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Eureka Journal of Education & Learning Technologies (EJELT)

ISSN 2760-4918 (Online) Volume 01, Issue 02, December 2025

https://eurekaoa.com/index.php/2

AI IN TESL: OPPORTUNITIES, CHALLENGES, AND FUTURE DIRECTIONS

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Abstract

Artificial Intelligence (AI) has revolutionized numerous global industries, and education is no exception. Within the domain of Teaching English as a Second Language (TESL), AI-driven technologies offer unprecedented opportunities for personalization, learner autonomy, multimodal engagement, and pedagogical innovation. This paper examines the influence of AI on ESL learning environments, focusing on instructional benefits, practical applications, limitations, ethical concerns, and future prospects. The analysis draws on current research, educational practices, and classroom trends to provide a comprehensive overview of how AI is shaping modern TESL methodologies.

Introduction

Artificial Intelligence has emerged as one of the key educational technologies of the 21st century [1]. Educators worldwide are integrating AI tools into classrooms to enhance teaching effectiveness and learner engagement. In the context of TESL, AI supports grammar instruction, writing development, speaking fluency, pronunciation accuracy, vocabulary acquisition, and assessment [2;4]. AI technologies such as intelligent tutoring systems, automated writing evaluators, speech-recognition platforms, and chatbots are

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now widely used for both classroom-based and independent learning. AI's integration into TESL is not merely a technological trend-it represents a paradigm shift in how languages are learned. Traditional instructional methods rely heavily on teacher-led explanation and human interaction. Although these remain essential, AI provides additional pathways for delivering instruction efficiently and responsively. Furthermore, AI aligns with current pedagogical approaches such as differentiation, constructivism, and communicative language teaching, all of which prioritize learner-centered environments.

This paper explores the vast applications of AI in TESL, reviewing existing research and analyzing how AI tools are transforming language classrooms [1;4]. It also examines the risks and pedagogical implications associated with AI-dependent learning environments [3].

2. Literature Review

The literature on AI in language education has expanded rapidly in the past decade [1]. Researchers have examined the effectiveness of AI across various language-learning domains, including writing, speaking, reading comprehension, and vocabulary development [2;4].

2.1 Intelligent Tutoring Systems (ITS)

Studies indicate that ITS tools, such as Duolingo or Memorize, can personalize language instruction by adjusting difficulty levels and content presentation according to learner performance [2]. Research highlights improvements in vocabulary retention and learner motivation.

2.2 Automated Writing Evaluation (AWE)

Tools like Grammarly, Criterion, and ChatGPT-based evaluators offer real-time feedback on grammar, cohesion, clarity, and lexical choice [3;4]. Research findings suggest that AWE supports independent learning, enhances writing

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accuracy, and reduces teacher workload. Yet scholars caution that AWE may overlook creativity, critical thinking, and nuanced meaning [4].

2.3 Pronunciation and Speech Recognition Technologies

Research shows that AI-driven speech evaluators significantly improve learners' pronunciation by providing phoneme-specific feedback [4]. These tools are essential for students with limited access to native speakers.

2.4 Conversational AI

Chatbots and AI conversational partners improve fluency by simulating authentic dialogue [4]. Studies show reduced speaking anxiety and increased willingness to communicate. However, concerns remain regarding cultural appropriateness and contextual understanding.

Overall, scholarly literature confirms that AI plays a transformative role in TESL but requires careful integration to avoid misuse or overreliance [1;4].

3. AI Applications in TESL

AI applications in TESL fall into multiple categories:

3.1 Adaptive Learning Systems

AI-driven systems analyze learner data, track errors, measure progress, and automatically adjust lesson difficulty. This supports differentiated learning, especially in diverse classrooms.

3.2 AI for Skill Development

- Writing: AWE tools help edit and refine essays, improving grammatical accuracy and coherence [3].
- Speaking: Pronunciation apps provide accent, stress, and intonation feedback, enhancing oral proficiency [4;6].

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- Listening: AI listening labs generate comprehension questions based on learner ability.
- Reading: AI modifies text complexity and suggests vocabulary support, facilitating comprehension [2]

3.3 Classroom Automation

AI can grade quizzes, analyze essays, create lesson plans, and generate learning materials. This reduces teacher workload significantly.

3.4 AI Chatbots for Communication

Chatbots simulate real conversations, allow repeated practice, and expose learners to varied topics. They reduce anxiety for shy learners and promote fluency development [4;6]. Chatbots can also support intercultural communicative competence when culturally informed content is integrated.

3.5 Multimodal Learning Environments

AI tools integrate images, audio, video, VR, and interactive tasks to create richer learning environments. AI thus supports both teachers and learners in creating more flexible, personalized, and engaging language-learning experiences.

4. Benefits of AI in TESL

4.1 Personalization

AI identifies learner strengths and weaknesses, enabling customized lessons and adaptive pacing [2].

4.2 Continuous Feedback

Students receive immediate guidance, supporting faster skill development.

4.3 Increased Engagement

Gamification, interactive activities, and virtual tutors enhance motivation.

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4.4 Accessibility and Inclusivity

AI provides scaffolding for students with learning difficulties, disabilities, or limited access to educational resources, promoting inclusive education [1;2]

4.5 Reduced Teacher Workload

AI handles repetitive tasks, allowing teachers to focus on human-centered instruction.

4.6 Enhanced Autonomy

Students can study independently, fostering confidence and lifelong learning.

5. Challenges and Limitations

5.1 Over-Reliance on AI

Learners may depend on AI to complete tasks, reducing independent problem-solving skills[3;7].

5.2 Accuracy Issues

AI tools may produce incorrect or culturally inappropriate responses, particularly in communicative tasks [4;5].

5.3 Academic Integrity

Plagiarism and AI-generated assignments pose challenges for educators.

5.4 Privacy and Security Risks

AI systems often collect student data; misuse of such data is a concern.

5.5 Technological Inequity

Not all learners have access to digital devices or stable internet connections, widening educational gaps[1;2].

5.6 Teacher Preparedness

Many instructors lack training to effectively integrate AI tools into their pedagogical practice. Thus, AI must be implemented responsibly and with clear guidelines.

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6. Ethical Considerations

AI use in TESL raises important ethical questions:
- Transparency: Students should know when AI is used in assessment.
- Fairness: Algorithms may show bias in evaluating writing or pronunciation.
- Privacy: Student data must be secure.
- Balance: AI should assist—not replace—teachers.

Ethical frameworks are essential for responsible AI implementation.

7. Future Directions

Future advancements in AI will continue reshaping TESL. Expected developments include:
- Emotion-aware tutoring systems
- Highly personalized curricula
- AI-generated simulations for real-life scenarios
- Fully AI-integrated classroom ecosystems
- Multilingual AI assistants capable of real-time translation

These innovations may redefine the role of the teacher toward facilitation, mentorship, and critical thinking development [1;7;10].

8. Conclusion

AI is transforming TESL by offering dynamic, learner-centered solutions for teaching English more effectively. It enhances personalization, autonomy, and engagement, while reducing teacher workload. However, successful integration requires awareness of ethical considerations, data privacy, academic integrity, and potential misuse.

AI cannot replace human teachers, but it can significantly enhance teaching and learning when used strategically. TESL educators who embrace AI thoughtfully will be well-positioned to guide learners in the evolving digital landscape.

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