



ARTIFICIAL INTELLIGENCE IN INCLUSIVE ENGLISH LANGUAGE TEACHING: TRANSFORMATIVE TECHNIQUES, TECHNOLOGICAL TOOLS, AND FUTURE POSSIBILITIES

M. Kannadhasan* & I. Amalraj**

* Assistant Professor, Department of English, Thiruvalluvar University, Vellore, Tamil Nadu, India

** Assistant Professor, PG Department of English, Loyola College, Vettavalam, Thiruvannamalai, Tamil Nadu, India

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Abstract:

The integration of Artificial Intelligence (AI) into English Language Teaching (ELT) is redefining pedagogical practices, especially in the realm of inclusive education. The paper aims to explore how AI-driven tools and techniques can support diverse learners, including those with linguistic, cognitive, or physical challenges, by creating adaptive, personalized, and accessible learning environments. With applications ranging from speech recognition and natural language processing to adaptive learning platforms and chatbots, AI empowers educators to tailor instruction based on individual student needs and learning styles. Tools like AI-based grammar checkers, pronunciation aids, virtual teaching assistants, and real-time translation software offer opportunities for scaffolding language acquisition in ways that traditional methods often cannot achieve.

The paper also attempts to examine the transformative strategies that incorporate AI into inclusive ELT, such as differentiated instruction, multimodal content delivery, and real-time feedback mechanisms. By leveraging AI's analytical capabilities, educators can make data-informed decisions to enhance learning outcomes and promote equity in classrooms with multilingual and multicultural learners. Additionally, the research anticipates future possibilities including emotionally intelligent AI tutors, immersive AI-powered virtual reality (VR) classrooms, and multilingual AI companions that foster conversational practice and confidence-building.

Key Words: Artificial Intelligence (AI), Inclusive Education, English Language Teaching (ELT), Personalized Learning, Educational Technology, Language Accessibility, AI - Powered Pedagogy.

In today's rapidly evolving educational landscape, the integration of Artificial Intelligence (AI) is emerging as a powerful force in reshaping English Language Teaching (ELT), particularly within inclusive learning environments. As classrooms become increasingly diverse with students from various linguistic, cultural, cognitive, and socio-economic backgrounds, there is an urgent need for teaching methodologies that are flexible, personalized, and accessible. Traditional one-size-fits-all approaches often fall short in addressing the unique needs of learners with disabilities, language barriers, or differentiated learning styles. AI, with its capacity to process vast amounts of data and respond in real-time, offers unprecedented opportunities to transform English language education into a more inclusive, learner-centered practice. "Artificial intelligence (AI) technologies comprise a broad spectrum of instruments and methodologies, including machine learning, natural language processing, and adaptive learning systems, which can be utilized to customize education and facilitate the various learning demands." (M. Kannadhasan 16)

AI-powered tools such as adaptive learning platforms, voice recognition software, intelligent tutoring systems, and language translation applications are not only enhancing engagement and motivation but also providing tailored support that meets individual learner needs. These technologies can offer immediate feedback, modify lesson difficulty, and suggest personalized learning paths creating a dynamic and inclusive classroom experience. Moreover, emerging innovations in natural language processing (NLP), machine learning, and virtual reality (VR) are opening new avenues for immersive and interactive language learning.

AI's ability to analyse vast amounts of data and generate knowledge can also help address students' diverse linguistic and cultural backgrounds. Using AI based language analysis tools, teachers can help students from different language backgrounds identify common errors, language patterns, and differences between languages. By providing interactive simulations, virtual interactions and cross-cultural communication opportunities as part of ELT, artificial intelligence can also help promote cultural sensitivity and intercultural competence (M. Kannadhasan 16-17)

The paper aims to explore how AI can revolutionize inclusive ELT by examining current technologies, transformative pedagogical techniques, and future possibilities. It also addresses the challenges educators face in adopting these technologies, including ethical concerns, teacher readiness, and infrastructural limitations. By embracing AI in thoughtful and intentional ways, educators can promote equity, accessibility, and meaningful learning experiences for all English language learners.

The convergence of Artificial Intelligence (AI) and English Language Teaching (ELT) has garnered significant scholarly attention in recent years, particularly concerning its role in promoting inclusive education. Scholars such as Kukulska-Hulme (2020) and Holmes et al. (2019) have emphasized the transformative potential of AI in personalizing language instruction and supporting learners with diverse needs. AI technologies like adaptive learning systems, chatbots, and speech recognition tools have been shown to enhance learner autonomy, engagement, and retention, especially among students with learning disabilities or those from non-dominant linguistic backgrounds.

Existing studies highlight the importance of Natural Language Processing (NLP) in providing real-time grammar correction, vocabulary enhancement, and writing support. Tools like Grammarly and AI-powered writing assistants help students

refine their language use independently. Meanwhile, applications such as Duolingo and ELSA Speak utilize AI algorithms to adapt content based on user performance, ensuring individualized learning trajectories.

Furthermore, inclusive education frameworks, as discussed by Florian and Black-Hawkins (2011), stress the need for educational practices that accommodate every learner. AI aligns well with this ethos by offering features like text-to-speech, translation, and multimodal input/output that assist learners with visual, auditory, or cognitive impairments. Virtual teaching assistants and multilingual AI tutors also bridge the communication gap in multicultural classrooms. However, some scholars, including Selwyn (2021), raise concerns about ethical considerations, data privacy, and the potential dehumanization of teaching through excessive automation. The lack of teacher training in AI integration and digital infrastructure in under-resourced schools also presents notable challenges.

The integration of Artificial Intelligence into Inclusive English Language Teaching (ELT) signifies a paradigm shift from traditional, uniform instruction toward dynamic, learner-centered approaches. AI technologies are not just enhancing language acquisition but also addressing long-standing equity gaps in multilingual and ability-diverse classrooms. Through intelligent tutoring systems, adaptive content delivery, and real-time feedback, AI enables differentiated instruction that caters to individual learner profiles be it based on linguistic background, cognitive ability, or learning style.

One of the most transformative impacts of AI in inclusive ELT is the facilitation of personalized learning. AI-powered platforms can assess students' proficiency levels, identify strengths and weaknesses, and deliver customized exercises, thereby ensuring that learners progress at their own pace. "Using artificial intelligence algorithms, the app provided users with personalized word challenges and recommendations based on performance and preferences" (M. Kannadhasan 18). This is especially beneficial for students with learning disabilities or those for whom English is a second or additional language. Moreover, accessibility tools, such as speech-to-text, text-to-speech, real-time translation, and visual storytelling, play a vital role in creating inclusive learning environments. These technologies provide alternatives to traditional reading and writing tasks, supporting learners with visual impairments, dyslexia, or limited literacy skills.

The use of AI chatbots and virtual assistants also adds value by offering low-pressure, conversational practice, which helps build confidence among anxious or introverted learners. Additionally, multilingual AI tools foster inclusivity in multicultural classrooms by supporting code-switching and translation.

However, despite these benefits, several challenges persist. Teachers often lack adequate training in AI integration, leading to superficial or inefficient usage. There are also concerns about data privacy, algorithmic bias, and the risk of over-reliance on technology, which may compromise human interaction and critical thinking. Furthermore, unequal access to digital infrastructure remains a significant barrier, particularly in low-resource educational settings. To truly harness the potential of AI in inclusive ELT, there is a pressing need for teacher professional development, ethical AI frameworks, and policy support that ensures equitable access. When implemented thoughtfully, AI can serve not as a replacement but as a powerful ally in transforming English language education for all learners.

The paper adopts a qualitative research approach to explore the role of Artificial Intelligence (AI) in fostering inclusive English Language Teaching (ELT). The research methodology is designed to analyze existing AI tools and practices, identify transformative teaching techniques, and evaluate the potential and challenges of AI integration in inclusive classrooms. The data was thematically analyzed using coding techniques to identify recurring patterns, opportunities, and barriers in AI-assisted inclusive ELT. The findings were categorized under three major themes: (1) AI tools and their applications in ELT, (2) inclusive teaching strategies supported by AI, and (3) limitations and ethical considerations.

The methodological framework provides a comprehensive understanding of how AI can support inclusive English language learning and serves as a foundation for proposing pedagogical and policy recommendations. By combining academic literature with practitioner perspectives, the study ensures both theoretical depth and practical relevance.

Artificial Intelligence (AI) has introduced a range of transformative techniques in English Language Teaching (ELT) that significantly enhance inclusivity and learner engagement. These techniques go beyond conventional instruction by offering personalized, adaptive, and accessible learning experiences tailored to diverse learner needs.

One of the most impactful techniques is adaptive learning, where AI algorithms analyze learner performance in real time and adjust the content, difficulty level, and pace accordingly. Platforms like Duolingo and Century Tech use such mechanisms to support learners with varying proficiency levels, ensuring no student is left behind.

Another technique is the use of intelligent tutoring systems (ITS), which simulate one-on-one teaching by providing immediate, individualized feedback and guidance. These systems are particularly helpful for students who require additional support but may be hesitant to seek help in a traditional classroom setting. Speech recognition and pronunciation tools, such as ELSA Speak and Google's speech-to-text, assist learners, especially those with speech or hearing impairments, by offering corrective feedback and enabling voice-based interaction. These tools foster oral language development and build confidence in communication.

Multimodal content delivery, powered by AI, enables learners to access materials through various formats, text, audio, video, and interactive simulations. This approach supports students with learning disabilities or different sensory preferences, enhancing comprehension and retention. Language translation and code-switching tools also promote inclusivity in multicultural classrooms, allowing learners to access English content in their native languages, thereby reducing cognitive overload.

Finally, AI-powered chatbots and virtual assistants provide conversational practice in a non-judgmental environment, supporting learners with anxiety or limited language exposure. Collectively, these AI-based techniques redefine inclusive ELT by fostering equity, autonomy, and accessibility. When used strategically, they can empower educators to meet the diverse linguistic, cognitive, and emotional needs of all learners in a truly transformative way. The paper reveals that AI-based techniques significantly enhance inclusivity in English Language Teaching by offering adaptive learning, real-time feedback, and multimodal content delivery. Tools like speech recognition and intelligent tutoring systems support learners with diverse linguistic and cognitive needs. Teachers reported increased student engagement, especially among those with disabilities or low proficiency levels. However, challenges such as lack of teacher training, limited infrastructure, and ethical concerns were also noted. Overall,

the findings suggest that AI, when thoughtfully integrated, can transform ELT into a more equitable, accessible, and personalized learning experience for all students.

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