

AI in Pedagogical Practice: Exploring the Advantages and Dissonance in EFL Teachers' Technology Use

Hossein Navidinia¹, Aysen Chokani², Fateme Chahkandi³

¹Corresponding author, Department of English Language, University of Birjand, Birjand, Iran. navidinia@birjand.ac.ir

²Department of English Language, University of Birjand, Birjand, Iran. aysen.chokani@birjand.ac.ir

³Department of of English Language, University of Birjand, Birjand, Iran. f.chahkandi@birjand.ac.ir

| Article Info | Abstract |
|---|---|
| <p>Article type: Research Article</p> <p>Article history: Received November 21, 2025</p> <p>Received in revised form March 20, 2026</p> <p>Accepted March 29, 2026</p> <p>Published online March 30, 2026</p> <p>Keywords: Artificial intelligence, applications, advantages, challenges, EFL teachers</p> | <p>As a result of the rapid development of technology and AI, various kinds of tools have been integrated into teaching and learning contexts. This study investigates the integration of Artificial Intelligence (AI) tools by Iranian English as a Foreign Language (EFL) teachers, examining perceived advantages, challenges, and specific pedagogical applications. Adopting a mixed-methods, an explanatory sequential design, the research utilized a researcher-developed questionnaire with 212 EFL teachers, followed by semi-structured interviews with a purposive sample of 30 participants. The findings indicate that AI is primarily deployed to facilitate language skills, most notably grammar, vocabulary, and speaking, while also assisting in assessment design and material development. Quantitative and qualitative data reveal that while AI enhances pedagogical efficiency and enables personalized feedback, its integration is hindered by significant obstacles, including technological dependence and the perceived erosion of human interaction. Furthermore, the study highlights critical contextual barriers in Iran, such as infrastructural limitations and a lack of AI literacy. These results offer significant implications for educational policy and curriculum development, emphasizing the urgent need for systematic AI literacy training and the establishment of ethical frameworks within EFL contexts.</p> |

Cite this article: Navidinia, H., Chokani, A., & Chahkandi, F. (2026). AI in Pedagogical Practice: Exploring the Advantages and Dissonance in EFL Teachers' Technology Use. *Technology Assisted Language Education*, (), 91-110. doi: 10.22126/tale.2026.13207.1154



© The Author(s).

Publisher: Razi University.

DOI: <http://doi.org/10.22126/tale.2026.13207.1154>

Introduction

Since the outbreak of COVID-19, the integration of a diverse set of technological tools has become a fundamental pedagogical necessity (Sharifuddin & Hashim, 2024), especially in the realm of teaching and learning English (Hazaymeh et al., 2024). The use of Artificial Intelligence (AI) technology, which is defined as tasks carried out by computers that are commonly done by human intelligence, has been at the core of students', teachers', and researchers' attention (Encyclopedia, 2021; Syzdykbayeva et al., 2021). However, empirical evidence regarding its actual impact remains inconsistent and dependent on the pedagogical context (Chassignol et al., 2018). While technology is often presented as a universal solution, there is still a lack of clarity on how these tools function in diverse resource-constrained environments.

As a result of the rapid development of technology and AI, various kinds of tools have been integrated into teaching and learning contexts. These tools have been categorized based on their pedagogical functions, ranging from generative AI and chatbots to interactive platforms and assessment tools. For instance, generative tools like ChatGPT are used for dialog and content creation, while gamified apps such as Quizizz and content generators like Curipod focus on engagement and lesson design. Additionally, automated systems like Gradescope have been predominantly used by teachers to streamline the grading process (Tafazoli et al., 2019). Concerning students, these different categories of AI tools are integrated to assist them in enhancing their linguistic skills and sub-skills (De La Vall & Araya, 2023).

Respecting the widespread use of AI tools, the stakeholders, especially teachers and students, can enjoy their numerous advantages in teaching and learning. As noted by Ouyang and Jiao (2021), AI alters education by enhancing cognitive learning, enhancing collaboration among learners, and empowering them as leaders. Moreover, employing AI in teaching and learning transforms both teachers' and students' roles. Accordingly, rather than being mere transmitters of knowledge, teachers serve as facilitators of the learning process. Similarly, rather than being mere recipients of knowledge, students become autonomous by being engaged in varied collaborative activities with their peers (Sariani et al., 2021).

Nevertheless, despite the myriad benefits, there exist some disadvantages and obstacles affecting both teachers and students in integrating AI, especially in some EFL contexts. For instance, not all AI facilities are accessible on the free version of the tools, and users are required to purchase the premium version, imposing financial burdens on them. Moreover, in order to access the intended answers/outputs, they should be adequately aware of prompt engineering (Hazaymeh et al., 2024). Additionally, some teachers and students are resistant to adopting technology; therefore, the provision of sufficient training would play a fundamental role in reinforcing the likelihood of AI integration by them (Batubara et al., 2024; Jiang, 2021).

Overall, while there is a general consensus on AI's potential to improve teaching efficiency, empirical studies show conflicting results depending on the context. A significant gap still exists

in the literature regarding non-Western EFL settings like Iran, where local challenges and cultural factors may influence how AI is perceived and used. Most existing studies are either quantitative or limited to a single tool, providing a fragmented picture. Therefore, this mixed-methods study aims at bridging these gaps by triangulating quantitative data with qualitative interviews to provide a more analytical understanding of AI integration, accounting for both teachers' perceptions and the contextual hurdles in Iran.

For so doing, this study first endeavors to explore the areas where AI is employed within Iranian EFL classrooms. Second, it tries to shed light on the Iranian EFL teachers' perception of the advantages and challenges of AI integration. It also explores the functions and purposes of AI integration as well as the most widely used or familiar AI tools by EFL teachers. Therefore, the study is guided by the following research questions:

What are the purposes of Iranian EFL teachers in using AI tools in their instruction?

What are the perceived advantages and benefits of utilizing AI for EFL instruction?

What are the perceived challenges of using AI in the Iranian EFL context?

Literature review

Domains of AI Use

Across various studies, AI integration has been mentioned in several aspects, including learner profiling, assessment, and personalized learning (Zawacki-Richter et al., 2019; Zhou & Hou, 2025). In language education, the general consensus is that these technologies support both macro-skills and linguistic sub-skills like grammar and vocabulary (Huang et al., 2023). Nevertheless, comparing these findings suggests that the benefits of AI are not uniform. The adoption of these tools is usually explained through the Technology Acceptance Model (TAM), which suggests that a teacher's decision to incorporate AI depends heavily on its "perceived usefulness" and "ease of use" within their specific classroom context (Davis, 1989). For instance, a distinction can be made between tools used for linguistic accuracy and those used for content generation. While Grammarly and QuillBot are the preferred options for paraphrasing and correcting language structures (Raheem et al., 2023; Zulfa et al., 2023), ChatGPT has been found to be more effective for higher-level tasks such as brainstorming. This shift toward more complex AI use highlights the importance of the TPACK framework, as teachers should balance their technological, pedagogical, and content knowledge to integrate AI effectively (Aniq & Drajati, 2019). This is further supported by Schmidt-Fajlik (2023), who observed that ChatGPT can outperform traditional grammar checkers in detecting complex errors, indicating a move from simple automated correction (Kim, 2019) to more interactive feedback.

Beyond student use, there is also a clear trend toward using AI for teacher support. Tools like "To Teach AI" have significantly helped teachers with lesson planning and aligning objectives with student needs (Mohammadi et al., 2024). The evidence suggests that AI's utility

in the EFL classroom is highly specialized, and the success of this integration depends on “AI literacy”—not just for students, but for teachers who must navigate these new digital structures. Rather than being a one-size-fits-all solution, certain tools benefit specific skills or pedagogical tasks more than others.

The transformative influence of AI is most readily apparent in the shift of pedagogical roles and responsibilities. Consequently, the utility of AI has provided numerous advantages for teachers and students. The integration of AI in language classes has led to a shift in teachers’ traditional roles (Meihami, 2025) and has empowered them with more efficient alternatives to approach their instruction (Labadze et al., 2023). Accordingly, as Schmidt and Strasser (2022) argued, incorporating AI-based instruments enables teachers to assess students’ gradual progress and track their strengths and weaknesses, helping them to align their instruction with students’ needs and goals. Furthermore, AI tools assist teachers by lowering their workload and saving their time (Labadze et al., 2023), and enabling them to support students’ learning (Guan et al., 2025). Similarly, Ling (2023) reported that AI-powered tools help English teachers to create fascinating tasks and exercises for students and write more effective lesson plans. As another benefit of integrating AI within teaching and learning, Duan and Zhao (2024) mentioned that incorporating AI-enhanced tools enhances teachers’ professional development and self-directed teaching procedures. Besides, through integrating AI in classrooms, teachers’ digital burnout is minimized, highlighting the mitigation of multiple stressors in AI-mediated instruction modes.

Along with reshaping teachers’ functions, AI tools fundamentally enhance students’ experiences by enabling personalized and adaptive learning pathways. The integration of AI tools within classrooms benefits students by presenting them with immense advantages. For instance, students’ produced output could be analyzed and provided with instant feedback when AI tools are utilized in language classes (Roschelle et al., 2020). As a result, they can be assisted in revising their work amid the learning process (Lee et al., 2019), provided with personalized learning experiences (Farrokhnia et al., 2023), access authentic language practice (Zhi & Wang, 2024), and make noteworthy academic progress (Kim, 2019).

Accordingly, as put by Islamiyah and Huda (2023), when AI tools are utilized in teaching and learning, students’ academic needs are more precisely identified and addressed in comparison to non-AI-mediated classes. The personalized learning opportunity provided with AI improves students’ academic proficiency and enhances their accomplishments by presenting them with more beneficial learning experiences and improved learning management (Batubara et al., 2024). In this regard, Xu et al. (2023) found that when AI-assisted speech recognition tools are used in the classroom, students’ learning accomplishments are enhanced as a consequence of their greater engagement in interactive learning activities. Besides, as a result of students’ interaction with these tools, they are provided with more accurate replies, which are also more comprehensive than those of teachers (Minn, 2022).

Using AI tools, such as ChatGPT, improves students' skills, accelerates vocabulary acquisition, and provides synchronous conversational practice (Xiao & Zhi, 2023). Namely, when AI tools are incorporated, they benefit students by improving their writing skills, as a result of helping them with content creation through stimulated imagination (Chassignol et al., 2018). AI-assisted language learning also influences students' speaking skills. As put by Baharloo and Miyan Baghi (2024), incorporating AI speaking applications and websites dramatically contributes to learners' speaking as they demonstrate considerable improvements in fluency, discourse management, and interaction.

Apart from the effects of AI on students' academic issues, this technological advancement contributes to students' psycho-emotional traits. According to Xu et al. (2023), the integration of AI-driven tools and applications fosters language learners' engagement in the classroom. Moreover, as maintained by Ebadi and Amini (2022), students' motivation is fostered in AI-driven classes in conjunction with their engagement.

Challenges of AI Integration in Teaching and Learning

Despite the advantages of efficiency and personalization, the integration of AI is not without pedagogical and practical barriers. While global challenges include financial and technical issues (Kuleto et al., 2021; Hazaymeh et al., 2024), these obstacles are intensified within the Iranian EFL context. In Iran, infrastructural limitations, such as unstable internet connection and restricted access to global AI platforms due to international sanctions and local filtering, create a persistent "digital divide" (Ghanbari & Nowroozi, 2021). Furthermore, while a dearth of AI literacy is a global concern (Firdaus & Nawaz, 2024), in the Iranian educational system, this is compounded by uneven digital literacy levels. Dashtestani (2022) highlights that many Iranian EFL teachers and learners still struggle with the integration of advanced digital tools due to a lack of systematic training and exposure.

With the advent of new technology and shifting conceptions of literacy, the conventional teaching approaches need a formative transformation, namely, a transition beyond traditional instruction, toward multiple modes of digital technologies (Hajizadeh et al., 2023). As cultural factors play a critical role in the Iranian setting, traditional instruction requires a formative transition. Beyond general resistance to change (Kerslake, 2022), local cultural attitudes in Iran often reflect a tension between traditional pedagogical beliefs and the rapid influx of AI, leading to skepticism among educators (Fathi et al., 2023). Moreover, the local policy context in Iran presents a unique challenge; the absence of a comprehensive national roadmap for AI in education leaves institutions without clear ethical or operational guidelines (Khaefi & Molavi, 2024). This lack of a formal framework, combined with a persistent shortage of technological infrastructure (Chai, 2023), underscores the urgent need for tailored professional development. As suggested by Batubara et al. (2024), training programs must be adapted to the specific socio-technical realities of classrooms to overcome these unique barriers and ensure the optimal utility of AI in language learning. Method

Design

AI tools are utilized in Iranian EFL teachers' instruction and explore the perceived advantages and challenges of such an integration, the study adopted a mixed-methods (explanatory sequential) design. The rationale behind this choice was to achieve methodological triangulation and provide a more nuanced understanding of AI integration in the Iranian EFL context, where the quantitative data serves as the foundation for the subsequent qualitative exploration (Cresswell & Cresswell, 2018). For the quantitative phase, a researcher-made questionnaire was created and distributed online to EFL teachers. In the qualitative phase, online semi-structured interviews were carried out.

Participants

In the quantitative phase of the study, 212 EFL teachers participated in the study via convenience sampling. This sample was mainly accessed on various social media platforms, including Telegram and LinkedIn. The participants were 44 (20.8%) males and 168 (79.2%) females. Among them, 58 (27.4%) held bachelor's degree/ were bachelor's students, 131 (61.8%) held master's degree/ were master's students, and 23 (10.8%) were Ph.D. holders or students. Moreover, respecting their teaching context, 29 (13.7%) teachers were teaching at public schools, 134 (63.2%) were teaching at private language institutes, and 49 (23.1%) were working in both contexts. Furthermore, the participants' ages ranged from 20 to 56, with a mean of 30.29 and a standard deviation of 7.72, respectively.

In the qualitative phase, 30 EFL teachers were selected for semi-structured interviews using a purposive sampling technique based on their reported active use of AI tools. Accordingly, before the selection, the EFL teachers were informed of the purposes of the study and the necessity of having had the experience of using AI tools for English teaching purposes. The interviewees were 8 (26.7%) males and 22 (73.3%) females. Regarding their educational background, 4 (13.3%) held a bachelor's degree or were bachelor's students, 20 (66.7%) held master's/ were master's students, and 6 (20%) were Ph.D. holders/students. Additionally, concerning their teaching context, 6 (20%) were teaching at public schools, 20 (66.7%) were teaching at private language institutes, and 4 (13.3%) teachers were teaching at both contexts. Besides, the interviewees' ages ranged from 20 to 56, with a mean of 29.10 and a standard deviation of 7.65.

Instrumentation

Researcher-Made Questionnaire

A researcher-made questionnaire, based on the related literature and interviews with experts, was developed to delve into the aspects of AI use and investigate the EFL teachers' perceived advantages and challenges of this integration. It had 29 items and consisted of three sub-sections: current AI applications in instruction, advantages of employing AI in language teaching, and challenges of AI usage. In order to check the content validity of the items and

ensure that they adequately measure what they had claimed to measure, five experts in the field were asked to review each question in terms of any ambiguities. The items under the first sub-section were in the format of multiple selection, permitting the respondents to choose as many of the provided options as they wished. However, in the second and third sub-sections, the respondents had to rate each item on a five-point Likert scale from Strongly disagree (1) to Strongly agree (5). Moreover, the reliability coefficient of the questionnaire using Cronbach's alpha was .702 in this study.

Semi-Structured Interviews

To delve deeply into the aspects of AI use and explore the EFL teachers' perceived advantages and challenges of this integration, online semi-structured interviews were carried out with 30 EFL teachers, with a mean length of 21 minutes. This kind of interview permits the researchers to raise additional questions for clarification in case the interviewees' answers are not adequate. Following the aims of the study, during the interviews, the teachers were asked to elaborate on the instances where they used AI tools in their instruction, the advantages of AI in language teaching, AI's role in complementing traditional teaching, the challenges foreseen in AI integration, and the negative experiences they had with the tools. The interviews were conducted online on social media platforms, and to put the participants at ease, they were allowed to express their opinions in either English or their first language (Persian). The interviews were recorded, transcribed verbatim, and analyzed employing a thematic analysis approach.

Data collection procedure

The quantitative data of this study were collected using Google Docs. Having obtained the EFL teachers' consent, the link to the online questionnaire was sent to them. The qualitative data were gathered through online semi-structured interviews and held on different social media platforms. Before holding the interview sessions, the participants were informed of the confidentiality of the findings and data storage protocols.

Data analysis

The quantitative data were analyzed using descriptive statistics in SPSS. In order to analyze the interviews, they were recorded, transcribed verbatim, and read by the researchers several times. Afterward, Braun and Clarke's (2006) thematic analysis approach was employed to analyze the interviews, code the data, and manually extract the main themes. Having finalized the main themes through hybrid coding and analysis (deductive and inductive), several re-readings were done by the researchers to ensure that no information was left. The disagreements were resolved through discussion and negotiation.

Findings

Quantitative Findings

In the quantitative phase of the study, a researcher-made questionnaire was distributed among 212 EFL teachers to delve into their aspects of AI usage in instruction and investigate their perceived advantages and challenges. Respecting the first research question, to understand the EFL teachers' purposes of AI use, they were asked to mark as many options as applied. The intentions behind the use of AI tools are illustrated in Figure 1.

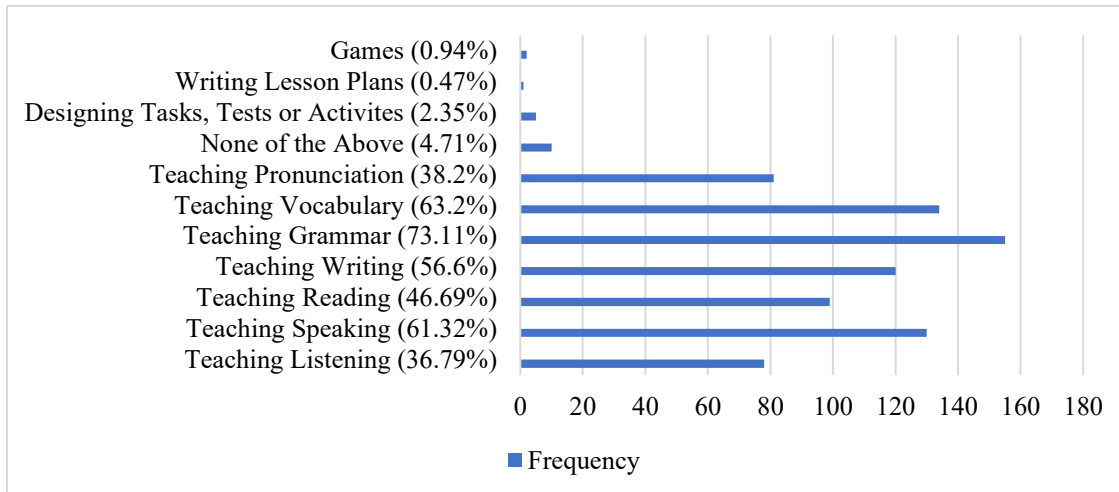


Figure 1

EFL Teachers' Purposes of Using AI in Teaching

According to the above figure, teaching language skills and sub-skills was among the main aspects for which AI tools were used, as teaching grammar (73.1%, n=155), vocabulary (63.2%, n=134), and speaking (61.3%, n=130) were among the top three purposes of AI integration by EFL teachers. Other aims, including teaching writing (56.6%, n=120), reading (46.6%, n=99), pronunciation (38.2%, n=81), and listening (36.7%, n=78), were accordingly marked by them. Apart from teaching language skills and sub-skills, other purposes, including designing tasks, tests, or activities (2.3%, n=5), developing games (0.9%, n=2), and writing lesson plans (0.4%, n=1), were the other intentions for AI integration which received less attention from EFL teachers. Nonetheless, some EFL teachers (4.7%, n=10) stated that they had not been using AI tools for such purposes.

Furthermore, to investigate EFL teachers' current AI application in instruction, they were asked to choose the tools they were most familiar with. The tools are provided in Figure 2.

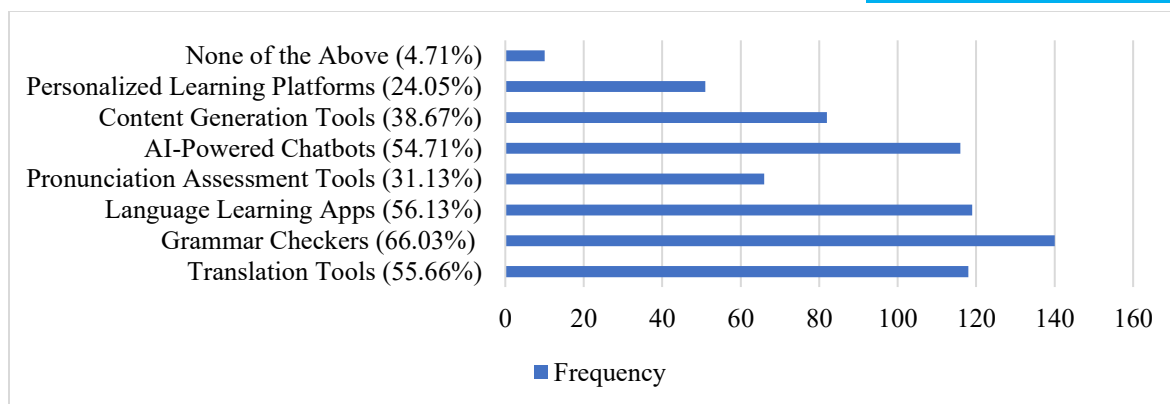


Figure 2
AI Tools Used or Most Familiar by EFL Teachers

According to the above figure, the EFL teachers have used or are familiar with a diverse set of AI tools, including grammar checkers (66.0%, n=140), language learning apps (56.1%, n=119), translation tools (55.6%, n=118), AI-powered chatbots (54.7%, n=116), content generation tools (38.6%, n=82), pronunciation assessment tools (31.1%, n=66) and personalized learning platforms (24.0%, n=51). Nevertheless, a number of EFL teachers (4.7%, n=10) maintained that they had not used or were not familiar with these AI tools.

Concerning the second research question, in order to shed light on the EFL teachers’ perceived advantages of integrating AI tools in language classes, they were provided with 13 items on a 5-point Likert scale. The results of the descriptive statistics are provided in Table 1.

Table 1.
EFL Teachers’ Perceived Advantages of AI in Language Teaching

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|--|-------------------|----------|---------|-------|----------------|
| AI offers immediate feedback | 1.4% | 3.8% | 12.3% | 58.0% | 24.5% |
| AI supports self-paced learning | 0.5% | 4.7% | 19.3% | 58.5% | 17.0% |
| AI enhances students’ engagement | 0.5% | 6.6% | 27.8% | 53.8% | 11.3% |
| AI reduces teachers’ workload | 0.5% | 9.0% | 25.5% | 49.1% | 16.0% |
| AI provides personalized learning experiences | 0.5% | 2.8% | 15.6% | 63.2% | 17.9% |
| AI helps with formative evaluations | 0.9% | 5.7% | 24.5% | 59.0% | 9.9% |
| AI provides tailored need-based tasks | 0% | 3.8% | 24.1% | 60.4% | 11.8% |
| AI helps with classroom management | 2.8% | 17.9% | 38.2% | 31.6% | 9.4% |
| AI creates interesting exercises | 0.5% | 1.4% | 9.4% | 68.4% | 20.3% |
| AI diminishes students’ inhibition | 0.5% | 9.9% | 45.3% | 38.2% | 6.1% |
| AI provides authentic learning experiences | 0.5% | 8.0% | 30.7% | 50.9% | 9.9% |
| AI facilitates communicative language practice | 1.4% | 2.8% | 16.5% | 62.3% | 17.0% |
| AI improves students’ autonomy | 0.9% | 6.6% | 25.0% | 52.4% | 15.1% |

According to the descriptive statistics provided in Table 1, EFL teachers maintained a favorable attitude toward most of the statements of the questionnaire. However, they considered providing immediate feedback, creating interesting exercises, providing personalized learning

experiences, facilitating communicative language practices, and supporting self-paced learning as the major benefits of integrating AI, respectively.

Respecting the third research question, Iranian EFL teachers' perceived challenges of employing AI tools, they were provided with 14 items. The results of the descriptive statistics are depicted in Table 2.

Table 2.

EFL Teachers' Perceived Challenges of AI in Language Teaching

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|-------------------|----------|---------|-------|----------------|
| AI reduces human interaction | 2.4% | 22.6% | 22.2% | 42.5% | 10.4% |
| AI raises concerns about information privacy | 1.9% | 13.2% | 25.9% | 42.5% | 16.5% |
| AI creates technological dependence | 0.9% | 3.3% | 13.2% | 58.0% | 24.5% |
| AI raises inaccuracies in language understanding | 4.2% | 32.5% | 34.4% | 24.1% | 4.7% |
| AI costs high when implemented | 2.4% | 31.6% | 40.1% | 21.7% | 4.2% |
| AI reduces students' critical thinking | 1.4% | 17.5% | 19.3% | 41.5% | 20.3% |
| AI reveals an incongruence between teachers' assessment and its own diagnosis | 0.5% | 19.3% | 42.9% | 34.9% | 2.4% |
| AI lacks cultural awareness | 1.4% | 25.0% | 26.9% | 36.3% | 10.4% |
| AI promotes inauthentic language | 2.8% | 37.7% | 37.3% | 20.8% | 1.4% |
| AI provides unreliable information | 4.7% | 42.0% | 32.5% | 17.9% | 2.8% |
| AI promotes cheating and plagiarism | 1.4% | 15.6% | 17.5% | 45.8% | 19.8% |
| AI necessitates a high level of technical proficiency | 2.8% | 36.3% | 20.8% | 35.8% | 4.2% |
| AI provides irrelevant and unusable feedback | 10.4% | 52.4% | 22.6% | 12.7% | 1.9% |
| AI does not provide the intended answer/output | 5.7% | 51.4% | 31.6% | 10.8% | 0.5% |

According to the descriptive statistics provided in Table 2, EFL teachers' key challenges for AI integration within Iranian content include AI's reducing human interaction, raising concerns about information privacy, creating technological dependence, reducing students' critical thinking, and promoting cheating and plagiarism.

Qualitative Findings

The analysis of the qualitative phase highlighted the other aspects in which EFL teachers utilized AI tools within their teaching practices. Additionally, it sheds light on the other advantages and challenges of AI integration within Iranian EFL classes, which are discussed below. By considering the qualitative findings, it became clear that EFL teachers had been utilizing AI tools for various purposes, including teaching grammar, writing, speaking, designing tasks, tests, or activities, creating lesson plans, and developing games.

AI Aspects

Teaching Grammar

Teaching grammar was the most dominant aspect in which AI tools were used by EFL teachers in the classrooms. They often utilized the tools to provide themselves with hints on where and how to start teaching. The followings are some of the excerpts:

Interviewee 7: “I wanted to teach quantifiers, but I did not know where to start! By giving the appropriate prompt to ChatGPT, a picture was created and I could explain the items clearly.”

Interviewee 23: “I was supposed to teach grammatical structure to children and I was confused about how to start! Moreover, due to the institute’s policy, I was not allowed to teach the point in students’ first language. Therefore, I asked AI to help me.”

Teaching Writing

Teaching writing was among the other aspects in which AI tools were used by EFL teachers. They often utilized Grammarly and ChatGPT as a supplement to their own teaching and feedback. Here are some of the excerpts:

Interviewee 26: “I use Grammarly to help students improve their essay drafts. It provides immediate feedback on grammar and style, allowing them to revise their work before submission, which improves their writing skills over time.”

Interviewee 27: During the last semester, I tasked my upper-intermediate students with a formal email. When the drafts were ready, I introduced Grammarly and ChatGPT to them. Students were able to polish their grammar thanks to Grammarly and to obtain model samples utilizing ChatGPT. By comparing AI feedback and mine, they were able to view other sides.

Teaching Speaking

Among the other instances of utilizing AI tools, teaching speaking was noted by teachers as a salient purpose. The EFL teachers predominantly used AI-powered language chatbots, such as PI and Tutor Lily to improve their students’ speaking skills. Below are some of the excerpts:

Interviewee 2: “I often use AI tools, including Tutor Lily and PI AI, as a supplement to other activities to improve my students’ speaking skills.”

Interviewee 9: “I use AI-powered language chatbots to facilitate conversation practice during online learning sessions, which effectively engage the students.”

Designing Tasks, Tests, or Activities

Designing personalized questions, creative activities, and other material was among the other aspects of AI integration in language classes. Here are some of the excerpts:

Interviewee 1: “I use AI tools to create personalized questions for my students, design audio podcasts, and generate reading texts according to their proficiency and interest.”

Interviewee 10: “I use ChatGPT to create worksheets, including vocabulary and relevant collocations and also to create challenging questions for the discussion group for my advanced learners.”

Creating Lesson Plans

Writing lesson plans was another instance where AI tools were used by EFL teachers to enrich their classes with engaging and interactive activities. The following are some of the excerpts:

Interviewee 4: “I use AI tools for creating lesson plans. Through this, my classes are more engaging and interactive.”

Interviewee 29: I use AI tools to write more creative lesson plans. I discuss the elements of lessons with it and then it shares ideas on teaching approaches. By thinking together, we finally come up with suitable lesson plans which I use in my class.

Developing Games

Some EFL teachers referred the engaging games AI tools provided, which could be integrated into classrooms. Below is an excerpt:

Interviewee 17: “By integrating AI tools, I have access to various engaging games that I often utilize to involve my students in online classes.”

Advantages of AI in Language Teaching

Considering the benefits that AI integration brings to language classes, the EFL teachers maintained a number of advantages, including saving time, cost and energy, supporting teaching and learning, developing materials, and fostering personalized learning.

Saving Time, Cost, and Energy

As put by some teachers, saving time, cost and energy is one of the prevailing benefits of integrating AI tools into teaching practices. As a result, teachers can save time for more important responsibilities. The following is an excerpt:

Interviewee 27: “One of the advantages of using AI tools is that teachers’ time and energy would be saved and they can devote time to vital responsibilities, including grading, providing feedback, and creating materials.”

Supporting Teaching and Learning

As maintained by teachers, incorporating AI tools in the classrooms benefits both teachers and students by providing adequate support. Accordingly, teachers can look for ways on what and how to teach and be provided with lesson plans that help classroom procedures run more smoothly. Additionally, students can also resolve their academic issues. The following excerpts show this point:

Interviewee 12: “AI tools are readily accessible; therefore, upon each request, they elaborate on methods to teach specific content that supports our teaching.”

Interviewee 15: AI tools provide numerous advantages for both teachers and learners. Regarding the support that they bring to teachers, I can refer to suggesting reliable

sources and materials that they can utilize in the classroom. Moreover, these tools enrich teaching practices by providing teachers with creative lesson plans.

Interviewee 29: “AI tools support students’ learning by being always available to answer their questions. If students struggle with comprehending a topic, they can consult AI tools. This feature benefits students even more.”

Developing Materials

Being provided with authentic materials was among the other advantages that integrating AI tools brings to language classes. Here is the excerpt:

Interviewee 11: “AI develops authentic materials for teachers, which has been emphasized in different teaching methods like CLT, CLL and TBLT. This is important as, before using AI in my teaching, having access to authentic material was challenging.”

Fostering Personalized Learning

According to EFL teachers, the utilization of AI tools fosters students’ personalized learning, thereby leading to their higher sense of autonomy. Below are two of the excerpts:

Interviewee 3: “Using AI tools develops learners’ autonomy outside the classroom by providing them with the opportunity to rely more on themselves and learn further by having more exposure and interaction.”

Interviewee 27: “Personalized learning is one of the significant benefits. AI adjusts the content to the level and speed of a learner; therefore, independent learning is facilitated by AI.”

Interviewee 13: “In my opinion, traditional methods are not effective anymore. AI helps teachers to teach their classes based on the findings of the post-method era, by providing personalized learning to their students.”

Fostering Students’ Motivation

As maintained by some EFL teachers, as a result of the novelty that integrating AI tools brings to language classes, students are motivated to learn further. The following is an excerpt:

Interviewee 2: “Using AI tools is innovative and improves students’ motivation and engagement; therefore, it is novel and attracts students’ attention and that is how it complements the traditional methods.”

Challenges of AI Integration

According to the qualitative findings, the EFL teachers stated three challenges for AI integration within the Iranian context, including a lack of AI literacy by teachers and students, technical issues and a lack of enough infrastructure, and teachers’ resistance.

Lack of AI Literacy by Both Teachers and Students

A dearth of adequate AI awareness, literacy, and skills by both EFL teachers and students was the most salient challenge of AI integration in the Iranian context. The following is an excerpt:

Interviewee 8: “I suppose one of the most salient challenges of AI integration is the lack of thorough AI familiarity among teachers and students, as they are not sufficiently aware of how to apply it.”

Technical Issues and Lack of Enough Infrastructure

Lack of enough infrastructure (stable internet connection, adequate facilities, etc.) and technical issues like abundant filtering were among the other obstacles for incorporating AI in EFL classes. Below are some of the excerpts:

Interviewee 2: One challenge for employing AI tools is the filtering, since most of the AI tools in our country are abandoned and using them is prohibited, unless we use them by affording money or using VPNs.

Interviewee 13: “As a challenge of using AI tools, I can mention the lack of enough facilities and an adequate internet connection, which persists in Iran.”

Teachers’ Resistance

Teachers’ resistance, as a result of caring for their identity and the intimidation they had by virtue of being replaced with AI, was among the other challenges for AI implementation in the Iranian context. Here are some of the excerpts:

Interviewee 10: “Many teachers view AI as a threat to their authority, especially traditional teachers, and they remain defensive or resistant when it comes to using AI tools in their classrooms.”

Interviewee 24: “AI is not widely accepted by all teachers, as many of them are intimidated by AI integration and think that they are going to be replaced by it.”

Discussion

This study aimed to explore how and why Iranian EFL teachers are integrating AI tools into their pedagogical practices. The results suggest that within the Iranian context, AI is no longer merely an experimental add-on; it has become a requirement for teaching core language skills and designing materials. Moreover, it states that teachers are using this technology to compensate for the limitations of their traditional resources. This pattern, while aligning with the global findings of Huang et al. (2023), depicts a shift in Iran toward AI tools that providing immediate and functional support, such as chatbots and grammar checkers.

The emphasis that EFL teachers placed on reducing their workload and saving time, cost, and energy is significant. According to TAM, “perceived ease of use” is a critical factor in technology adoption. As Rahimi and Rezvani (2024) and Arabshahi et al. (2024) pointed out,

when AI takes over repetitive administrative or preparatory tasks, it effectively reduces the load on teachers. This is crucial because it allows Iranian teachers—who often face large classes and limited time—to move away from teacher-centered instruction. By delegating these time-consuming responsibilities to AI, as supported by Labadze et al. (2023) and Ji et al. (2022), they can devote their energy to student-centered activities and more complex pedagogical interactions.

For the students, the merits identified in this study—specifically instant feedback and personalized learning—address one of the oldest challenges in the Iranian educational system: the “one-size-fits-all” model. The fact that AI can provide tailored, need-based tasks means it scaffolds independent learning. This aligns with Roschelle et al. (2020) and Farrokhnia et al. (2023) and shows that AI fills what the traditional methods cannot reach. Furthermore, the boost in learners’ motivation as mentioned by Ebadi and Amini (2022) and Meihami (2025) suggests that AI provides a sense of autonomy that is absent in conventional classrooms. Ultimately, these findings indicate that integrating AI is not about adopting new gadgets, rather reconfiguring the learning environment to be more efficient, motivating, and personalized for both teachers and students within the Iranian context.

While AI integration offers clear benefits, the teachers in this study also highlighted several significant disadvantages. Concerns such as reduced human interaction, privacy issues, and a potential decline in students’ critical thinking imply that educators are worried about the fundamental nature of language learning being compromised. This anxiety aligns with the work of Dai and Liu (2024), who argued that over-reliance on AI can weaken higher-order thinking and creativity. Similarly, the issue of cheating and plagiarism, which was also reported by Chicaiza et al. (2023), seems to be a direct result of students not being fully aware of the ethical issues of AI utilization. This highlights that the problem is not the technology itself, rather a lack of proper ethical training, which could be mitigated if institutions prioritized AI literacy and clear guidelines for students.

In the Iran context, the challenges go beyond pedagogical concerns and involve more systemic hurdles. The findings indicate that a lack of AI literacy among both teachers and students, combined with poor infrastructure, acts as a major barrier to effective integration. As Neysani et al. (2024) and Firdaus and Nawaz (2024) noted, without adequate training, even the best AI tools remain underutilized or cause frustration. These barriers directly impact the perceived ease of use (as a core part of TAM), leading to the teachers’ resistance, highlighted by Chai (2023). Therefore, for AI to be successfully integrated into Iranian EFL classes, addressing these infrastructural gaps and providing systematic training that builds teachers’ TPACK is just as crucial as the technology itself.

Conclusion

The present study aimed to delve into perceptions, applications, and challenges of AI integration within the Iranian EFL context. To this aim, the study adopted a mixed-methods design. In the

quantitative phase, 212 EFL teachers filled out a researcher-made questionnaire, consisting of 29 items under three sub-sections of current AI application in instruction, advantages of AI in language teaching, and challenges of AI integration. In the qualitative phase, 30 EFL teachers were selected based on purposive sampling to participate in online semi-structured interviews. The findings indicated that concerning the aspects of AI utility, EFL teachers used them for a diverse set of purposes, including teaching language skills (listening, speaking, reading, and writing) and sub-skills (vocabulary, grammar, and pronunciation), designing tasks, tests, or activities, writing lesson plans, and creating games. Furthermore, translation tools, grammar checkers, language learning apps, pronunciation assessment tools, AI-powered chatbots, content generation tools, and personalized learning platforms were among the tools that were most used or familiar to the EFL teachers.

Regarding the advantages of incorporating AI tools into language classes, the EFL teachers maintained diverse benefits, for instance, offering immediate feedback, supporting self-paced learning, enhancing students' engagement, reducing teachers' workload, providing personalized learning experiences, helping with formative evaluations, providing tailored need-based tasks, creating interesting exercises, providing authentic learning experiences, facilitating communicative language practice, improving students' autonomy, and saving time, cost and energy. Despite the numerous advantages and benefits that AI brought to language classes, the EFL teachers perceived some disadvantages and challenges of such an integration. Accordingly, reducing human interaction, raising concerns about information privacy, creating technological dependence, reducing students' critical thinking, and promoting cheating and plagiarism were among the disadvantages that employing AI tools could bring to EFL classes. Besides, the lack of AI literacy by both teachers and students, technical issues, dearth of enough infrastructure, and teachers' resistance were among the obstacles persisting for AI implementation within the Iranian context.

This study had a number of limitations. Primarily, it would have been better if more EFL teachers had participated in the quantitative phase. Additionally, the generalizability of the quantitative findings is inherently limited by their self-report nature. Moreover, as the participants voluntarily took part in the interviews, this might have led to self-selection bias. The findings offer practical implications for different stakeholders. First, regarding teachers and teacher trainers, the results suggest that AI literacy training should go beyond basic technical skills. Rather, these programs need to hold hands-on workshops specifically focused on prompt engineering for language tasks and ethical AI utilization. Trainers should guide teachers how to use AI for specific pedagogical goals, such as generating level-appropriate reading materials or providing automated feedback on students' writing, which can help reduce their resistance and boost their technology acceptance.

For school principals and policymakers, providing infrastructure is the first step. They need to establish digital support units within schools to assist teachers with technical issues and provide stable internet connection. Moreover, policymakers should develop a clear roadmap for AI in education to address concerns about data privacy and provide ethical guidelines for

schools. For curriculum developers, instead of treating AI as an add-on, it should be integrated as a visible part of the syllabus. This could involve designing specific tasks where students must use AI tools for brainstorming or peer-editing, ensuring that digital literacy becomes a core part of the language learning curriculum.

Future studies could investigate the effectiveness of long-term professional development programs rather than one-off workshops. Specifically, studies can examine how targeted training in AI-assisted assessment affects Iranian EFL teachers' actual classroom practices and their levels of technostress. Such research would provide a clearer picture of how to mitigate the challenges of teacher resistance and low digital literacy in a more sustainable way.

Bio-data

First Author: collected data, designed, conducted the procedure, and wrote the first draft.

Second Author: read, made necessary revisions, and approved the final manuscript.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Competing Interest: The authors declare that they have no competing interests.

References

- Alharbi, K., & Khalil, L. (2023). Artificial intelligence (AI) in ESL vocabulary learning: An exploratory study on students and teachers' perspectives. *Migration Letters*, 20, 1030-1045.
- Aniq, L. N., & Drajadi, N. A. (2019). Investigating EFL teachers' perceptions on their TPACK development: How EFL teachers view seven domains on TPACK framework. *Leksika: Jurnal Bahasa, Sastra Dan Pengajarannya*, 13(2), 95-101.
- Arabshahi, M., Kafi, Z., Krummacker, D., & Schotten, H. D. (2024). Pattern recognition of EFL university students' online behaviors through data science: Any investment on English language components or skills? *Indonesian Journal of EFL and Linguistics*, 9(1), 99-113.
- Baharloo, A., & Miyan Baghi, A. (2024). The impact of AI-assisted learning on EFL speaking skills: A mixed-methods study in the Iranian context. *Technology Assisted Language Education*, 2(4), 69-96. <https://doi.org/10.22126/tale.2025.11299.1070>
- Batubara, M. H., MoHa, L., Nugroho, A. Y., Ummah, S. S., & Suhardianto, S. (2024). Application of AI and learning analytics in English education: Benefits and challenges. *International Journal of Language and Ubiquitous Learning*, 2(3), 395-405. <https://doi.org/10.70177/ijlul.v1i1.12663>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Chai, C. S. (2023). Modeling Chinese secondary school students' behavioral intentions to learn artificial intelligence with the theory of planned behavior and self-determination theory. *Sustainability*, 15(1), 1-16. <https://doi.org/10.3390/su15010605>

- Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial intelligence trends in education: A narrative overview. *Procedia Computer Science*, 136, 16–24. <https://doi.org/10.1016/j.procs.2018.08.233>
- Chicaiza, R. M., Camacho Castillo, L. A., Ghose, G., & Castro Magayanes, I. E. (2023). Applications of ChatGPT as artificial intelligence for English language learning: Advances, challenges, and future perspectives. *Revista Latinoamericana de Ciencias Sociales y Humanidades*, 4(2), 1-19. <https://doi.org/10.56712/latam.v4i2.781>
- Cresswell, J. W., & Cresswell, J. D. (2018). *Research design: Qualitative, quantitative and mixed methods approaches* (5th ed.). SAGE Publications
- Dai, K., & Liu, Q. (2024). Leveraging artificial intelligence (AI) in English as a foreign language (EFL) class: Challenges and opportunities in the spotlight. *Computers in Human Behavior*, 159. <https://doi.org/10.1016/j.chb.2024.108354>
- Dashtestani, R. (2022). Challenges of using technology in the Iranian EFL context: A study of teachers' and students' perspectives. *Journal of English Language Teaching and Learning*, 14(29), 85-104. <https://doi.org/10.22034/ELT.2022.50285.2479>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–339. <https://doi.org/10.2307/249008>
- De La Vall, R. R. F., & Araya, F. G. (2023). Exploring the benefits and challenges of AI-language learning tools. *The International Journal of Social Sciences and Humanities Invention*, 10(01), 7569–7576. <https://doi.org/10.18535/ijsshi/v10i01.02>
- Duan, H., & Zhao, W. (2024). The effects of educational artificial intelligence-powered applications on teachers' perceived autonomy, professional development for online teaching, and digital burnout. *International Review of Research in Open and Distributed Learning*, 25(3), 57-76. <https://doi.org/10.19173/irrodl.v25i3.7659>
- Ebadi, S., & Amini, A. (2022). Examining the roles of social presence and human-likeness on Iranian EFL learners' motivation using artificial intelligence technology: A case of CSIEC chatbot. *Interactive Learning Environments*, 32(2), 655-673. <https://doi.org/10.1080/10494820.2022.2096638>
- Encyclopedia Britannica. (2021). Artificial intelligence. <https://www.britannica.com/technology/artificialintelligence>
- Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2023). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education & Teaching International*, 61(3), 1–15. <https://doi.org/10.1080/14703297.2023.2195846>
- Fathi, J., Greenier, V., & Derakhshan, A. (2023). Teacher resistance and cultural barriers to technology integration in Iranian schools: A qualitative analysis. *Technology, Pedagogy and Education*, 32(4), 412–430. <https://doi.org/10.1080/1475939X.2023.2210563>
- Firdaus, A., & Nawaz, S. (2024). Viewpoints of teachers about the usage of artificial intelligence in ELT: Advantages and obstacles. *University of Chitral Journal of Linguistics and Literature*, 8(1), 82–93.

- Ghanbari, N., & Nowroozi, S. (2021). The digital divide in Iranian EFL education: The role of sanctions and infrastructure. *Iranian Journal of Language Teaching Research*, 9(2), 55-72. <https://doi.org/10.30466/IJLTR.2021.121040>
- Guan, L., Lee, J. C. K., Zhang, Y., & Gu, M. M. (2025). Investigating the tripartite interaction among teachers, students, and generative AI in EFL education: A mixed-methods study. *Computers and Education: Artificial Intelligence*, 8, 100384.
- Hajizadeh, S., Ebadi, S., Salman, A., & bt Adi Badiozaman, I. (2023). An Exploration into Young Twins' Journey Toward Multi-Literacy Development via Digital Multimodal Composing. *Technology Assisted Language Education*, 1(2), 9-28. doi: 10.22126/tale.2023.2744. <https://doi.org/10.1016/j.caeai.2025.100384>
- Hazaymeh, W. A., Bouzenoun, A., & Remache, A. (2024). EFL instructors' perspective on using AI applications in English as a foreign language teaching and learning. *Emerging Science Journal*, 8, 73–87. <https://doi.org/10.28991/ESJ-2024-SIED1-05>
- Huang, X., Zou, D., Cheng, K. S., Chen, X., & Xie, H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educational Technology & Society*, 26(1), 112-131. [https://doi.org/10.30191/ETS.202301_26\(1\).0009](https://doi.org/10.30191/ETS.202301_26(1).0009)
- Islamiyah, C. & Huda, T. (2023). Membangun paradigma baru terhadap makna guru: Profiling English teacher in new era. *DEWANTECH Jurnal Teknologi Pendidikan*, 1(1), 15-21.
- Jiang, L. (2021). Virtual reality action interactive teaching artificial intelligence education system. *Complexity*, 2021(1), 1–11. <https://doi.org/10.1155/2021/5553211>
- Kalra, R. (2024). Exploring teachers' perceptions toward the integration of AI tools in the language classroom. *Journal of Language and Communication*, 29(45), 21-36.
- Kerslake, L. (2022). Designing media and information literacy curricula in English primary schools: Children's perceptions of the internet and ability to navigate online information. *Irish Educational Studies*, 41(1), 151–160. <https://doi.org/10.1080/03323315.2021.2022518>
- Khaefi, A., & Molavi, M. (2024). Policy frameworks for AI in the Iranian educational system: Current status and future directions. *Journal of Educational Technology*, 18(1), 15-32. <https://doi.org/10.22061/JENT.2024.10234.1105>
- Kim, N. Y. (2019). A study on the use of artificial intelligence chatbots for improving English grammar skills. *Journal of Digital Convergence*, 17(8), 37-46. <https://doi.org/10.14400/JDC.2019.17.8.037>
- Kuleto, V., Ili'c, M., Dumangiu, M., Rankovi'c, M., Martins, O. M., Paun, ~ D., & Mihoreanu, L. (2021). Exploring opportunities and challenges of artificial intelligence and machine learning in higher education institutions. *Sustainability*, 13(18), 10424. <https://doi.org/10.3390/su131810424>
- Labadze, L., Grigolia, M., & Machaidze, L. (2023). Role of AI chatbots in education: Systematic literature review. *International Journal of Educational Technology in Higher Education*, 20(1), 56. <https://doi.org/10.1186/s41239-023-00426-1>

- Lee, H. S., Pallant, A., Pryputniewicz, S., Lord, T., Mulholland, M., & Liu, O. L. (2019). Automated text scoring and real-time adjustable feedback: Supporting revision of scientific arguments involving uncertainty. *Science Education*, 103(3), 590–622. <https://doi.org/10.1002/sce.21504>
- Ling, W. (2023). Artificial intelligence in language instruction: Impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14, 1261955. <https://doi.org/10.3389/fpsyg.2023.1261955>
- Meihami, H. (2025). Exploring the role of professional learning community in EFL student-teachers' imagined identity development. *Journal of Language, Identity and Education*, 24(4), 807-824. <https://doi.org/10.1080/15348458.2023.2193336>
- Minn, S. (2022). AI-assisted knowledge assessment techniques for adaptive learning environments. *Computers & Education: Artificial Intelligence*, 3, 100050. <https://doi.org/10.1016/j.caeai.2022.100050>
- Mohammadi, L., Asadi, M., & Taheri, R. (2024). Transforming EFL lesson planning with 'To Teach AI': Insights from teachers' perspectives. *Technology Assisted Language Education*, 2(3), 46-73. <https://doi.org/10.22126/tale.2025.11490.1080>
- Neysani, M., Nikbakht, A., & Jafari, A. (2024). Exploring Iranian EFL teachers' trust in AI-based education technology. *Journal of New Advances in English Language Teaching and Applied Linguistics*, 5(2), 1183-1194. <https://doi.org/10.22034/JELTAL.2023.416675.1103>
- Ouyang, F., & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 2, 100020. <https://doi.org/10.1016/j.caeai.2021.100020>
- Raheem, B.R., Anjum, F., & Ghafar, Z.N. (2023). Exploring the profound impact of artificial intelligence applications (QuillBot, Grammarly, and ChatGPT) on English academic writing: A systematic review. *International Journal of Integrative Research*, 1(10), 599–622. <https://doi.org/10.59890/ijir.v1i10.366>
- Rahimi, S. & Rezvani, R. (2024). Enhancing English instructors' TPACK through AI: Exploring its role in language education. *Iranian Journal of English for Academic Purposes*, 13(3), 76-97. <https://doi.org/20.1001.1.24763187.2024.13.3.5.4>
- Roschelle, J., Lester, J., & Fusco, J. (2020). AI and the future of learning: *Expert panel report. Digital Promise*. <https://circls.org/reports/ai-report>
- Sariani, S., Khairat, M., & Yaningsih. (2021). An optimization of language learning in writing through E-learning: Encountering the Covid-19 Pandemic. *International Journal of Language Education*, 5(1), 528-541. <https://doi.org/10.26858/IJOLE.V5I1.15375>
- Schmidt-Fajlik, R. (2023). ChatGPT as a grammar checker for Japanese English language learners: A comparison with Grammarly and ProWritingAid. *Asian CALL Online Journal*, 14(1), 105–119. <https://doi.org/10.54855/acoj.231417>

- Schmidt, T., & Strasser, T. (2022). Artificial intelligence in foreign language learning and teaching: A call for intelligent practice. *International Journal of English Studies*, 33(1), 165–184.
- Sharifuddin, N. S., & Hashim, H. (2024). Benefits and challenges in implementing artificial intelligence in education (AIED) in ESL classroom: A systematic review (2019-2022). *International Journal of Academic Research in Business and Social Sciences*, 14(1), 146-164. <https://doi.org/10.6007/IJARBS/v14-i1/20422>
- Syzdykbayeva, A., Baikulova, A., & Kerimbayeva, R. (2021). *Introduction of artificial intelligence as the basis of modern online education on the example of higher education*. 2021 IEEE International Conference on Smart Information Systems and Technologies (SIST). <https://doi.org/10.1109/SIST50301.2021.9465974>
- Tafazoli, D., María, E. G., & Abril, C. H. (2019). Intelligent language tutoring system. *International Journal of Information and Communication Technology Education*, 15(3), 60–74. <https://doi.org/10.4018/ijicte.2019070105>
- Xiao, Y., & Zhi, Y. (2023). An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experience and perceptions. *Languages*, 8(3), 212. <https://doi.org/10.3390/languages8030212>
- Xu, X., Dugdale, D. M., Wei, X., & Mi, W. (2023). Leveraging artificial intelligence to predict young learners online learning engagement. *American Journal of Distance Education*, 37(3), 185–198. <https://doi.org/10.1080/08923647.2022.2044663>
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1-27. <https://doi.org/10.1186/s41239-019-0171-0>
- Zhi, R. & Wang, Y. (2024). On the relationship between EFL students' attitudes toward artificial intelligence, teachers' immediacy and teacher-student rapport, and their willingness to communicate. *System*, 124, 103341. <https://doi.org/10.1016/j.system.2024.103341>
- Zhou, C. & Hou, F. (2025). How do EFL teachers utilize AI tools in their language teaching? *Theory & Practice in Language Studies (TPLS)*, 15(2). <https://doi.org/10.17507/tpls.1502.10>
- Zulfa, S., Dewi, R.S., Hidayat, D.N., Hamid, F., & Defianty, M. (2023). *The use of AI and technology tools in developing students' English academic writing skills*. International Conference on Education, 1, 47–63.