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Artificial Intelligence as A Pedagogical Assistant in TESOL Classrooms

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) has significantly influenced various aspects of education, including the field of Teaching English to Speakers of Other Languages (TESOL). This study explores the role of AI as a pedagogical assistant in TESOL classrooms and examines its impact on teaching and learning processes. The research aims to investigate how AI-supported tools contribute to language instruction, learner engagement, and teacher effectiveness. A mixed-methods research design was employed, involving 60 university-level English as a Foreign Language (EFL) students in Tashkent, Uzbekistan. Data were collected through questionnaires, classroom observations, and student feedback over a four-week period.

The findings indicate that AI-assisted tools such as ChatGPT, grammar-checking applications, and automated feedback systems positively influence students' motivation, language practice, and independent learning. Participants reported increased engagement, improved writing performance, and greater access to personalized learning opportunities. Furthermore, AI technologies enabled teachers to provide more efficient feedback and classroom support. Despite these benefits, concerns regarding excessive dependence on technology, limited digital literacy, and reduced face-to-face interaction were also identified. The study concludes that AI serves most effectively as a pedagogical assistant rather than a replacement for teachers. Successful implementation requires thoughtful integration, adequate teacher training, and a balanced approach that combines technological innovation with human guidance. The findings offer practical implications for TESOL educators seeking to enhance language learning through AI-supported instruction.

Keywords: Artificial Intelligence, TESOL, language teaching, AI-assisted learning, EFL learners, teacher support, educational technology.

INTRODUCTION

The rapid development of Artificial Intelligence (AI) has transformed educational practices across various disciplines, including language education (Holmes et al., 2019; Luckin, 2022). In recent years, AI-powered technologies such as ChatGPT, intelligent tutoring systems, automated feedback applications, and language-learning platforms have become increasingly accessible to both teachers and learners (Kasneci et al., 2023). These innovations offer new opportunities for enhancing the quality and effectiveness of English language instruction in Teaching English to Speakers of Other Languages (TESOL) contexts.

Technology has long played a significant role in language learning, providing learners with access to authentic materials, interactive activities, and personalized learning experiences (Warschauer & Healey, 1998; Beatty, 2010). The emergence of AI has further expanded these possibilities by enabling adaptive learning, instant feedback, and individualized support (Zawacki-Richter et al., 2019; Tlili et al., 2023). According to Chapelle (2001), technology can facilitate language acquisition by creating meaningful learning environments that encourage

interaction and engagement. AI extends this potential by offering real-time assistance and personalized recommendations based on learners' needs and performance (Kohnke et al., 2023).

Despite growing concerns that AI may eventually replace certain educational functions, many researchers argue that its primary role should be to support rather than replace teachers (Luckin, 2022; Huang & Li, 2024). Effective language teaching requires emotional intelligence, cultural awareness, pedagogical expertise, and interpersonal communication—qualities that remain uniquely human (Selwyn, 2016). Therefore, AI should be viewed as a pedagogical assistant that helps teachers manage routine tasks, provide feedback, and enhance learning experiences (Holmes et al., 2019).

The purpose of this study is to explore the effectiveness of AI as a pedagogical assistant in TESOL classrooms. Specifically, the research examines students' perceptions of AI-supported learning, its influence on engagement and autonomy, and the extent to which AI contributes to language learning outcomes.

METHODOLOGY

This study employed a mixed-methods research design to investigate the effectiveness of Artificial Intelligence (AI) as a pedagogical assistant in TESOL classrooms. Mixed-methods research combines quantitative and qualitative approaches within a single study, allowing researchers to obtain a more comprehensive understanding of complex educational phenomena (Creswell & Creswell, 2018). The rationale for selecting this approach was that numerical data alone would not fully capture students' experiences with AI-assisted learning, while qualitative data alone would not provide measurable evidence regarding students' perceptions and attitudes.

The quantitative component focused on measuring students' attitudes, motivation, engagement, and perceptions regarding the usefulness of AI tools in language learning. The qualitative component aimed to explore students' experiences, opinions, and behavioral changes observed during AI-supported learning activities. By integrating both forms of data, the researcher was able to achieve methodological triangulation, thereby enhancing the credibility and validity of the findings (Johnson et al., 2007).

More specifically, the study adopted a convergent mixed-methods design in which quantitative and qualitative data were collected simultaneously over a four-week period. After separate analyses, the findings were compared and integrated to identify common patterns and relationships. Such an approach is particularly appropriate for educational technology research because it provides both statistical evidence and contextual explanations regarding technology integration in classroom settings (Creswell & Plano Clark, 2018).

The study was conducted at the Institute of Social and Political Sciences in Tashkent, Uzbekistan. The institution has increasingly encouraged the integration of digital technologies into foreign language education as part of broader educational modernization initiatives. In recent years, students have gained greater access to internet-based learning resources, mobile learning applications, and artificial intelligence tools. However, despite the growing availability of such technologies, limited research has examined their pedagogical effectiveness in TESOL contexts within Uzbekistan.

The research was carried out during the spring semester of the academic year. During this period, AI-assisted learning activities were incorporated into regular English language classes. The integration of AI technologies was designed to complement existing instructional practices rather than replace traditional teaching methods.

The study involved 60 undergraduate students enrolled in English language courses. Participants were studying English as a Foreign Language (EFL) and represented different levels of proficiency, including elementary, pre-intermediate, and intermediate learners. The age range of participants was between 18 and 22 years. Both male and female students participated in the research.

Participants were selected through convenience sampling because they were readily available to the researcher and actively enrolled in the courses where AI technologies were implemented (Etikan et al., 2016). Although convenience sampling limits generalizability, it is widely used in classroom-based educational research due to practical constraints and accessibility (Dörnyei, 2007).

Prior to participation, students received detailed information regarding the purpose of the study, research procedures, and ethical considerations. Participation was entirely voluntary, and students were informed that their

responses would remain confidential and anonymous. No identifying personal information was included in the data analysis process. Ethical guidelines for educational research were followed throughout the study (Cohen et al., 2018).

An initial informal survey revealed that while all participants had prior experience using digital technologies such as smartphones, online learning platforms, and educational websites, only a limited number had substantial experience with AI-powered language-learning tools. This provided an opportunity to examine learners' reactions to AI integration from diverse technological backgrounds.

To obtain comprehensive and reliable data, three primary research instruments were utilized: a questionnaire, classroom observations, and student feedback reports.

The questionnaire served as the principal quantitative instrument. It consisted of 20 items measured on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire was developed based on previous studies examining technology-enhanced language learning, learner motivation, and educational technology acceptance (Dörnyei & Ushioda, 2011; Reinders & White, 2016).

The questionnaire was divided into several thematic categories:

- Perceived usefulness of AI technologies;
- Student motivation and engagement;
- Learner autonomy and self-directed learning;
- Quality and effectiveness of AI-generated feedback;
- Impact on language skills development;
- Overall satisfaction with AI-supported learning.

The questionnaire was administered electronically at the end of the four-week intervention period. Electronic administration facilitated efficient data collection, reduced paper consumption, and minimized data-entry errors.

Classroom observations constituted the primary qualitative data source. The researcher conducted systematic observations throughout the implementation period to examine students' behaviors, interactions, and responses to AI-supported activities.

Observation protocols focused on:

- Student participation;
- Classroom engagement;
- Willingness to communicate;
- Collaborative learning behaviors;
- Interaction with AI tools;
- Responses to automated feedback;
- Levels of confidence during language tasks.

Particular attention was given to speaking activities, writing assignments, vocabulary practice, and grammar exercises supported by AI technologies. Detailed field notes were maintained throughout the observation period. These observations provided contextual evidence that complemented survey findings and enabled the researcher to identify behavioral patterns that might not have emerged through questionnaires alone.

To gain deeper insight into students' experiences, participants were invited to submit written feedback reports at the conclusion of the study. Reflective feedback has been widely recognized as an effective tool for understanding learner perceptions and attitudes toward educational innovations (Richards, 2015).

Students were encouraged to discuss:

- Benefits of AI-assisted learning;
- Challenges encountered;
- Preferred AI tools;
- Impact on language learning;
- Suggestions for future implementation.

These reports generated rich qualitative data and allowed students to express personal opinions in their own words.

The study was conducted over a period of four weeks. Prior to implementation, students participated in an orientation session designed to familiarize them with artificial intelligence technologies and their educational applications.

During the orientation, students received demonstrations of several AI-powered tools, including ChatGPT, Grammarly, and AI-based vocabulary learning applications. The researcher explained the capabilities, limitations, and ethical use of these technologies within academic contexts.

Throughout the intervention period, AI technologies were integrated into regular classroom instruction. Students used ChatGPT for brainstorming ideas, generating writing prompts, practicing conversational English, and receiving explanations of grammatical concepts. Grammarly was employed for editing written assignments and receiving corrective feedback. Vocabulary applications utilizing adaptive AI algorithms were used to reinforce lexical development and retention.

Each week included multiple AI-supported activities, such as essay writing, paragraph revision, vocabulary practice, reading comprehension tasks, speaking discussions, peer collaboration exercises, and independent learning assignments.

The instructor continuously monitored students' interactions with AI systems and encouraged critical evaluation of AI-generated responses. Students were reminded that AI outputs should be considered supportive resources rather than unquestionable sources of information.

Quantitative data collected through questionnaires were analyzed using descriptive statistical procedures, including frequencies, percentages, mean scores, and standard deviations (Field, 2018). These measures were used to identify overall trends and patterns regarding students' attitudes toward AI integration.

Qualitative data obtained from classroom observations and student feedback reports were analyzed using thematic analysis following Braun and Clarke's (2006) framework. The process involved repeated reading of data, initial coding, categorization of codes, identification of recurring themes, and interpretation of findings.

Several major themes emerged from the analysis, including increased engagement, learner autonomy, personalized feedback, confidence development, and challenges associated with AI use. These themes were subsequently compared with quantitative findings to ensure consistency and strengthen interpretation.

Finally, quantitative and qualitative findings were integrated to provide a comprehensive understanding of how AI functions as a pedagogical assistant in TESOL classrooms. This integration enabled the researcher to evaluate not only students' attitudes toward AI but also the practical ways in which AI influenced learning behaviors and classroom experiences.

RESULTS

The quantitative findings indicated generally positive attitudes toward AI-supported language learning. Approximately 83% of participants agreed that AI technologies enhanced their learning experience, while 79% reported increased motivation to participate in English-language activities. Furthermore, 81% believed that AI-generated feedback improved the quality of their written work.

Regarding learner autonomy, 76% of students stated that AI tools encouraged independent learning by providing immediate assistance and explanations. Additionally, 74% reported increased confidence when completing language-learning tasks.

Classroom observations revealed higher levels of student engagement during AI-supported activities. Students demonstrated greater participation in writing tasks, vocabulary practice, and speaking exercises. Many learners actively revised their work based on AI-generated feedback and showed increased willingness to experiment with new language structures.

Analysis of student feedback reports identified several recurring themes:

- Enhanced motivation and engagement;
- Improved writing accuracy;
- Greater learner autonomy;
- Personalized learning opportunities;

• Increased confidence in language use.

However, participants also identified several challenges. Some students expressed concerns about becoming overly dependent on AI-generated responses, while others reported difficulties evaluating the accuracy of information produced by AI systems.

DISCUSSION

The findings suggest that AI can effectively support language learning when integrated appropriately into TESOL classrooms. The positive perceptions reported by participants align with previous research highlighting the benefits of AI-assisted learning environments (Kasneci et al., 2023; Kohnke et al., 2023).

One significant finding is the positive influence of AI on learner motivation and engagement. Immediate feedback and personalized support appear to encourage active participation and sustained learning efforts. These findings support theories of learner autonomy and technology-enhanced language learning, which emphasize the importance of accessible and individualized learning resources.

The study also demonstrates that AI technologies can assist teachers by reducing time spent on routine feedback and providing additional learning opportunities outside the classroom. This enables teachers to focus on higher-order instructional activities, including communication, critical thinking, and collaborative learning.

Nevertheless, the findings indicate that AI should not be considered a substitute for teachers. Human educators continue to play a critical role in providing emotional support, cultural understanding, ethical guidance, and pedagogical expertise. Excessive dependence on AI may limit learners' critical evaluation skills and reduce meaningful interpersonal communication.

Therefore, successful implementation of AI in TESOL requires balanced integration, teacher training, and ongoing monitoring of students' use of AI technologies.

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