

RESEARCH ARTICLE

Artificial Intelligence Adoption in Iranian EFL Education: Instructors' Perspectives on Pedagogical Opportunities and Implementation Challenges

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ABSTRACT

Artificial intelligence (AI) has emerged as a transformative force in education, offering new opportunities to enhance teaching and learning through adaptive instruction, personalized feedback, and flexible learning experiences. In English as a Foreign Language (EFL) education, AI-powered applications are increasingly used to support language instruction; however, empirical evidence on Iranian university instructors' perceptions remains limited. This study investigates Iranian EFL instructors' perceptions of integrating AI into English language teaching and learning, including perceived benefits, implementation challenges, and the influence of teaching experience. Using a quantitative research design, data were collected from 100 instructors at public and private universities across Iran through a structured questionnaire. The findings indicated that instructors generally held positive attitudes toward AI integration ($M = 3.94$, $SD = 0.40$). Personalized feedback, adaptive learning, enhanced learner engagement, and improved instructional efficiency were identified as the most valuable benefits. AI applications, particularly ELSA Speak and Duolingo, were viewed as effective supplementary tools for improving learners' pronunciation, grammar, vocabulary, and autonomous learning. Participants identified several barriers, including inadequate technological infrastructure, financial constraints, and the absence of culturally relevant AI-generated learning materials. Statistical analyses revealed significant differences across teaching experience groups in perceptions of AI-related benefits, whereas perceptions of implementation challenges remained consistent. These findings suggest that professional experience influences instructors' views of AI's educational value. Institutional barriers, however, affect instructors regardless of experience. Overall, the study demonstrates AI's potential to enrich English language education in Iran.

Keywords: artificial intelligence adoption, EFL instructors' perceptions, English language teaching, pedagogical opportunities, implementation challenges, Iranian higher education.

1. INTRODUCTION

AI has swiftly evolved from a specialized technological innovation into a transformative force influencing numerous aspects of modern society (Alzubi & Alelaiwi, 2025). Education has become one of the sectors experiencing the most significant changes as intelligent systems increasingly support instructional planning, assessment, feedback, and personalized learning experiences (Isaee & Barjesteh, 2026a). Rather than functioning merely as technological supplements, AI-powered applications are gradually reshaping how teachers design instruction and how learners engage with educational content.

Within L2 education, the integration of AI technologies has accelerated considerably during the past decade. Intelligent language-learning platforms, automated writing assistants, speech-recognition software, adaptive tutoring systems, and conversational chatbots now provide learners with immediate feedback, individualized learning pathways, and continuous opportunities for language practice beyond the traditional classroom (Alzubi, 2024; Jiang, 2022). Unlike conventional computer-assisted language learning systems, contemporary AI applications continuously analyze learners' performance and adjust instructional content to individual learning needs, making language instruction increasingly responsive and personalized.

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The growing availability of AI-supported educational applications has generated considerable interest among educators seeking more effective ways to address learner diversity (Isaee et al., 2026). Language classrooms frequently consist of students with varying proficiency levels, learning preferences, and motivational characteristics, making individualized instruction difficult to achieve through traditional teaching approaches alone. AI technologies offer practical solutions by adapting instructional materials, providing immediate corrective feedback, monitoring learner progress, and recommending personalized learning activities aligned with individual strengths and weaknesses (Lee et al., 2023). Consequently, AI has become an increasingly valuable pedagogical resource capable of complementing rather than replacing teachers' professional expertise.

In Iran, the importance of English-language proficiency has expanded considerably due to globalization, international academic collaboration, scientific publishing, and professional mobility. Universities and higher education institutions, therefore, continue to search for innovative approaches to improve English language instruction while responding to changing educational expectations. Alongside these developments, policymakers and educational administrators have shown increasing interest in incorporating AI into higher education as part of broader digital transformation initiatives (Isaee & Barjesteh, 2026b; Manoocherzadeh et al., 2025). Although AI adoption remains in its early stages in many institutions, its potential to improve instructional quality has attracted growing academic attention.

Despite these promising developments, integrating AI into Iranian EFL classrooms remains a complex undertaking. Numerous institutions continue to encounter technological, financial, and organizational limitations that restrict widespread implementation. Limited digital infrastructure, inconsistent internet connectivity, insufficient institutional investment, and unequal access to advanced educational technologies continue to influence the extent to which AI applications can be effectively incorporated into everyday teaching practices (Barjesteh & Isaee, 2024). These structural challenges suggest that successful AI implementation depends not only on technological availability but also on broader institutional readiness (Risdianto et al., 2025).

At the instructional level, AI-supported applications such as Duolingo and ELSA Speak illustrate how intelligent technologies can supplement language education by providing interactive vocabulary exercises, adaptive grammar instruction, pronunciation analysis, and continuous learner feedback (Barjesteh & Isaee, 2024; Hazaymeh et al., 2024; Risdianto et al., 2025). Such applications enable learners to practice independently, receive immediate performance evaluations, and monitor their own progress over time. Simultaneously, these systems generate learning analytics that can assist instructors in identifying learner difficulties and making more informed pedagogical decisions (Lee et al., 2023). Rather than replacing classroom instruction, such technologies can strengthen teacher-guided learning by extending opportunities for individualized practice beyond scheduled class sessions.

International research consistently reports that AI-supported educational technologies could enhance learners' engagement, facilitate language acquisition, and increase instructional efficiency across diverse educational settings (Jiang, 2022; Lee et al., 2023). Nevertheless, successful implementation depends upon numerous contextual factors, including teachers' technological readiness, institutional support, cultural appropriateness of learning materials, and the availability of adequate professional development opportunities (Isaee & Barjesteh, 2025). These contextual variables are particularly important in educational systems undergoing gradual digital transformation, where technological innovation often lags behind policy expectations.

Although the international literature concerning AI in language education continues to expand rapidly, empirical investigations focusing specifically on Iranian EFL instructors remain relatively scarce. Existing Iranian studies have primarily examined educational technology policies, student experiences, or general attitudes toward digital learning. In contrast, relatively little attention has been given to instructors' perspectives regarding AI implementation in English language teaching (Mohammadi et al., 2025). Since instructors serve as the primary agents responsible for integrating educational technologies into classroom practice, understanding their perceptions is essential for designing effective implementation strategies and teacher education programs.

This study addresses the gap by examining Iranian EFL instructors' perspectives on the pedagogical value and implementation challenges of AI applications. Specifically, the study explores instructors' perspectives on AI-related benefits, identifies the principal barriers limiting classroom integration, and investigates whether teaching experience influences these perceptions. By providing empirical evidence from Iranian higher education institutions, the study seeks to contribute to current discussions concerning technology-enhanced language education while offering practical recommendations for policymakers, university administrators, curriculum developers, and teacher education programs seeking to promote responsible and sustainable AI integration within Iranian EFL classrooms. Based on the objectives of the study and the existing literature on AI in language education, the following research questions were formulated:

RQ1. What do Iranian EFL instructors perceive regarding the integration of artificial intelligence (AI) into English language teaching and learning in terms of its educational benefits and implementation challenges?

RQ2. Are there statistically significant differences in Iranian EFL instructors' perceptions of the educational benefits and implementation challenges of integrating AI into English language teaching and learning based on their teaching experience?

2. LITERATURE REVIEW

2.1. AI in English Language Education

Within EFL education, AI technologies have become increasingly important because language learning requires continuous practice, immediate feedback, and personalized guidance. Intelligent tutoring systems, automated writing assistants, speech-recognition software, conversational chatbots, and adaptive learning platforms allow students to receive individualized support beyond classroom hours. These technologies supplement teacher instruction by providing opportunities for repeated practice while enabling instructors to monitor learner progress more efficiently (Isaee, 2026a; Lee et al., 2023).

Recent developments have also expanded AI's role from simple language drills to comprehensive instructional support. Modern AI applications can generate customized learning materials, recommend instructional activities based on learner performance, identify recurring language errors, and provide detailed diagnostic feedback (Isaee et al., 2025). Such capabilities enable instructors to devote greater attention to communicative teaching, higher-order thinking skills, and individualized learner support rather than spending substantial classroom time on repetitive correction and administrative tasks (Wang et al., 2023).

Furthermore, AI technologies increasingly encourage learner autonomy by allowing students to progress at their own pace and according to their proficiency level. Instead of relying exclusively on teacher-directed instruction, learners can engage in self-regulated learning activities, monitor their own progress, and receive continuous formative assessment. Consequently, AI is increasingly viewed not as a replacement for teachers but as an instructional partner capable of enriching language learning while strengthening learner independence and instructional effectiveness (Schmidt & Strassner, 2022).

2.2. Educational Benefits of AI for Language Learning

The educational benefits of AI have been documented across numerous language-learning contexts. One of AI's most significant contributions is its ability to personalize instruction by adapting educational content according to learners' needs, learning pace, and performance. Unlike traditional classroom environments, where instructors must simultaneously address the needs of many learners, AI systems continuously modify instructional difficulty, recommend appropriate learning activities, and provide individualized learning pathways that maximize student engagement and achievement (Risdianto et al., 2026; Wang et al., 2023).

Intelligent tutoring systems have demonstrated considerable potential for supporting personalized language instruction. These systems monitor learner performance in real time and adjust instructional content based on individual progress, thereby reducing learner frustration while maintaining an appropriate level of challenge. Research has shown that adaptive instructional systems positively affect learner confidence, motivation, and long-term language development because students receive immediate support when learning difficulties arise (Akyuz, 2020).

AI also contributes significantly to the development of core language skills. Vocabulary acquisition, grammatical accuracy, reading comprehension, writing quality, pronunciation, and listening comprehension can all be enhanced through AI-supported applications that provide immediate corrective feedback and repeated practice opportunities. Unlike conventional learning materials, AI applications continually analyze learners' responses and recommend additional activities to target individual weaknesses, making language practice substantially more efficient (Kuning, 2019; Lee et al., 2023).

Another important advantage concerns learner motivation and engagement. Many AI-based language learning platforms incorporate gamification principles such as progress badges, achievement levels, performance tracking, and immediate rewards. These motivational features encourage learners to participate more actively in language-learning activities while maintaining consistent practice over extended periods. Research suggests that such interactive environments can improve learner persistence, reduce anxiety, and create more enjoyable learning experiences than traditional instructional approaches (García & Pena, 2010).

Beyond learner outcomes, AI technologies also enhance instructional efficiency. Automated assessment systems, intelligent feedback generators, and digital learning analytics reduce teachers' administrative workload by simplifying routine activities such as grading objective assessments, monitoring student progress, and identifying learners requiring additional support. As a result, instructors can devote more time to lesson planning, communicative activities, and individualized learner interaction rather than repetitive administrative responsibilities (Niño, 2020).

2.3. Challenges of Integrating AI into EFL Education

Despite its considerable educational potential, AI presents several challenges that continue to influence its successful implementation in language education. One of the most frequently reported barriers concerns the financial investment required to establish and maintain AI-supported instructional environments. Subscription costs, software licensing, hardware upgrades, and ongoing technical maintenance may exceed the financial capacity of many educational institutions, particularly in developing educational systems (Deng & Yu, 2022).

Another important challenge involves technological infrastructure. Reliable internet connectivity, adequate computing facilities, and consistent access to digital devices remain essential prerequisites for effective AI implementation. In contexts where technological resources are limited or unevenly distributed, instructors may find it difficult to integrate AI applications consistently into classroom practice. Such infrastructural limitations can reduce both instructor confidence and learner access to AI-supported educational opportunities (Marandi & Hosseini, 2024).

Cultural and linguistic appropriateness represents another significant concern. Many commercially available AI applications have been developed using educational materials designed primarily for Western learners and educational contexts. Consequently, examples, communicative situations, cultural references, and instructional assumptions may not always correspond to local educational expectations or learners' sociocultural backgrounds. Such discrepancies may reduce instructional relevance and limit learners' engagement with AI-generated content (Deng & Yu, 2022).

In addition, professional readiness plays a decisive role in determining successful AI implementation. Many instructors report insufficient preparation to effectively select, evaluate, and integrate AI applications into their instructional practices (Sumakul et al., 2022). Without systematic professional development, educators may experience uncertainty regarding both the pedagogical value and ethical implications of AI-supported teaching. Continuous training, hence, remains essential for helping instructors develop the confidence and competencies necessary for responsible AI integration (Hazaymeh et al., 2024; Jiang, 2022).

Furthermore, recent scholarly discussions have emphasized concerns about learner dependence on AI-generated feedback, academic integrity, and the possibility that excessive reliance on automated systems could reduce opportunities for authentic teacher–student interaction. Although AI can substantially enhance learning efficiency, maintaining an appropriate balance between technological assistance and human pedagogical guidance remains fundamental for preserving meaningful language learning experiences (Isaee & Barjesteh, 2026; Wang et al., 2023).

2.4. Theoretical and Conceptual Framework

Understanding instructors' adoption of AI in education requires theoretical perspectives that explain both technology acceptance and its pedagogical integration. Accordingly, the present study draws upon three complementary frameworks: the Technology Acceptance Model (TAM) (Davis, 1989), Rogers' Diffusion of Innovations Theory (Rogers, 2003), and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). Together, these frameworks provide a comprehensive foundation for examining instructors' perceptions of AI integration in English language teaching.

The Technology Acceptance Model (TAM) proposes that individuals' willingness to adopt a new technology is primarily determined by perceived usefulness and perceived ease of use (Davis, 1989). Within AI-supported language education, perceived usefulness refers to instructors' beliefs that AI applications can improve language instruction by enhancing assessment, providing personalized feedback, increasing learner engagement, and supporting instructional efficiency. Perceived ease of use reflects instructors' confidence that AI technologies can be incorporated into classroom practice without excessive technical complexity or additional workload. These constructs help explain instructors' overall attitudes toward AI and their willingness to integrate AI-based tools into teaching.

While TAM emphasizes individual acceptance, Rogers' (2003) Diffusion of Innovations Theory extends the analysis by highlighting the broader institutional and social context in which technology adoption occurs. According to this theory, successful implementation depends not only on users' attitudes but also on communication networks, organizational culture, leadership support, and access to professional development. Consequently, even instructors with favorable perceptions of AI may encounter implementation barriers when adequate technological infrastructure, institutional policies, or financial resources are unavailable.

Although these theories explain why instructors adopt AI, they do not fully address how to integrate AI into effective teaching practice. For this reason, the present study also draws upon the Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006). TPACK argues that effective technology integration requires teachers to combine technological, pedagogical, and content knowledge. Rather than viewing technology as an isolated tool, the framework emphasizes the interaction among these three

domains to create meaningful learning experiences. In AI-assisted language education, instructors must therefore possess not only knowledge of AI applications but also the pedagogical expertise to employ these tools appropriately for teaching language skills, as well as the subject-specific knowledge required to align AI-supported activities with curriculum objectives.

Based on these complementary perspectives, the conceptual framework of the present study positions AI applications in English language education as the primary instructional innovation while recognizing that both individual and contextual factors shape instructors' perceptions. Guided by TAM, the study examines instructors' perceived benefits of AI integration. Drawing on Diffusion of Innovations Theory, it also considers implementation challenges, including technological infrastructure, institutional support, financial constraints, localized educational content, and ethical considerations. Finally, consistent with TPACK, the framework acknowledges that successful AI integration depends on instructors' ability to integrate technological capabilities with sound pedagogical practices and language-teaching expertise.

Figure 1 illustrates the relationships examined in this study. AI applications constitute the central innovation influencing instructors' perceptions of both educational benefits and implementation challenges. At the same time, teaching experience is included as the grouping variable to examine whether professional experience shapes these perceptions. Collectively, TAM, Diffusion of Innovations Theory, and TPACK provide the theoretical foundation for the research questions, inform the study design, and guide the interpretation of the empirical findings.

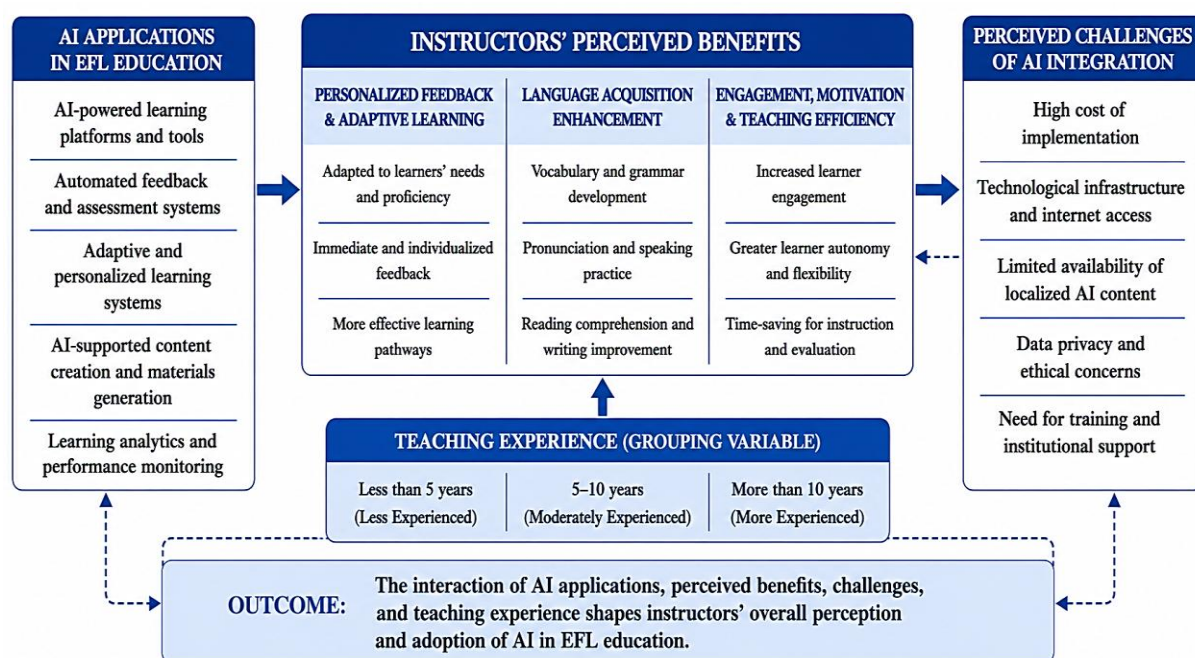


Figure 1. Conceptual framework of AI integration in Iranian EFL education

As illustrated in Figure 1, the present study conceptualizes AI integration in English language teaching as a multidimensional process influenced by both enabling and constraining factors. The framework emphasizes that the interaction between AI-supported pedagogical benefits, implementation challenges, and individual teaching experience shapes instructors' perceptions. This conceptual model guided the development of the research instrument, informed the formulation of the research questions, and provided the basis for the statistical analyses reported in the subsequent sections.

3. METHODS

3.1. Research Design

This research used a “descriptive quantitative research design” to investigate perceptions of Iranian EFL teachers of integrating AI applications into language teaching and learning. A quantitative approach was considered appropriate because it enables the systematic measurement of participants' attitudes, perceptions, and experiences using standardized instruments and facilitates statistical comparisons across groups. Since the primary goal of the research was to investigate instructors' perceived challenges and benefits associated with AI adoption rather than to manipulate variables experimentally, a descriptive survey design provided the most suitable methodological framework.

The research examined instructors' perceptions of AI-supported pedagogical practices across several dimensions, including personalized learning, language acquisition, learner engagement, instructional efficiency, and implementation challenges. Furthermore, the research sought to determine whether instructors with varying levels of teaching experience differed significantly in their evaluations of AI applications. Employing a structured survey enabled the collection of comparable data from a relatively large sample while ensuring consistent measurement across all participants.

The research process was organized into four sequential phases. Hence, the first phase involved the development, adaptation, and validation of the research instrument through expert evaluation and pilot testing. During the second phase, the finalized questionnaire was distributed electronically to university instructors through multiple academic communication channels. The third phase consisted of coding, screening, and statistical analysis of the collected data using appropriate descriptive and inferential procedures. Finally, the fourth phase involved interpreting the statistical findings in light of existing literature and presenting conclusions, pedagogical implications, and recommendations for future research concerning AI integration in Iranian EFL education.

This systematic research design ensured methodological rigor throughout the investigation and provided reliable evidence on instructors' perceptions of AI-assisted language teaching. The structured nature of the design also enhanced the study's reproducibility and facilitated meaningful comparisons with previous investigations in similar educational contexts.

3.2. Participants

The participants comprised 100 Iranian EFL instructors employed at public and private universities in Chalous, Tehran, Jam, Amol, and Shiraz. The institutions were chosen because they are major centers of higher education where English-language instruction and educational technology initiatives have become increasingly important. Recruiting instructors from multiple universities also increased the sample's diversity by incorporating educators from different institutional environments and teaching contexts.

A purposive sampling strategy was employed to ensure that the participants had direct experience in university-level English language teaching and were familiar with contemporary educational technologies. The sampling procedure intentionally included instructors with varying levels of professional experience to enable comparisons between less- and more-experienced educators' perceptions of AI-assisted language teaching. This approach strengthened the study by ensuring representation across different stages of professional development while minimizing the possibility of obtaining responses from participants with insufficient instructional experience.

The demographic information of the participants is presented in Table 1, which includes both male and female instructors as well as educators representing three categories of teaching experience. This balanced distribution provided a suitable basis for investigating whether teaching experience influenced instructors' evaluations of the pedagogical benefits and implementation challenges associated with AI applications.

Table 1. Participant demographics

Variable	Category	N	%
Gender	Female	62	62.0
	Male	38	38.0
Teaching Experience	Less than 5 years	30	30.0
	5 to 10 years	38	38.0
	10 years or more	32	32.0

Overall, the participant distribution reflects a heterogeneous sample of university instructors with diverse professional backgrounds, thereby providing an appropriate foundation for examining perceptions of AI integration across various levels of teaching experience.

3.3. Instrument

Data were collected using a structured questionnaire adapted from previously validated instruments employed in AI-assisted language learning research (Jiang, 2022; Schmidt & Strassner, 2022; Wang et al., 2023). Rather than adopting these instruments verbatim, the questionnaire was modified to reflect the pedagogical realities, technological infrastructure, and higher education context of Iranian universities. The adaptation process ensured that the instrument remained culturally appropriate while preserving the theoretical constructs examined in previous studies. The development of the questionnaire was further guided by the study's theoretical and conceptual framework. Specifically, the Technology Acceptance Model (TAM) (Davis, 1989) informed the items measuring instructors' perceived educational benefits of AI, particularly those related to usefulness and ease of

integration. Rogers' Diffusion of Innovations Theory (Rogers, 2003) guided the development of items addressing implementation challenges, including institutional support, technological infrastructure, and organizational readiness. In addition, the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) informed the development of items examining the pedagogical integration of AI into English language teaching. Consequently, the questionnaire was grounded in both established theoretical perspectives and empirical studies on AI-supported language education.

The final questionnaire consisted of three major sections. The first section collected demographic information, including participants' gender, teaching experience, and institutional affiliation. These variables were included because previous research suggests that professional background and teaching experience may influence instructors' acceptance of emerging educational technologies.

The second section examined instructors' perceptions of the educational benefits of AI applications. This section comprised 22 items organized into three conceptual domains: Adaptive Learning and Personalized Feedback (7 items), Language Acquisition Enhancement (7 items), and Engagement, Motivation, and Teaching Efficiency (8 items). These domains correspond directly to the benefit dimensions identified in the study's conceptual framework.

The final section explored instructors' perceptions of the challenges associated with AI implementation. This component consisted of six items addressing implementation cost, technological infrastructure, institutional support, accessibility, cultural appropriateness of AI-generated content, and technical limitations. These dimensions were derived from the conceptual framework and previous empirical studies examining barriers to AI adoption in education.

All questionnaire items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). For negatively worded items, reverse-scoring procedures were applied prior to statistical analyses so that higher scores consistently reflected more positive perceptions of AI integration. To facilitate interpretation of the findings, mean scores were classified into five levels: 1.00–1.80 = Very Low; 1.81–2.60 = Low; 2.61–3.40 = Moderate; 3.41–4.20 = High; and 4.21–5.00 = Very High.

3.4. Validity and Reliability

Several procedures were implemented to establish the validity and reliability of the research instrument. First, content validity was evaluated by a panel of five specialists in educational technology, applied linguistics, and English language teaching from Iranian universities. The experts reviewed each questionnaire item for relevance, clarity, representativeness, and alignment with the study objectives and theoretical framework. Based on their recommendations, several items were revised to simplify technical terminology, eliminate ambiguous and double-barreled statements, improve consistency in item wording, and better reflect the pedagogical and technological realities of Iranian higher education. Minor modifications were also made to enhance the alignment between individual items and the constructs underlying the study.

Following the expert review, the revised questionnaire underwent pilot testing with 14 university EFL instructors who were not included in the final sample. Participants were invited to comment on the clarity of the instructions, item wording, response format, and overall comprehensibility. Their feedback resulted in minor editorial revisions that improved readability and reduced the potential for respondent misunderstanding.

The reliability of the finalized questionnaire was evaluated using Cronbach's alpha coefficient. The overall instrument demonstrated excellent internal consistency ($\alpha = .912$), indicating high reliability. Reliability estimates for the individual domains were also satisfactory, ranging from $\alpha = .831$ for Language Acquisition Enhancement to $\alpha = .901$ for Engagement, Motivation, and Teaching Efficiency. All coefficients exceeded the commonly accepted threshold of .70, confirming that the instrument possessed satisfactory internal consistency and was appropriate for the subsequent statistical analyses.

3.5. Data Collection Procedure

Data were collected over six weeks between October and November 2024. The questionnaire was administered electronically via an online survey platform to facilitate participation by instructors across different regions of Iran. Electronic distribution enabled participants to complete the questionnaire at their convenience while increasing accessibility and response rates.

The survey link was disseminated through multiple professional communication channels, including university mailing lists, faculty networks, academic social media communities, and Telegram groups specifically established for Iranian EFL instructors. Using multiple distribution channels increased diversity in the participant pool while reducing the risk of limiting participation to instructors affiliated with a single institution or professional network. To minimize duplicate responses, the invitation clearly requested that each instructor complete the questionnaire only once. In addition, the survey was distributed primarily through professional and institutional networks, which

helped ensure that respondents were members of the target population. During data screening, responses were reviewed for potential duplication and completeness before being included in the final dataset. No duplicate responses were identified.

Participation in the study was entirely voluntary. Before accessing the questionnaire, all participants were presented with an informed consent statement describing the purpose of the study, the estimated completion time, confidentiality procedures, and their right to withdraw at any time without penalty. To protect participants' privacy, no personally identifying information was linked to questionnaire responses. The collected data were stored anonymously and used exclusively for research purposes in accordance with the university's ethical research guidelines.

3.6. Data Analysis

Following data collection, questionnaire responses were screened for completeness, coded, and entered into SPSS Statistics (Version 24) for statistical analysis. Before conducting inferential analyses, the dataset was examined for missing values, data entry errors, and probable outliers to ensure the accuracy and integrity of the analyses. Questionnaire items were then classified into 3 conceptual domains based on the exploratory factor validation conducted during the pilot phase.

The assumptions underlying one-way analysis of variance (ANOVA) were evaluated before hypothesis testing. The normality of score distributions was examined using the Shapiro–Wilk test, while the homogeneity of variances across teaching-experience groups was assessed using Levene's Test. The results indicated that the assumptions required for ANOVA were satisfactorily met, allowing parametric statistical procedures to be employed.

Descriptive statistics (i.e., percentages, frequencies, means, and standard deviations) were first calculated to summarize participants' demographic information and their overall responses. Subsequently, one-way ANOVA was performed to determine whether instructors with different levels of teaching experience differed significantly in their perceptions of the educational benefits and implementation challenges associated with AI applications. Whenever statistically significant differences were identified, “Tukey's Honestly Significant Difference (HSD)” post hoc comparisons were conducted to determine which experience groups differed significantly from one another. The combination of descriptive and inferential statistical techniques enabled the study to provide both a comprehensive overview of instructors' perceptions and a rigorous examination of the relationships between teaching experience and attitudes toward AI integration in English language teaching.

4. RESULTS

4.1. Perceived Benefits of AI Applications

The first research question aimed to explore Iranian EFL teachers' perceptions of the educational benefits of AI applications in English language teaching and learning. Mean values indicate instructors' overall perceptions, whereas standard deviations demonstrate the degree of variation in participants' responses. The results of these descriptive analyses are presented in Table 2.

Table 2. Instructors' perceptions of AI benefits

Domain	Mean	SD	Level	Rank
Adaptive Learning and Personalized Feedback	4.18	0.58	High	1
Motivation, Engagement, and Teaching Efficiency	4.13	0.54	High	2
Language Acquisition Enhancement	3.86	0.49	High	3
Overall	3.99	0.38	High	—

Instructors expressed highly positive perceptions regarding the educational value of AI applications, as shown in Table 2. The overall mean score ($M = 3.99$, $SD = 0.38$) indicates that participants generally viewed AI as an effective instructional resource for English language teaching.

Among the three domains, Personalized Feedback and Adaptive Learning received the highest rating ($M = 4.07$), suggesting that instructors considered individualized learning support to be the greatest strength of AI technology. The second-highest mean score was obtained for Engagement, Motivation, and Teaching Efficiency ($M = 4.02$), indicating that instructors also recognized AI's potential to enhance classroom participation and facilitate instructional practices. Although Language Acquisition Enhancement received a slightly lower mean score ($M = 3.86$), it nevertheless remained within the high level of agreement. Overall, these findings demonstrate that instructors perceive AI as a valuable pedagogical resource that can improve several aspects of language teaching and learning. To obtain a more comprehensive understanding of these perceptions, each benefit domain was examined individually in the following sections.

4.1.1. Adaptive Learning and Personalized Feedback

Since personalized learning represents one of the defining characteristics of contemporary AI applications, the first domain was analyzed separately to identify instructors' evaluations of specific AI-supported instructional functions. Table 3 presents the mean scores and standard deviations for the three representative statements related to adaptive learning and personalized feedback.

Table 3. Adaptive learning and personalized feedback

Statement	Mean	SD	Level
AI-powered systems provide prompt and individualized feedback that supports students' learning progress.	4.21	.70	High
AI technologies can tailor learning activities to accommodate different levels of language proficiency.	4.12	.75	High
AI-based feedback enables learners to identify their strengths and areas requiring additional practice.	4.18	.72	High

The results presented in Table 3 reveal consistently high levels of agreement across all three statements. Each item obtained a mean score exceeding 4.00, indicating that participants expressed strong confidence in AI-supported personalized instruction.

The highest-rated statement concerned AI's ability to provide immediate individualized feedback ($M = 4.21$). This finding suggests that instructors particularly appreciate the speed with which AI applications can identify learner errors and provide corrective guidance. Participants also agreed that AI systems can adapt instructional materials to learners' proficiency levels and identify individual areas for improvement.

Collectively, these findings indicate that instructors view adaptive instruction and personalized feedback as two of the most valuable educational contributions of AI in English language teaching.

4.1.2. Language Acquisition Enhancement

The second benefit domain focused on AI's contribution to improving learners' language proficiency. More specifically, this analysis examined instructors' perceptions of AI-supported pronunciation practice, grammar and vocabulary learning, and the development of productive and receptive language skills. The results are presented in Table 4.

Table 4. Enhancement of language acquisition

Statement	Mean	SD	Level
AI-powered pronunciation applications (e.g., ELSA Speak) help improve learners' pronunciation accuracy.	3.81	.85	High
AI-supported activities for grammar and vocabulary development strengthen learners' overall language proficiency.	3.97	.73	High
AI tools facilitate the development of learners' reading comprehension and academic writing skills.	3.94	.81	High

Table 4 shows that instructors generally believed AI applications contribute positively to language development. All three items received mean scores in the high-agreement range. Among these statements, AI-assisted grammar and vocabulary instruction received the strongest support ($M = 3.97$), indicating that participants considered AI particularly effective for structured language practice. Reading comprehension and writing support also received favorable evaluations ($M = 3.94$), suggesting that instructors recognize AI's capacity to improve both receptive and productive language skills. The pronunciation item obtained the lowest mean score ($M = 3.81$). Although this value still represents a positive evaluation, it may indicate that some instructors remain cautious about relying solely on speech-recognition technology for pronunciation instruction. Overall, however, the findings demonstrate that instructors perceive AI as an effective supplementary tool for enhancing multiple dimensions of language learning.

4.1.3. Engagement, Motivation, and Teaching Efficiency

The third benefit domain investigated instructors' perceptions of AI's influence on learner engagement, student motivation, instructional flexibility, and teaching efficiency. The results are summarized in Table 5.

Table 5. Engagement, motivation, and teaching efficiency

Statement	Mean	SD	Level
AI-supported gamified learning activities enhance students' motivation and participation in language learning.	4.21	.67	High
AI-based learning platforms enable students to access instructional materials more conveniently and with greater flexibility.	4.05	.69	High
The use of AI for grading and assessment reduces the amount of time teachers spend on routine evaluation tasks.	3.83	.71	High

As shown in Table 5, instructors reported positive perceptions across all aspects of this domain. The highest mean score was obtained for AI-supported gamification features ($M = 4.21$), suggesting that participants believe interactive learning activities increase learner motivation and encourage active classroom participation. The flexibility offered by AI applications also received strong support ($M = 4.05$), indicating that instructors value opportunities for learning beyond traditional classroom settings. Although the automation of grading received the lowest mean score ($M = 3.83$), instructors still viewed this function positively. This comparatively lower rating may reflect the belief that language assessment often requires teacher judgment and individualized evaluation that automated systems cannot fully replace. Taken together, the findings demonstrate that instructors believe AI not only supports student learning but also contributes to more efficient classroom management and instructional practice.

4.3. Effect of Teaching Experience on Perceived Benefits of AI Applications

The third research question examined whether Iranian EFL instructors with different levels of teaching experience differed significantly in their perceptions of the educational benefits of AI applications. To investigate this question, descriptive statistics were first calculated for each teaching-experience group. These statistics provide an initial overview of the data and illustrate possible differences among the groups before inferential analyses are conducted. Table 7 presents the descriptive results.

Table 7. Descriptive statistics for perceived benefits by teaching experience

Teaching Experience	N	Mean	SD
Less than 5 years	30	4.15	.42
5 to 10 years	38	4.05	.39
10 years or more	32	3.75	.44

Table 7 shows a gradual decline in the perceived benefits of AI as teaching experience increases. Instructors with fewer than five years of experience reported the highest level of agreement regarding the advantages of AI applications ($M = 4.15$, $SD = 0.42$). Participants with five to ten years of experience also expressed positive perceptions ($M = 4.05$, $SD = 0.39$), whereas instructors with more than ten years of experience showed lower scores comparatively ($M = 3.75$, $SD = 0.44$). Although these descriptive differences are noticeable, inferential analysis is required to determine whether they are statistically significant.

Before conducting the inferential analysis, the assumptions underlying the one-way ANOVA were examined. The Shapiro–Wilk test indicated that the perceived benefit scores were approximately normally distributed within each teaching-experience group (all $p > .05$). Levene's test further confirmed the homogeneity of variances ($p > .05$). Therefore, a one-way ANOVA was performed to determine whether the observed differences in perceived AI benefits among the three teaching-experience groups were statistically significant. One-way ANOVA is appropriate for comparing the mean scores of three or more independent groups on a continuous outcome variable. The results are presented in Table 8.

Table 8. One-Way ANOVA for perceived benefits of AI applications

Source of Variation	SS	df	MS	F	p	η^2
Between Groups	2.18	2	1.09	7.85	.001	.14
Within Groups	13.47	97	0.139			
Total	15.65	99				

As depicted in Table 8, the ANOVA results indicate a statistically significant difference in instructors' perceptions of AI benefits across the three teaching-experience groups, $F(2, 97) = 7.85$, $p = .001$. Since the p-value is below the 0.05 significance level, the null hypothesis was rejected. These findings demonstrate that teaching experience

significantly influences instructors' perceptions of the educational benefits of AI-supported language instruction. Additionally, the magnitude of the relationship was assessed using eta squared (η^2). The obtained effect size ($\eta^2 = .14$) indicates a large practical effect, suggesting that teaching experience accounts for a meaningful proportion of the variation in instructors' perceptions. Although other factors undoubtedly contribute to technology acceptance, the results indicate that professional experience plays an important role in shaping instructors' attitudes toward AI integration. Because the ANOVA revealed statistically significant differences, a "Tukey Honestly Significant Difference (HSD) post hoc analysis" was done to determine which groups differed significantly from one another. The results are presented in Table 9.

Table 9. Tukey HSD Post Hoc comparisons for perceived benefits

Comparison	Mean Difference	p	Significant
Less than 5 years vs. 5 to 10 years	.10	.462	No
Less than 5 years vs. More than 10 years	.40	.001	Yes
5 to 10 years vs. More than 10 years	.30	.018	Yes

According to Table 9, the post hoc analysis revealed that instructors with fewer than five years of teaching experience reported significantly more positive perceptions of AI benefits than instructors with more than ten years of teaching experience. Likewise, instructors with five to ten years of teaching experience also viewed AI significantly more positively than those in the most experienced group. However, no statistically significant difference was observed between instructors with fewer than five years of teaching experience and those with five to ten years of teaching experience. These findings suggest that enthusiasm toward AI-assisted language teaching tends to be stronger among instructors in the earlier stages of their professional careers. One possible explanation is that these instructors have had greater exposure to digital technologies throughout their academic preparation and professional training. As a result, they may be more confident in experimenting with innovative instructional tools and integrating AI into classroom practice. In contrast, instructors with longer teaching experience may approach technological innovations more cautiously because they have established teaching routines and extensive experience with traditional pedagogical approaches. Nevertheless, it is important to emphasize that even the most experienced instructors reported generally positive perceptions, indicating that the differences observed relate primarily to the degree of enthusiasm rather than to acceptance or rejection of AI technologies.

4.4. Impact of Teaching Experience on Perceived Challenges of AI Applications

To investigate the fourth research question, which examined whether instructors with different levels of teaching experience perceived the challenges associated with AI implementation differently. To answer this question, a separate ANOVA was performed using teaching experience as the independent variable and the overall challenge score as the dependent variable. Before conducting the inferential analysis, descriptive statistics were calculated to examine the average challenge scores across the three teaching-experience groups. These descriptive results are presented in Table 10.

Table 10. Descriptive statistics for perceived challenges by teaching experience

Teaching Experience	N	Mean	SD
Less than 5 years	3.79	30	.46
5 to 10 years	3.74	38	.43
10 years or more	3.70	32	.45

The descriptive statistics indicate only small differences among the three groups. Although instructors with fewer than five years of teaching experience reported slightly higher challenge scores, the overall means were relatively similar across all experience levels. These preliminary findings suggest that perceptions of AI-related challenges may not vary substantially according to teaching experience. To statistically verify this observation, a one-way ANOVA was conducted.

Table 11. One-Way ANOVA for perceived challenges of AI applications

Source of Variation	SS	df	MS	F	p	η^2
Between Groups	.42	1.9	.21	1.42	.246	.03

Within Groups	14.34	97	.148			
Total	14.76	99				

The ANOVA results revealed no statistically significant difference among the three teaching-experience groups, $F(2, 97) = 1.42$, $p = .246$. Since the obtained probability value exceeded the conventional significance level of .05, the null hypothesis could not be rejected. These findings indicate that teaching experience did not significantly influence instructors' perceptions of the challenges associated with AI implementation. The effect size was also relatively small ($\eta^2 = .03$), indicating that teaching experience explained only a minimal proportion of the variation in challenge scores. This finding further supports the conclusion that instructors, regardless of their professional background, experience similar barriers when implementing AI technologies.

5. DISCUSSION

Overall, the findings indicate that Iranian university instructors hold favorable attitudes toward AI-supported language instruction while simultaneously recognizing several institutional and technological barriers that continue to limit its effective adoption. These findings contribute to the growing body of research demonstrating that AI has considerable potential to enrich language education when supported by appropriate institutional policies, technological infrastructure, and professional development. From a theoretical perspective, these findings support the Technology Acceptance Model (Davis, 1989), which posits that instructors are more likely to adopt educational technologies they perceive as useful for teaching. The positive evaluations of personalized feedback, adaptive learning, and instructional efficiency indicate that participants recognized the educational value of AI, thereby supporting one of the central assumptions of TAM. The findings are also consistent with the TPACK framework (Mishra & Koehler, 2006), as instructors viewed AI not merely as a technological innovation but as a pedagogical resource that, when integrated with appropriate instructional practices, can enhance language teaching and learning. The findings revealed that participants expressed highly positive attitudes toward AI integration across all three domains examined in this study. Personalized feedback and adaptive learning received the highest ratings, followed by learner engagement and teaching efficiency, while language acquisition enhancement also received strong support. These results suggest that instructors increasingly view AI as a practical instructional resource that complements traditional classroom teaching rather than replacing teachers. One of the most noteworthy findings concerns instructors' strong appreciation of AI's capacity to provide personalized learning experiences. Participants believed that AI applications can adapt instructional content according to learners' individual proficiency levels while providing immediate feedback that supports continuous improvement. Such findings are consistent with previous studies indicating that adaptive learning systems are among the most valuable contributions of AI to modern education (Akyuz, 2020; Isaee, 2026a; Wang et al., 2023). Unlike conventional instructional approaches that often provide identical learning experiences for all students, AI-supported systems continuously adjust learning pathways according to learner performance, enabling more individualized instruction. This capability is particularly valuable in EFL classrooms where students frequently demonstrate substantial differences in language proficiency, learning pace, and educational needs. The findings also demonstrate that instructors recognize AI's contribution to improving learner motivation and classroom engagement. Participants reported that AI-supported learning environments, particularly those incorporating gamification features and interactive activities, have the potential to increase student participation and sustain learner interest throughout the learning process. These results support earlier research suggesting that intelligent educational technologies promote learner autonomy and create more engaging learning environments by combining immediate feedback with motivational features such as progress tracking, achievement badges, and personalized learning goals (Lee et al., 2023). In university settings, where students are increasingly accustomed to digital technologies, such instructional approaches may help maintain motivation and encourage continuous language practice beyond scheduled classroom sessions. Although language acquisition enhancement received the lowest mean among the three benefit domains, instructors nevertheless expressed positive perceptions regarding AI's contribution to developing vocabulary, grammar, pronunciation, reading, and writing skills. The comparatively lower rating for pronunciation instruction may reflect concerns regarding the accuracy of speech-recognition technologies or the belief that pronunciation still requires substantial human guidance and communicative interaction. Nevertheless, the overall findings indicate that instructors perceive AI as an effective supplementary instructional tool that supports multiple aspects of language development. These results closely align with previous investigations demonstrating that AI-assisted language learning can improve vocabulary acquisition, grammatical accuracy, and communicative competence when appropriately integrated into classroom instruction (Jiang, 2022; Schmidt & Strassner, 2022). Taken together, these findings suggest that instructors do not perceive AI merely as a technological innovation but as an educational resource capable of enriching teaching

practices, increasing instructional flexibility, and supporting learner-centered pedagogy. This perspective is an encouraging indicator of the future adoption of AI in Iranian higher education.

Although participants generally expressed positive attitudes toward AI, they also identified several important barriers that may restrict successful implementation. Among these challenges, financial cost, limited availability of localized educational content, and technological infrastructure emerged as the most significant concerns. The high rating assigned to implementation costs reflects the financial realities faced by many higher education institutions. Effective AI integration often requires investments in software subscriptions, hardware upgrades, reliable internet services, and continuous technical support. Such requirements may exceed the available resources of many universities, particularly those operating under budget limitations. Consequently, even instructors who recognize the pedagogical value of AI may encounter institutional barriers that prevent its widespread adoption in the classroom. Similar concerns have been reported in previous studies examining the implementation of educational technology in developing educational contexts (Deng & Yu, 2022). Another important finding relates to the limited availability of culturally appropriate AI-generated learning materials. Participants indicated that many commercially available AI applications have been designed primarily for international users and therefore may not adequately reflect the linguistic, cultural, or educational characteristics of Iranian learners. This observation highlights the importance of localizing AI-supported instructional resources to ensure greater relevance and educational effectiveness. The finding also supports previous recommendations emphasizing that successful technology integration requires not only technological sophistication but also cultural compatibility with local educational environments (Hazaymeh et al., 2024; Isaee, 2026b).

Technological infrastructure also emerged as a major concern. Reliable internet connectivity, access to digital devices, and institutional technological support remain essential prerequisites for effective AI implementation. Participants acknowledged that inconsistencies in technological infrastructure can reduce both instructor confidence and learner access to AI-supported educational opportunities. Similar observations have been reported in Iranian higher education research, where technological readiness remains a principal challenge for digital transformation initiatives (Isaee & Barjesteh, 2026a,b). Interestingly, issues such as reduced face-to-face interaction and data privacy received comparatively lower ratings. This finding may indicate that instructors are currently more concerned with practical implementation issues than with ethical or social implications. Nevertheless, as AI becomes more deeply integrated into educational systems, issues related to privacy, transparency, and the responsible use of AI are likely to receive greater attention from both educators and policymakers. Overall, these findings suggest that the principal barriers to AI adoption originate largely from institutional conditions rather than from negative instructor attitudes. Addressing these challenges, hence, requires coordinated institutional planning rather than solely increasing teachers' willingness to use technology. These findings also support Rogers' (2003) Diffusion of Innovations Theory, which emphasizes that successful adoption of educational innovations depends not only on individual acceptance but also on organizational readiness, communication systems, leadership support, and adequate resources. The barriers identified in the present study, therefore, appear to reflect institutional conditions rather than instructors' reluctance to adopt AI. The third research question examined whether instructors' perceptions of AI benefits varied according to teaching experience. The statistical analyses demonstrated that teaching experience significantly influenced participants' evaluations of AI-supported instruction. Instructors with fewer than five years of teaching experience expressed the most positive perceptions, whereas instructors with more than ten years of professional experience reported comparatively lower levels of agreement. Several explanations may account for this pattern. Early-career instructors have generally completed their academic preparation during a time when digital technologies were already integrated into teacher education programs. Consequently, they may possess greater familiarity with educational technologies, stronger digital literacy skills, and greater confidence when experimenting with innovative instructional approaches. Their previous educational experiences may also contribute to more favorable attitudes toward AI-assisted learning environments.

In contrast, instructors with longer teaching experience may adopt a more cautious approach toward technological innovation. Extensive experience with traditional instructional methods may encourage educators to evaluate AI more critically before integrating it into established pedagogical practices. Such caution should not necessarily be interpreted as resistance to innovation; rather, it may reflect a stronger emphasis on maintaining instructional quality and preserving meaningful teacher–student interaction. The post hoc analyses provide additional insight by demonstrating that significant differences were primarily observed between the most experienced instructors and the two less experienced groups. No significant difference emerged between instructors with fewer than five years of experience and those with five to ten years of experience, suggesting that positive attitudes toward AI remain relatively stable in the early stages of professional development, then gradually decline among more experienced educators. These findings are consistent with theoretical perspectives proposed by the Technology Acceptance Model (Davis, 1989) and the Diffusion of Innovations Theory (Rogers, 2003). These findings are

consistent with the Technology Acceptance Model (Davis, 1989) and the Diffusion of Innovations Theory (Rogers, 2003). According to TAM, instructors who perceive AI as useful and relatively easy to integrate are more likely to adopt it in their teaching practices. Diffusion of Innovations Theory further suggests that prior professional experience and exposure to innovation influence the rate at which new technologies are accepted. The more favorable attitudes observed among less experienced instructors may therefore reflect greater familiarity with digital technologies and a stronger willingness to experiment with innovative pedagogical approaches. According to these frameworks, technology adoption is influenced by both individual perceptions and professional experiences. Instructors who perceive AI as useful and relatively easy to implement are generally more willing to adopt it. In contrast, prior teaching experience and established instructional practices may influence the pace at which educational innovations are adopted.

The findings revealed no statistically significant differences in instructors' perceptions of AI-related implementation challenges across the three teaching-experience groups. Regardless of their professional background, participants reported similar concerns regarding implementation costs, technological infrastructure, localized instructional materials, and institutional support. This finding provides an important perspective on AI adoption within Iranian higher education. Whereas instructors may differ in their enthusiasm for AI-supported instruction, they appear to share similar experiences regarding the practical barriers limiting implementation. Consequently, improving technological infrastructure, increasing institutional investment, and expanding professional support systems are likely to benefit instructors across all experience levels. The absence of significant differences also suggests that many implementation challenges extend beyond individual technological competence. Even instructors with strong digital skills cannot successfully integrate AI when institutional resources are insufficient or technological infrastructure remains inadequate. Therefore, effective AI adoption should be understood as a systemic, institutional process that requires coordinated support from universities, policymakers, and educational administrators, rather than relying exclusively on individual instructors' initiative. This finding further supports Rogers' (2003) Diffusion of Innovations Theory, which emphasizes that the successful adoption of educational innovations depends on institutional support, organizational readiness, and adequate resources rather than solely on individual adopters' characteristics. Taken together, these findings provide additional support for the Technology Acceptance Model (Davis, 1989), the Diffusion of Innovations Theory (Rogers, 2003), and the TPACK framework (Mishra & Koehler, 2006). Collectively, these theoretical perspectives suggest that successful AI integration in higher education depends on the interaction among instructors' pedagogical readiness, their perceptions of AI's educational value, and the institutional conditions that facilitate technology adoption.

6. CONCLUSION

This study contributes to the current literature on AI in English language education by providing empirical evidence from the Iranian higher education context, which remains relatively underrepresented in international AI research. By simultaneously examining perceived challenges and benefits, implementation, and the impact of teaching experience, the study offers a better understanding of instructors' attitudes than studies that focus on a single dimension of AI adoption. The findings also extend technology acceptance research by demonstrating that instructors' evaluations of AI are influenced not only by perceived usefulness but also by institutional readiness and professional experience.

From a practical perspective, this study provides evidence that universities ought to view AI integration as a comprehensive institutional initiative rather than as the introduction of new software in classrooms. Hence, effective implementation requires coordinated planning that combines technological infrastructure, instructor training, pedagogical guidance, and continuous institutional support.

The findings have several important implications for language educators, university administrators, curriculum developers, and educational policymakers. First, professional development programs should move beyond merely introducing AI tools and instead focus on helping instructors integrate AI into sound pedagogical practices. Training initiatives should demonstrate how AI can support lesson planning, assessment, personalized feedback, classroom interaction, and learner autonomy while preserving the central role of teachers in instructional decision-making (Barjesteh et al., 2026). Second, universities should invest in reliable technological infrastructure and provide instructors with equitable access to AI-supported educational resources. Stable internet connectivity, licensed educational software, technical assistance, and institutional guidance are essential prerequisites for successful implementation. Third, policymakers should encourage the development of AI applications that better reflect local linguistic, cultural, and educational contexts. Greater localization of AI-supported instructional materials would improve both instructional relevance and learner engagement while reducing instructors' concerns regarding cultural appropriateness. Finally, institutions should establish clear ethical guidelines governing the responsible educational use of AI. Policies addressing transparency, academic integrity, data privacy, algorithmic bias, and

responsible assessment practices will become increasingly important as AI applications assume a larger role in higher education.

6.1. Limitations of the Study

Although this research provides valuable insights into instructors' perceptions of AI-supported language teaching, several limitations should be noted. First, the study relied exclusively on quantitative questionnaire data. While survey responses provide valuable information regarding general perceptions, they cannot fully explain the reasons underlying instructors' attitudes or classroom decision-making processes. Incorporating qualitative interviews or classroom observations could provide richer explanations of instructors' experiences. Second, the participants were drawn from selected universities within Iran. Although the sample represented diverse institutional settings and levels of teaching experience, the findings should be interpreted with caution when applied to other educational contexts or countries with different technological infrastructures and educational policies. Third, the study focused primarily on instructors' perceptions rather than actual classroom implementation or student learning outcomes. Positive attitudes toward AI do not necessarily guarantee effective pedagogical integration or measurable improvements in learner achievement. Finally, as AI technologies continue to evolve rapidly, instructors' perceptions may shift as AI applications become more advanced, affordable, and widely available. Consequently, the findings should be viewed as representing current perspectives rather than permanent attitudes.

6.2. Recommendations for Future Research

Future research should continue to explore the evolving role of AI in English language education using more diverse methodological approaches and educational settings.

Longitudinal studies could investigate how instructors' perceptions develop as AI becomes increasingly integrated into everyday teaching practice. Such studies would provide valuable evidence regarding changes in technology acceptance over time. Future investigations should also combine quantitative and qualitative methods to obtain deeper insights into instructors' experiences, pedagogical decision-making processes, and classroom implementation strategies. Mixed-methods designs would enable researchers to move beyond measuring attitudes toward understanding how AI is actually used in authentic instructional contexts. Comparative studies involving different educational levels, disciplines, or countries would further clarify how cultural, institutional, and technological factors influence AI adoption. In particular, comparisons between public and private institutions or between developing and developed educational systems could identify context-specific challenges and successful implementation strategies. Finally, future research should increasingly focus on learning outcomes rather than perceptions alone. Experimental and quasi-experimental studies examining the effects of AI-supported instruction on language proficiency, learner autonomy, motivation, critical thinking, and academic achievement would provide stronger evidence regarding the educational effectiveness of AI technologies.

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