

## METHODOLOGICAL BASIS OF USING ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING ENGLISH

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**Abstract:** *The integration of Artificial Intelligence (AI) into English Language Teaching and Learning (ELT/L) has revolutionized the educational landscape, offering innovative solutions to overcome traditional language learning barriers. This study explores the role of AI in enhancing language acquisition, focusing on five key areas: speaking, writing, reading, pedagogy, and self-regulation. AI-powered tools, such as speech recognition systems, grammar checkers, personalized learning platforms, and intelligent tutoring systems, have demonstrated significant improvements in learners' pronunciation, vocabulary, writing accuracy, and overall engagement. The study also highlights AI's ability to personalize learning experiences, provide instant feedback, and foster autonomous learning. While AI presents numerous advantages, challenges such as accessibility, ethical concerns, and the need for human-AI collaboration remain critical considerations. The findings underscore AI's transformative potential in ELT/L and suggest future directions for optimizing AI-driven educational strategies.*

**Key words:**

### INTRODUCTION

English is the most widely spoken language in the world. As the global language of communication, English is one of the most practical languages for work, business, tourism, education and international relations. (Lan et al., 2020). Additionally, it is the language which studied widely. According to some sources, there are about 2 billion people English language learners worldwide (Rich, 2021). While English is a highly sought-after language to learn, learners face several challenges, including limited exposure to the target language, restricted opportunities to use English both in and outside the classroom, the necessity to communicate across linguistic and cultural boundaries, a lack of self-directed learning skills (Renandya & Widodo, 2016), inadequate access to quality instruction, and anxiety about making mistakes or being misunderstood. Educators must explore ways to support learners in achieving success. Artificial Intelligence (AI) is increasingly recognized as a valuable tool in English language teaching and learning (ELT/L), offering innovative strategies and opportunities to address these obstacles while enhancing and expanding learning experiences (Baranwal, 2022). A review of existing research highlighted the need for a current, comprehensive study on AI's role in ELT/L across different age groups, analyzing literature from the ground up to uncover key insights.

Where is AI being used in ELT/L and what are the benefits of its use?

Dr Helen Crompton researched four key areas in which AI is being used in ELT/L: for the improvement of speaking, writing and reading skills, to support pedagogy. Interestingly, among the language skills, listening did not emerge from the data as one where AI is being used. These four uses of AI in ELT/L are described in more details below.

1. Speaking

The development of speaking skills was one of the five main uses for AI in ELT/L that appeared from this research. After investigation of studies in which speaking was the main use of AI revealed three secondary codes: skills, pedagogy, and technology. It is interesting to mention that whereas there was overlap in the secondary code areas, the title of each area is determined by main use of AI in that skill.

Studies on AI in speaking primarily focused on pronunciation. Various AI-driven systems and programs were found to assist students in this area. For instance, Liu and Hung (2016) conducted a study with Taiwanese students, revealing that AI significantly improved pronunciation by enhancing pitch variation and intonation patterns. The researchers found that AI-generated visual representations, such as spectrograms, played a crucial role in helping learners refine their pronunciation.

Another key area in AI-assisted speaking instruction relates to pedagogy and teaching methodologies. AI has been utilized as a conversational partner, a language coach, and in multimodal learning environments. Dizon and Tang (2020) conducted a study in which students engaged in conversations with Alexa, a personal voice assistant. Their findings indicated that this interaction fostered meaningful communication, enhanced vocabulary acquisition, improved overall language skills, and created an engaging, enjoyable learning experience.

## 2. Writing

The studies in writing revealed the usage of AI including skills pedagogies and technologies. Two areas became apparent for AI use in writing were related to vocabulary learning and grammar. For instance, a study by Lo (2023) found that access to neural machine translation programs resulted in students' vocabulary improvement, especially when specialized expressions were involved. Another common use of AI in writing is the use of AI grammar checkers. For example, research by Dizon and Gayed (2021) specifically examined the effect of Grammarly when used in ELT/L in higher education, realized that students made fewer grammatical errors and wrote with more lexical variation than students without this AI-powered tool.

Remarkably, the primary pedagogical focus that emerged in the secondary codes for writing was the role of AI in providing feedback. Studies on writing pedagogy often explored AI tools that assist learners through spelling and grammar correction. For instance, Dizon and Gayed (2021) investigated the use of Grammarly as a feedback tool, highlighting its effectiveness in improving writing accuracy. Similarly, Nazari et al. (2021) examined Grammarly's impact on English language learners, emphasizing its role in enhancing feedback and supporting language development.

Divergent AI tools have been utilized to support writing, including grammar checkers, writing assistants, translation tools, and pattern checkers. The use of translation tools, in particular, has generated significant interest. A study by Chon et al. (2021) examined how South Korean college students used machine translation as a reference tool for second-language (L2) writing.

## 3. Reading

The improvement in reading was not as common as the practical skills of speaking and writing. However, there were some light changes in using AI in teaching EL focused on skills, pedagogies and technology.

Studies on reading primarily focused on vocabulary development, with gaming emerging as the main pedagogical tool. Zheng et al. (2015) investigated vocabulary acquisition in reading through quest-based gaming, where a Japanese student played World of Warcraft (WoW) alongside an English-speaking player. The study found that students, represented as avatars, utilized semiotic resources embedded in the game to enhance vocabulary learning. Zheng and colleagues argued that games offer opportunities to acquire and contextualize vocabulary in ways that traditional textbooks and classrooms cannot.

#### 4. Pedagogy

Pedagogy includes methods, strategies and techniques to facilitate ELT.

The use of AI in English language teaching and learning (ELT/L) extends beyond supporting language skills to influencing pedagogical methods, strategies, and techniques. While pedagogy appeared as a sub-code in previous sections, this section focuses on studies where it was the primary area of research. Analysis of pedagogy-related studies identified six secondary areas of focus.

Some studies explored multiple AI-driven approaches to create a more personalized learning experience. For instance, Kim (2022) examined the impact of pedagogical techniques such as score predictions, lectures, explanations, and practice tests on Korean students preparing for the Test of English for International Communication (TOEIC). The AI system first administered a diagnostic test, then used the results to generate tailored lectures, explanations, and practice exercises based on each student's proficiency level.

Lee et al. (2023) approached pedagogy differently by investigating learner-generated context-based (LGC) learning. They defined LGC as a process in which learners create and engage with digital technology to construct a personalized learning environment. The AI system collects data from learners' actions and decisions, using it to generate meaningful, contextualized learning experiences tailored to their needs.

The challenges of using AI in ELT/L

According to some researches there are three main challenges that people face while learning foreign language: technology breakdowns, limited capabilities and fear.

- Technology breakdowns include technical problems and poor connectivity. One specific technology breakdown was incorrect answers given by the AI.

- Limited capabilities referred to users requiring more advanced functionality. For instance, some students wanted better chatbot capacity (Thompson et al., 2018) and others wanted more natural interactions. These limited capabilities led to students becoming uninterested in using the chatbot.

- Fear took several forms including a lack of clarity on how personal information would be stored and shared. The second fear was of the unknown i.e. uncertainty about how the AI was operating. (Viktorivna et al., 2022).

Conclusion

AI has significantly enhanced English language teaching and learning (ELT/L) by improving language skills, personalizing learning, and providing real-time feedback. Tools like speech recognition, grammar checkers, and adaptive platforms have increased accessibility and engagement. However, challenges such as accessibility, ethics, and the need for human interaction remain, highlighting the complexity of integrating AI into education.

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