THE USE OF ARTIFICIAL INTELLIGENCE IN TEACHING ENGLISH TO ENGINEERING STUDENTS

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Annotation: *This article explores the integration of Artificial Intelligence (AI) in teaching English to engineering students. It highlights the potential of AI-driven tools to enhance language learning by providing personalized feedback, simulating real-world communication, and supporting autonomous learning. The study emphasizes how AI applications such as chatbots, adaptive learning systems, and automated assessment platforms can improve students' comprehension of technical English, communication skills, and motivation.*

Key words: *Artificial Intelligence, English for Engineering, language learning, chatbots, adaptive learning, education technology.*

INTRODUCTION

In the modern era of digital transformation, Artificial Intelligence (AI) has become an integral part of education, reshaping traditional teaching methods and providing innovative ways to enhance learning outcomes. Engineering students, in particular, require specialized English language training to master technical vocabulary and communicate effectively in professional and academic contexts. Traditional methods of teaching English often fail to address the specific linguistic needs of technical learners, making it difficult for them to connect language learning with their field of study.

The integration of AI into English language teaching (ELT) offers significant potential to bridge this gap. AI-powered tools such as intelligent tutoring systems, virtual assistants, and language learning platforms enable personalized and interactive learning experiences. These technologies can adapt to each student's pace, analyze performance, and provide targeted feedback—features especially useful in teaching English for Specific Purposes (ESP), including English for Engineering.

MAIN PART

The use of Artificial Intelligence in teaching English to engineering students has revolutionized the process of language learning by introducing interactive, data-driven, and learner-centered approaches. AI has made it possible to design personalized educational experiences that respond to the specific linguistic and professional needs of engineering students. Traditional methods often rely on textbooks and lectures, which fail to engage learners or adapt to their technical backgrounds. In contrast, AI systems analyze learners' performance, interests, and learning speed, providing

tailored materials that improve both motivation and efficiency. Engineering students are required to master a wide range of technical terms, understand complex documentation, and communicate their ideas clearly in an international professional environment. AI technologies help them acquire these skills through real-time feedback, simulations, and intelligent practice systems.

One of the most significant contributions of AI in this area is the introduction of intelligent tutoring systems. These platforms can assess each student's level of comprehension, detect errors, and suggest corrective actions immediately. For example, when a learner struggles with engineering vocabulary such as "tensile strength," "circuit analysis," or "power distribution," the AI system offers contextual examples, definitions, and visual explanations. Such interactivity helps learners build a deeper understanding of technical English. Furthermore, AI enables adaptive learning, where the system automatically adjusts the complexity of tasks and exercises based on the learner's progress. This ensures that every student, regardless of their starting proficiency, can learn effectively and at their own pace.

Another area where AI proves to be highly effective is automated writing assessment. Engineering students frequently write reports, project proposals, and technical documentation in English, which require precision and clarity. AI-based writing assistants like Grammarly or Write & Improve evaluate grammar, style, and coherence, offering instant feedback and helping learners to correct their mistakes. This instant feedback loop encourages continuous self-improvement, reduces teachers' workload, and allows students to focus on developing analytical and problem-solving skills through writing. In addition, AI tools can detect patterns of errors across multiple students, allowing teachers to identify common challenges and redesign their teaching strategies accordingly.

Conversational AI, particularly chatbots and virtual assistants, has also become a powerful tool for developing communication skills. Through simulated conversations, students can practice real-life scenarios such as presenting a technical project, discussing engineering processes, or collaborating on problem-solving tasks. Chatbots respond naturally and provide a safe environment for students to make mistakes and learn from them without embarrassment. In engineering contexts, AI chatbots can be programmed with subject-specific vocabulary, enabling learners to practice language relevant to their field. This kind of contextual practice is essential for students who will later need to use English in professional and technical environments.

Moreover, AI supports pronunciation and listening practice through voice recognition and natural language processing technologies. Applications such as ELSA Speak analyze learners' pronunciation, identify errors, and provide feedback on how to improve accent and fluency. Engineering students often find it challenging to pronounce technical terms accurately, which can lead to misunderstandings in

professional communication. By using AI-based pronunciation training tools, they can refine their speech and gain confidence when presenting their work or communicating with international partners.

AI also plays a significant role in integrating data analytics into the learning process. Teachers can track how students interact with course materials, how often they practice, and what types of exercises produce the best results. Such data-driven insights allow instructors to develop evidence-based strategies that enhance learning outcomes. Instead of relying solely on exams or assignments, educators can continuously assess student progress through AI-powered dashboards that visualize learning trends. This results in a more flexible, efficient, and transparent educational process.

However, despite the numerous advantages, the use of AI in teaching English to engineering students also presents certain challenges. One of the primary concerns is the risk of over-dependence on technology. Students might rely too heavily on AI tools and neglect the development of independent critical thinking and problem-solving skills. Additionally, the ethical use of data, privacy protection, and the digital divide between students with different access to technology remain significant issues. Teachers also require sufficient training to effectively integrate AI into their teaching practice. The success of AI in education largely depends on how well human instructors collaborate with intelligent systems to create balanced and human-centered learning experiences.

In summary, Artificial Intelligence provides unprecedented opportunities for teaching English to engineering students by combining technological innovation with pedagogical insight. It allows for personalized instruction, real-time feedback, and exposure to authentic technical language use. Through intelligent tutoring, adaptive learning, automated feedback, and interactive communication tools, AI enhances students' linguistic competence and prepares them for participation in global academic and professional communities. Nevertheless, for AI to reach its full potential in language education, it must be implemented thoughtfully, ensuring that technology complements rather than replaces human interaction, creativity, and empathy in the learning process.

CONCLUSION

Artificial Intelligence has transformed the way English is taught to engineering students, making learning more efficient, personalized, and engaging. By integrating AI tools such as chatbots, intelligent tutoring systems, and adaptive learning platforms, educators can better address the linguistic and professional needs of technical learners. Although certain limitations exist, such as technological dependence and ethical considerations, the potential advantages far outweigh these challenges. The effective use of AI not only enhances language proficiency but also

prepares engineering students for the demands of the globalized, technology-driven workplace.

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