven chatbots are emerging as a promising tool to address traditional education's challenges. They provide an effective way to practice and improve speaking skills. Teachers may not be able to give individual attention to all students. In such circumstances, a software avatar, which is nothing but a chatbot, can interact with the learner and enable him to learn in the absence of a teacher.

Chatbots in the form of avatars use dialogue systems as practice partners and enable learners to have conversational practice. Chatbots are especially helpful for those who are shy or find it difficult to develop communication skills in a new language when speaking with a real person. Such learners often prefer to practice alone on their computers or smartphones, where they can practice without feeling judged, and chatbots effectively fulfil this need. Today, we have Chatbots that simulate real-time conversations. AI-driven chatbots are emerging as a promising tool to address traditional education's challenges. They provide an effective way to practice and improve speaking skills.

AI chatbots' interactive and conversational features boost student engagement and motivation, making learning more enjoyable and tailored to individual needs.

Additionally, they aid in skill development by offering suggestions for syntactic and grammatical improvements to enhance writing skills, providing guidance for problem-solving, and supporting group discussions and debates with real-time feedback. These interactive elements make learning more appealing, enjoyable, and memorable for students.

(Kim et al., 2019) Fryer and Carpenter (2006) highlight that chatbots are very useful in helping learners practice language structures. Learners can practice language independently and later review their chat. A study conducted by Fryer and Carpenter, in which 211 students were engaged with two different chatbots, showed that chatbots can be effectively utilized for self-directed learning through informal conversations.

AI Tools for Improving Reading and Writing Skills

AI can offer students engaging and relevant materials to enhance their reading skills. It can deliver various digital resources, such as articles, essays, and literature, customised to match the student's language proficiency, interests, and learning goals. Additionally, it provides practice exercises and activities, adapting the difficulty based on the student's performance. Students' comprehension and progress can be assessed through interactive exercises and quizzes.

Reading Companion, a program created by IBM, utilizes speech recognition technology to assist people in learning to read. The Reading Companion website provides reading materials to users. An on-screen mentor or companion reads a phrase aloud, and then the user is invited to read the material using a headset microphone. Based on the accuracy of the user's reading, the companion offers positive reinforcement. A study that evaluated Reading Companion showed that it was effective for ESL learners to develop their language skills (Brunner & Menon, 2007, pp. 7–8).

Students struggling with grammar and usage can use AI tools to get instant feedback on grammar, spelling, and vocabulary. AI tools not only assist students in identifying and correcting errors but also offer alternative words or phrases to enhance clarity and effectiveness. They provide targeted feedback to improve sentence structure, coherence, and argument development. AI tools evaluate student progress through interactive exercises and quizzes.

Kim (2019) investigated how different chatbots can improve four language skills: listening, reading, speaking, and writing, as well as vocabulary. The study emphasized that chatbots can be valuable resources for English as a Foreign Language (EFL) students, providing authentic and natural input through text and audio. Language learning platforms like Duolingo focus on correcting learners' vocabulary, grammar, and writing. Other language learning apps that can be used for improving grammar, vocabulary, sentence structure, and conversation practice are Memrise, Mondly and Andy.

Virtual Language Tutors

AI supports students in language learning through virtual tutors, chatbots, apps, and online courses. These AI tools assess learners' responses and offer customised feedback and guidance tailored to each person's needs. AI platforms like Italki and Preply provide language tutors.

Chatbots as Language Learning Assistants

Today, chatbots serve as learning assistants because they can engage in natural conversations with students. They help improve listening and comprehension skills while also enhancing pronunciation in a fun, interactive, game-like manner. They provide immediate support by answering questions, offering explanations, and providing additional resources.

Intelligent personal assistants like Alexa allow users to narrate stories and guide them through quests or quizzes via spoken interactions. They help improve listening and comprehension skills while enhancing pronunciation by offering an engaging, game-like experience (Dokukina, I.V., & Gumanova, Yu.L., 2019).

AI Tools for Assisting Teachers

AI offers several incredibly useful and time-saving tools for teachers to streamline their workload and enhance their teaching effectiveness. Whether it is reading papers more efficiently, generating personalized learning materials, or simply getting more organized, these tools are designed to simplify

the workday and help teachers achieve teaching goals.

Google's interactive AI Hub allows educators to design engaging lessons grounded in real-world applications, making abstract concepts in AI and machine learning more tangible. It provides a rich collection of shared projects and models that can spark student interest in AI.

ChatGPT helps in developing a personalized curriculum for students based on their language proficiency. It creates a range of activities and assessments in alignment with the expected outcomes. It assists teachers in the assessment process by creating quizzes and simplifying the whole process. One example is Quizalize, an app that creates quizzes in seconds and serves as a quiz-building assistant.

Conclusion

This paper discussed how Artificial Intelligence (AI) impacts language learning. It discussed how AI applications, websites, and other tools play an important role in meeting the demands of language education. Finally, it has demonstrated that employing AI tools can enrich student learning and bring about a transformation in language education.

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