


“The Double-Edged Sword:” AI Integration in English Language Education from the Perspectives of Iranian EFL Instructors

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ENG Abstract: The integration of artificial intelligence (AI) in English language education has generated significant interest and anticipation due to its potential to transform teaching methodologies and enhance learning outcomes. With this in mind, the present study explored the perspectives of 452 Iranian EFL instructors on AI integration in English language education, focusing on efficiency, social and emotional development, engagement, feedback, critical thinking, and the role of teachers. The participants' thoughts, opinions, and concerns regarding advantages, disadvantages and challenges were gathered through an online questionnaire that included both closed and open-ended questions. This was followed by semi-structured interview sessions with a cohort of EFL instructors, facilitating the collection of both qualitative and quantitative data. The results revealed predominantly positive perceptions regarding AI technology such as ChatGPT in English language education. However, concerns regarding AI tools' capabilities and limitations were expressed. EFL instructors held neutral attitudes towards the impact of AI tools such as ChatGPT on students' social-emotional development and high order skills. The results further highlighted a spectrum of opinions on the merits (e.g., fostering collaboration and community building), drawbacks (e.g., insufficient consideration of sociolinguistic nuances and prominence of Americentric data), and potential challenges (e.g., apprehension of change and precise prompt formulation) associated with AI integration. The study concluded by discussing the implications of these findings for English language education in Iran and offering recommendations for the effective and ethical integration of AI tools in EFL classrooms.

Keywords: AI integration; EFL instructors; Perception; English language education

ES “La Espada de Doble Filo:” La Integración de la IA en la Enseñanza del Inglés desde las Perspectivas de los Instructores de EFL Iraníes

ES Resumen: La integración de la inteligencia artificial (IA) en la enseñanza del inglés ha generado un gran interés y expectativa debido a su potencial para transformar las metodologías de enseñanza y mejorar los resultados del aprendizaje. En este contexto, el presente estudio exploró las perspectivas de 452 profesores de inglés como lengua extranjera (EFL) iraníes sobre la integración de la IA en la enseñanza del inglés, centrándose en la eficiencia, el desarrollo socioemocional, la participación, la retroalimentación, el pensamiento crítico y el papel de los profesores. Los pensamientos, opiniones y preocupaciones de los participantes sobre las ventajas, desventajas y desafíos se recopilaban a través de un cuestionario en línea que incluía preguntas cerradas y abiertas. A continuación, se realizaron entrevistas semiestructuradas con un grupo de profesores de EFL, lo que facilitó la recopilación de datos tanto cualitativos como cuantitativos. Los resultados revelaron percepciones predominantemente positivas con respecto a la tecnología de IA, como ChatGPT, en la enseñanza del inglés. Sin embargo, se expresaron preocupaciones sobre las capacidades y limitaciones de las herramientas de IA. Los profesores de EFL mantuvieron actitudes neutras hacia el impacto de las herramientas de IA como ChatGPT en el desarrollo socioemocional y las habilidades de orden superior de los estudiantes. Los resultados también destacaron un espectro de opiniones sobre los méritos (por ejemplo, fomentar la colaboración y la construcción de la comunidad), los inconvenientes (por ejemplo, la consideración insuficiente de los matices sociolingüísticos y la prominencia de los datos americéuticos) y los posibles desafíos (por ejemplo, la comprensión al cambio y la formulación de indicaciones) asociados a la integración de la IA. El estudio concluyó discutiendo las implicaciones de estos hallazgos para la enseñanza del inglés en Irán y ofreciendo recomendaciones para la integración efectiva y ética de las herramientas de IA en las aulas de EFL.

Palabras clave: Integración de la IA; Instructores de EFL; Percepción; Enseñanza del inglés

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1. Introduction

The emergence of artificial intelligence (AI) in English language education has sparked immense excitement and anticipation regarding its potential to revolutionize teaching practices and enrich learning experiences. With continuous advancements in technology, AI tools (e.g., ChatGPT) become a promising tool for delivering personalized and adaptive learning experiences. However, the successful integration of AI tools such as ChatGPT in education is contingent upon the perceptions, attitudes, and experiences of English as a foreign language (EFL) instructors. These instructors hold a vital position in AI-based language education as they guide lessons and facilitate the learning process (Kim and Kim 2022; Seufert et al. 2020). Consequently, readiness and willingness to embrace AI technology are considered essential prerequisites for its effective implementation. Therefore, it is imperative to gain a comprehensive understanding of EFL instructors' viewpoints, experiences, and expectations to adopt AI tools in educational settings (Woodruff et al. 2023).

Recently, several studies have emphasized the significance of exploring these factors to ensure the incorporation of AI tools in the field of education (Celik et al. 2022; Holmes et al. 2019; McGrath et al. 2023; Seufert et al. 2020). However, there is a lack of research focusing on AI-based education from EFL instructors' point of view (Celik et al. 2022; Huang et al. 2023; Mohamed 2023), resulting in a knowledge gap concerning pedagogical skills in utilizing AI tools and their roles in AI development. This knowledge gap is particularly relevant in the context of English language education in Iran, where traditional teaching approaches face challenges such as limited access to qualified instructors, inadequate Internet connectivity, large class sizes, and non-standardized curricula (Iranmehr and Davari 2018). To address these challenges and explore innovative approaches to English language education in Iran, such as AI integration, this study aimed to investigate Iranian EFL instructors' perceptions of the integration of AI tools into their teaching practices. By examining the perspectives of Iranian EFL instructors, this study sought to enhance our understanding of AI integration in English language education and provide valuable insights for the development of AI-based educational practices, particularly considering the ongoing evolution of the field of AI-based instruction (Celik et al. 2022). This research not only offers insights into the challenges and opportunities of AI integration, but also serves as a resource for informing policy decisions and facilitating the design of AI-powered language instruction programs. Additionally, by taking into account the attitudes of instructors which have been identified as key determinants (McGrath et al. 2023; Scherer and Teo 2019), educational institutions can develop strategies for successful AI integration, ultimately enhancing instruction quality and improving learning outcomes. This research further contributes to the future of EFL instruction and addresses the challenges and opportunities for AI integration in higher education. Accordingly, the following research questions are formulated.

1. How do Iranian EFL instructors perceive the integration of AI tools (e.g., ChatGPT) in English language education?
2. What are the potential advantages, disadvantages, and challenges identified by Iranian EFL instructors regarding AI integration in English language education?

2. Literature Review

2.1. Educational Use of Artificial Intelligence and the Roles of Instructors in AI-based Education

The educational use of AI tools is revolutionizing the way English language learners learn and instructors teach. AI technologies, such as machine learning algorithms, natural language processing, and data analytics, are being utilized to enhance various aspects of education. One significant benefit of AI is its ability to analyze vast amounts of data and personalize learning experiences for individual learners. By identifying their strengths and weaknesses, AI can adapt instructional content to meet the unique needs of each student. This personalized learning approach can significantly improve learning outcomes and help students achieve their full potential (McGrath et al. 2023).

AI can also automate administrative tasks, freeing up instructors' time to focus more on personalized instruction and learner engagement (Woodruff et al. 2023). This automation allows instructors to provide real-time feedback to students, which is crucial for improving their skills and knowledge. AI can further offer

immediate feedback on grammar, pronunciation, and writing skills, providing learners with valuable insights into their performance (Kohnke 2023; Qasem et al. 2023).

More importantly, the integration of AI technologies in classrooms is reshaping the roles of instructors in education. While AI tools can automate tasks and offer personalized learning experiences, instructors remain essential in guiding and facilitating student learning. Their multifaceted roles are crucial in ensuring effective learning experiences for students. Instructors are evolving into facilitators, mentors, and curators of knowledge in AI-based education. They provide guidance on how to use AI tools effectively, help students interpret data insights, and offer emotional support when needed. Overall, the educational use of AI tools holds great potential for improving learning outcomes and creating more effective and engaging classrooms. By leveraging AI technologies, EFL instructors can provide personalized instruction, automate administrative tasks, and offer real-time feedback to students (Hew et al. 2023). This integration of AI tools and human expertise ensures that education remains a collaborative and enriching experience for learners.

2.2. Instructors' Perception of Using Artificial Intelligence Technologies

The perceptions of instructors play a crucial role in promoting positive outcomes in higher education. They serve as agents of change, facilitating the adoption of new practices and approaches that align with institutional goals (McGrath et al. 2023). Additionally, instructors' perceptions can influence how they interpret and respond to policies, which can impact their effectiveness in implementing them. Therefore, understanding and addressing their perceptions is essential for effective policy implementation in higher education.

Recently, the increasing integration of AI tools in education has generated significant interest in understanding how instructors perceive and interact with this technology. Some instructors may view AI tools as a threat to their roles and hold negative attitudes towards technology, leading to reluctance to adopt them (Istencic et al. 2021; Kaban and Ergul 2020). This reluctance to adopt AI tools in education can stem from various factors. Firstly, instructors may experience anxiety and have negative past experiences with technology adoption (Huang et al. 2023). Additionally, a lack of proficiency in information communication technology (Pokrivcakova 2019) and limited human interaction (Mohamed 2023) contribute to this resistance.

Moreover, low AI literacy (Luckin et al. 2022) and the influence of media and science fiction portrayals of AI (Kim and Kim 2020) can further hinder the implementation of AI. Finally, a preference for traditional teaching materials and methods also acts as a barrier to embracing AI (Hébert et al. 2021). On the other hand, recent studies have unveiled the potential benefits of AI tools in education. For example, Mohamed (2023) explored the perceptions of EFL faculty members on the efficacy of ChatGPT in supporting English language learning. In-depth interviews were conducted with the faculty members as the primary data collection method. The results showed varying opinions among faculty members. While some acknowledged the usefulness of the ChatGPT in delivering prompt and accurate responses to questions, others expressed concerns about its impact on critical thinking and research skills, as well as the potential reinforcement of biases or misinformation. Overall, the ChatGPT was seen as a valuable tool for complementing traditional EFL teaching methods. However, further empirical research is needed to evaluate its effectiveness in enhancing EFL students' English language proficiency.

Qasem et al. (2023) also reported that faculty members believed that chatbots can be a beneficial tool for improving students' language skills and encouraging active learning. Similarly, Kohnke (2023) found that faculty members believe that chatbots can offer personalized feedback to students, aiding in the improvement of their writing abilities. Additionally, Hew et al. (2023) revealed that faculty members appreciate the convenience and accessibility of chatbots in delivering immediate feedback to students, which also help to lessen their workload and save time. However, concerns have been raised by some faculty members regarding the effectiveness of chatbots in teaching English. Specifically, they questioned the accuracy of the language generated by chatbots and their ability to comprehend the intricacies of human language (Sun and Hoelscher 2023; Tlili et al. 2023).

Overall, instructors' perceptions of AI in education systems can vary greatly depending on several factors, such as pedagogical beliefs, teaching experience, exposure to educational technology, and perceived effectiveness (Kim and Kim 2022). These factors shape instructors' attitudes towards adopting new educational technology. However, there is limited research on EFL instructors' perspectives and experiences with AI tools in pedagogy, particularly in the context of Iran. Understanding these viewpoints is crucial for effective AI adoption and can offer insights into challenges and opportunities in integrating AI tools in EFL classrooms.

3. Method

3.1. Research Design

The present study utilized a mixed-methods research design, incorporating both quantitative and qualitative approaches. An online survey questionnaire was employed, featuring a combination of closed and open-ended questions, and distributed to EFL instructors. Additionally, semi-structured interviews were conducted with a subset of EFL instructors to gain deeper insights into their experiences. These approaches provided a comprehensive understanding of the topic.

3.2. Context and Participants

The present study was conducted in Iran, a country with a substantial higher education landscape, comprising 2569 registered universities (ISNA 2018)¹. In the Iranian education system, English language education typically commences at the secondary school level, around the 7th grade, and continues into university, where it is a requirement for various programs and courses. The oversight of the language education system falls under the purview of the Ministry of Education and Ministry of Science, Research and Technology.

It is important to note that due to prevailing political issues, access to the AI language models such as ChatGPT is currently subject to certain international restrictions and regulations for Iranian individuals. Despite these access restrictions, many Iranian instructors have shown a growing interest in applying AI tools in various aspects of their educational purposes (e.g., lesson planning and text generation). However, Iranian users can explore alternative options such as freely accessible online resources² or virtual private networks to overcome these limitations. This has provided a window of opportunity to examine the potential benefits and drawbacks of employing AI-powered chatbots for language education in the Iranian context.

The focus of the current study was on the use of AI-powered chatbots, with a specific emphasis on the language model ChatGPT, in the domain of language education. ChatGPT is a large language model developed by OpenAI, capable of engaging in natural language conversations, answering questions, and assisting with a variety of language-related tasks.

The participants of this study were EFL instructors who were actively teaching English at the time of data collection. A convenience sampling method was employed, resulting in the participation of 452 EFL instructors. While convenience sampling is a widely used technique in educational research due to its practical advantages (e.g., feasibility and accessibility), it is important to acknowledge its potential limitations. To address these limitations, the researcher utilized social media platforms, such as *Telegram*, *EITAA*, and *WhatsApp*, to recruit participants from diverse geographical regions and varied educational institutions. This approach aligns with the researcher’s aim to obtain a more representative sample, as the use of these widely adopted communication channels enabled the researcher to tap into the existing networks of the target population of EFL instructors.

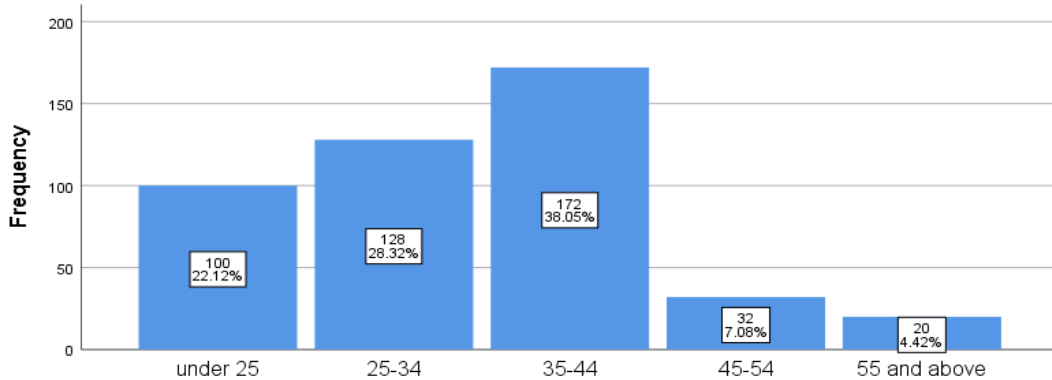
Among the participants, 64.6% were males and 35.4% were females, with diverse academic backgrounds, including TESOL/TEFL (61.1%), English Literature (24.8%), Translation Studies (8.8%), and Linguistics (5.3%), as detailed in Table 1.

Table 1. Demographics of the Participants

Educational Level	Percent	Gender	Academic Field	Percent	Years of English Teaching Experience
BA Holders	26.8%	Male Female 64.6% 35.4%	TESOL/TEFL	61.1%	11.11 (SD=7.74)
MA Holders	39.6%		English Literature	24.8%	
PhD Holders	33.6%		Translation Studies	8.8%	
		Linguistics	5.3%		

On average, the participants had 11.11 (SD=7.74) years of English teaching experience and their native language was Persian. Additionally, Table 2 shows the age distribution of the participants, with 38.1% falling within the 35-44 age range, 28.32% falling between 25-34, 22.1% under 25, 7.1% between 44-54, and only 4.4% aged 55 and above.

Table 2. The Age Distribution of the Participants



Regarding the frequency of AI/ChatGPT technology usage, 32.7% of individuals reported using

¹ <https://www.isna.ir/news/97030804268/> 30-05-2018.

² <https://deepai.org/chat>, <https://ai.ci/?chat=1>, <https://deepai.org/chat> and *Telegram* bots.

it occasionally, while 31.6% reported rare usage. Furthermore, 14.4% of participants mentioned using AI/ChatGPT frequently, while 13.9% stated that they never used it. However, only 7.3% reported consistent usage, as indicated in Figure 1.

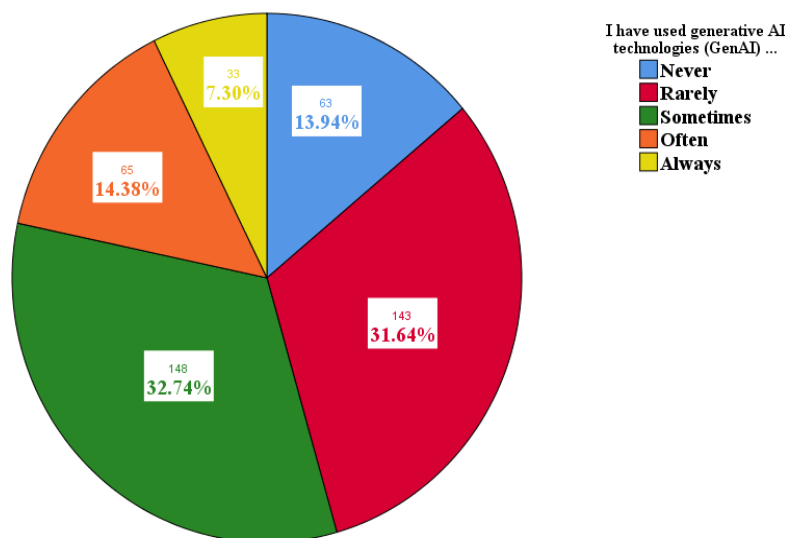


Figure 1. The Frequency of AI Technology Usage

3.3. Study Instrument

In the present study, two research instruments including an online questionnaire and a semi-structured interview were developed and utilized to gather data.

3.4. Developing and Piloting On-line Questionnaire

To develop an online questionnaire for the present study, the researcher followed a rigorous series of steps and procedures to ensure the psychometric evaluation process was thorough and robust. Firstly, the researcher conducted a comprehensive review of recent empirical studies related to the research topic to establish the standard criteria for creating a valid and reliable online questionnaire. This review identified approximately 27 potential concepts relevant to the research topic, which were drawn from four recent studies (i.e., Celik et al. 2022; Kim and Kim 2022; Kostka and Toncelli 2023; McGrath et al. 2023). These concepts formed the initial "item pool" for the questionnaire development (Dörnyei and Taguchi 2010).

To refine the item pool and benefit from expert perspectives, the researcher convened a panel of five subject matter experts. The panel consisted of three faculty members with over 10 years of experience in the field, as well as two researchers with knowledge of AI technologies and their applications in language education. The expert panel reviewed potential items and provided feedback to enhance the quality and relevance of the instrument. Based on the feedback, suggestions, and comments from the expert panel, revisions were made. Irrelevant or vague items were eliminated, resulting in a final questionnaire consisting of 15 items.

To further validate the questionnaire, four additional experts were invited to evaluate it for face and content validity. Face validity pertains to the degree of familiarity associated with our instrument and the ease with which we can persuade others of its content validity while the content validity evaluation is concerned with the extent to which the items represent the concept of phenomenon it is intended to measure (Mackey and Gass 2022). This multi-faceted validation process helped to ensure the overall quality and appropriateness of the data collection instrument.

To strengthen the reliability, validity and practicability of the questionnaire, the researcher also conducted a pilot study as a crucial step before the main data collection (Cohen et al. 2018). This pilot phase involved a subset of 10 EFL instructors who closely resembled the target population of the study. During the pilot phase, the participants were asked to complete the questionnaire and provide feedback on the clarity and suitability of the content. Their explanations of responses helped identify any discrepancies between the questions' intelligibility and the respondents' understanding. This iterative process refined the questionnaire, ensuring clear, unambiguous items aligned with the study's objectives.

The final version of the questionnaire was divided into three main sections, as shown in Figure 2. The first section focused on gathering demographic information, including gender, age, teaching experience, academic level, frequency of using AI/ChatGPT, and obtaining consent while the second section explored perceptions of the use of AI/ChatGPT in teaching and learning, covering various aspects of AI/ChatGPT in English language education. These aspects included its impact on efficiency and productivity in education, potential negative effects on social-emotional development, opportunities for interactive and communicative language practice, professional development and training for teachers, the potential threat to the role of

English teachers, and the digital divide in access to technology. Additionally, the third section consisted of open-ended questions to gather qualitative input on the potential advantages, disadvantages, and challenges of EFL instructors in relation to the use of AI integration in English language education; these questions provided detailed responses and elaborated on their opinions in this context.

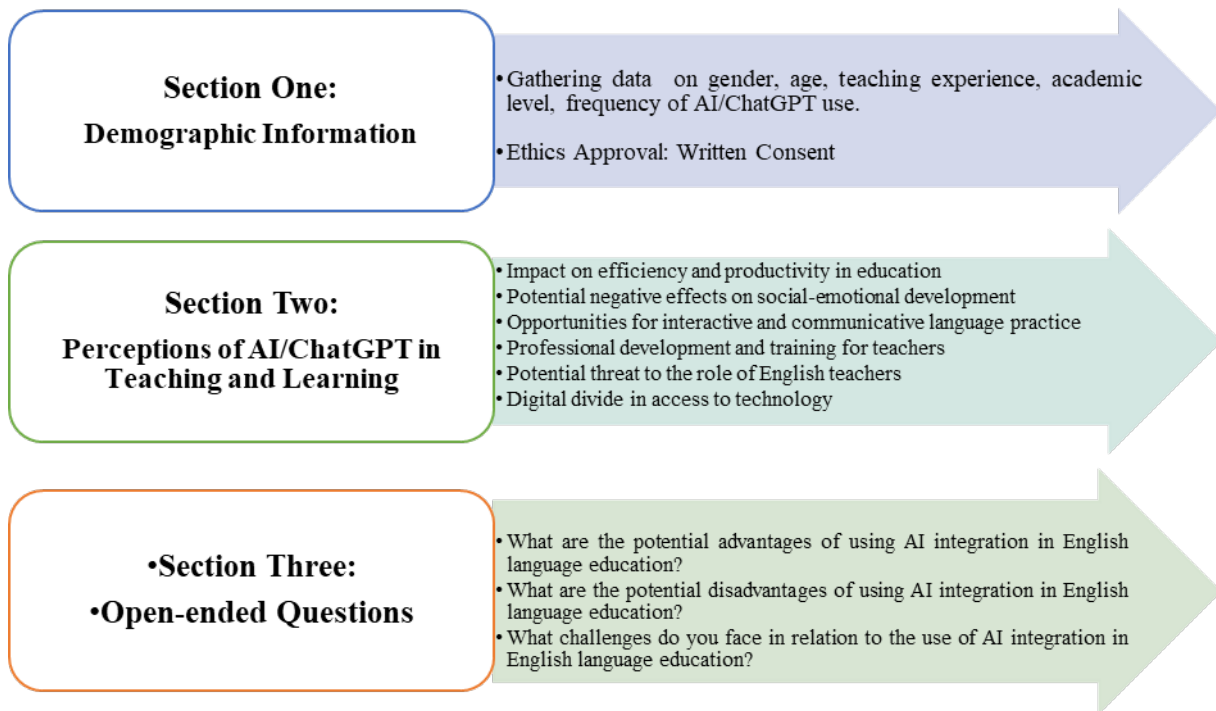


Figure 2. Classification of the Questionnaire

The inclusion of 15 Likert scale questions and three open-ended questions, offers multiple methodological advantages. The closed-ended Likert-scale items typically enable quantitative analysis and comparison, providing nuanced feedback that can be easily quantified and compared across participants. This approach promotes a greater consistency in measurement, potentially leading to enhanced reliability (Mackey and Gass 2022). Concurrently, the open-ended questions offered a window of opportunity for respondents to elaborate on their thoughts and opinions without the constraints of pre-set categories of response, thereby generating rich, honest, and candid responses that are “hallmarks of valid qualitative data” (Cohen et al. 2018, 475). The synergistic integration of quantitative and qualitative approaches not only enhances the depth and validity of the findings (Krosnick 2018) but also allows for the identification of unanticipated issues, insightful data, and emergent themes that may not be captured by pre-defined response options of the findings (Cohen et al. 2018; Mackey and Gass 2022). Furthermore, the online questionnaire demonstrated a relatively high level of internal consistency, with a Cronbach’s alpha coefficient of 0.84. This indicates that the questionnaire items were highly correlated, suggesting that reliable and consistent measurements were obtained from the questionnaires.

3.5. Interview

In order to obtain more in-depth data, semi-structured interviews were conducted to explore the participants’ thoughts, beliefs, and feelings concerning the topic of interest. This approach is used to encourage participants to expand on the discussed issues in an exploratory manner (Dörnyei 2007). Seven semi-structured interview questions drawn from Mohamed (2023) were used to facilitate this process.

3.6. Procedure

To gather the data for the study, an online questionnaire was created using Google Forms. The questionnaire link, along with a brief explanation of the objectives of the study, was shared with EFL instructors through three social media platforms, namely, *Telegram*, *EITAA*, and *WhatsApp*. These communication channels were selected due to their widespread use among the target population of EFL instructors, thereby facilitating the inclusion of participants from diverse geographical locations and a variety of educational institutions.

To encourage participation and optimize the response rate, the researcher sent periodic reminders and follow-up messages through the social media channels. These reminders highlighted the importance of the study, the value of the participants’ contributions, and the estimated time required to complete the questionnaire, which was approximately 15-20 minutes.

Participants were provided with detailed information about the study, including details about data confidentiality, anonymity, voluntary participation, and the right to withdraw at any time. Prior to participating in the study, EFL instructors were required to provide written consent. The online questionnaire consisted of 15

statements, and participants were asked to rate different areas using a five-point Likert-scale, ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). The participants were also asked to answer three open-ended questions. Overall, this approach ensured that participants were well-informed, protected their privacy, and provided valuable insights for the study.

To further enrich the data, the researcher conducted in-depth interviews with a purposively selected group of EFL instructors who frequently used AI tools (e.g., ChatGPT) in their professional activities. The interview sample consisted of 10 EFL instructors, with five holding doctoral degrees (PhD) and five holding master's degrees (MA). Before the interviews, they were provided with the interview questions in advance to review and make any necessary notes. Every participant was personally met for the interview sessions. The interviews typically commenced with some casual conversation to help the interviewee feel at ease, followed by a brief overview of the aims of the study to set the appropriate tone for the interview (Dörnyei 2007; Mackey and Gass 2022). General questions were posed, followed by more specific ones. The interviews were performed in English and lasted an average of 30 minutes. Emphasis was placed on allowing ample time to the respondents to vocalize their feelings, ideas and opinions freely without unnecessary interruption. The interview sessions were audio-recorded for further analysis.

3.7. Data Analysis

3.7.1. Quantitative Phase

The quantitative data collected from the online questionnaire was initially entered into Microsoft Excel spreadsheets. Subsequently, the data was analyzed with the Statistical Package for the Social Sciences (SPSS) software, version 26, in accordance with the study objectives. Basic descriptive statistical analysis was also conducted to calculate essential metrics such as the mean (M), mode, standard deviation (SD), minimum and maximum values, as well as the frequency of participants' demographic information. This analysis aimed to provide a comprehensive quantitative overview of the instructors' opinions or perceptions, enabling a better understanding of the overall trends and response distribution. To analyze and interpret attitudes toward AI integration, we employed the scoring range outlined by Panda and Mishra (2007), as presented in Table 3.

Table 3. Interpretation of the Range of Scores

Range of Scores	Interpretation
4.5 and above	Positive
3.5- 4.49	Moderately positive
2.5- 3.49	Neither positive nor negative
1.5- 2.49	Moderately negative
1. 49 and less	Negative

3.7.2. Qualitative Phase

In the qualitative phase of the study, interviews with EFL instructors were recorded and transcribed by the researcher. These transcripts underwent meticulous review and scrutiny to gain a deep understanding of the datasets. Subsequently, the respective transcripts were shared with interviewees for "member check" to validate and judge the accuracy of information before finalization. Furthermore, the written responses to open-ended questions were collected separately. Both the interview transcripts and the written responses were analyzed using thematic analysis proposed by Braun and Clarke (2021), as depicted in Figure 3. This analysis involved six phases.

Firstly, the researcher thoroughly reviewed the responses to familiarize themselves with the content. To ensure rigorous identification of recurring patterns, ideas, or sentiments expressed by the instructors, a collaborative effort was then undertaken with a reviewer who held expertise as a faculty member in the applied linguistics discipline. This collaboration spanned across the entirety of the review process, including the pre-review, review, and post-review stages. Subsequently, initial themes were generated through the independent assignment of different codes by the researcher and the reviewer. Through this process, related codes were grouped together, and several subthemes emerged, which were then categorized accordingly. For instance, the codes "promoting creativity among teachers" and "aiding in creative material development" were merged under the theme "fostering teacher creativity". Any divergent opinions on the themes were thoroughly negotiated until a clear consensus was reached. The analysis of the interview data and written responses involved delineation, examination, and reporting themes within the datasets. To validate the qualitative data analysis, the researcher and the reviewer reached a consensus, indicating high interrater reliability (Krippendorff's $\alpha=0.93$), which exceeded the minimally acceptable level ($\alpha=0.667$, Krippendorff 2004).

A detailed description of the coding of the instructors' interview datasets and written responses along with illustrative examples is presented in Appendix A. It is worth noting that approximately 100 participants provided responses such as "I do not know" to the three open-ended questions. While such responses could be deemed inappropriate inputs, we interpreted them as indicative of a lack of awareness and familiarity with AI technologies. These participants may exhibit neutral attitudes towards certain questionnaire items due to their limited knowledge and experience with AI tools.

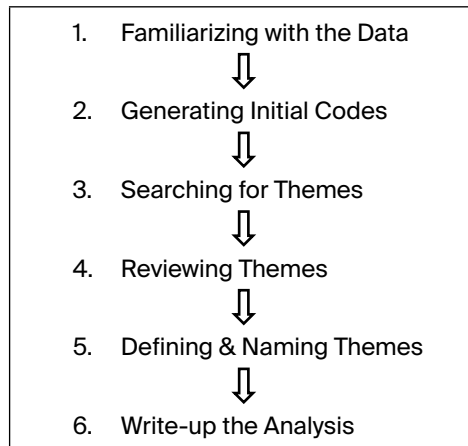


Figure 3. Thematic Analysis Framework Proposed by Braun and Clarke (2021)

4. Results

This section includes both quantitative and qualitative phases. The quantitative phase focused on analyzing participants' responses to Likert scale questions, and presenting the findings in tables. The qualitative phase involved thematic analysis of interview datasets and written responses from EFL instructors, identifying common themes, patterns, and trends in their feedback and opinions on AI integration in English language education. Relevant quotes and excerpts are also presented to provide a comprehensive understanding of the instructors' perspectives.

4.7. Quantitative Phase

The first research question examined the perceptions of EFL instructors regarding the integration of AI tools (e.g., ChatGPT) in English language education, as shown in Table 4. The results indicated that the mean scores for the 11 statements (1, 2, 3, 5, 6, 7, 10, 11, 12, 14, and 15) ranged from 3.50 to 4.49, indicating moderately positive perceptions. EFL instructors also demonstrated the highest mean score (Mean= 4.41, SD=0.81) for the statement, "the integration of AI technology such as ChatGPT in teaching English requires significant professional development and training for teachers". This finding suggests the importance of professional development in this context. They might acknowledge that incorporating AI technologies into language education necessitates acquiring new skills, knowledge, and pedagogical approaches. EFL instructors recognized that utilizing AI tools in the classroom requires ongoing professional development and training to ensure that they can leverage the technology to its full potential. This recognition of the need for professional growth may lead to a higher mean score for the statement. On the other hand, the statement "I believe AI tools will significantly transform the future of English language education and can replace human English language teachers" received the lowest mean score (Mean=2.89, SD=1.26), suggesting skepticism toward AI capabilities. EFL instructors may express doubts regarding the current capabilities of AI technologies to replace human English language teachers. They might question whether AI tools can truly comprehend and respond to the complex and nuanced nature of language learning, including sociocultural and contextual aspects. This skepticism could lead to a lower mean score for the statement.

Table 4. EFL Instructors' Perceptions of AI Integration

Questionnaire Items	Descriptive Statistics								
	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
1. The use of AI technology (e.g., ChatGPT) in EFL classrooms will lead to greater efficiency and productivity in education.	452	1	5	4.30	.763	-1.164	.115	1.938	.229
2. The integration of AI tools (e.g., ChatGPT) in English teaching may require ethical frameworks and guidelines to ensure responsible and ethical use.	452	1	5	4.39	.731	-1.431	.115	3.131	.229
3. AI tools (e.g., ChatGPT) can support individualized language instruction based on students' needs and abilities.	452	1	5	4.15	.799	-.985	.115	1.342	.229

Descriptive Statistics									
Questionnaire Items	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
5. AI tools (e.g., ChatGPT) can provide authentic and engaging learning experiences for English language learners.	452	1	5	4.17	.881	-1.043	.115	.713	.229
6. AI tools (e.g., ChatGPT) can facilitate interactive and communicative language practice.	452	1	5	4.06	.883	-1.195	.115	1.757	.229
7. AI tools (e.g., ChatGPT) can provide real-time feedback on students' pronunciation, vocabulary, comprehension and grammar, which is difficult for teachers to do consistently.	452	1	5	4.35	.929	-1.609	.115	2.246	.229
10. English teachers should be encouraged to incorporate AI technology such as ChatGPT into their teaching practice.	452	1	5	4.23	.998	-1.379	.115	1.281	.229
11. The integration of AI technology such as ChatGPT in teaching English requires significant professional development and training for teachers.	452	1	5	4.41	.812	-1.583	.115	2.504	.229
12. AI technology such as ChatGPT in English language teaching can support students with different learning styles.	452	1	5	4.24	.933	-1.267	.115	1.161	.229
14. AI tools (e.g., ChatGPT) may create a digital divide between those who have access to advanced technologies and those who do not.	452	1	5	4.14	1.076	-1.138	.115	.293	.229
15. AI tools (e.g., ChatGPT) could generate automated assessments that measure students English proficiency and progress over time.	452	1	5	3.93	.823	-.897	.115	1.239	.229

As shown in Table 5, the mean scores for items 4 (M=2.91, SD= 1.119), 8 (M=3.49, SD=1.30), 9 (M=2.89, SD=1.26), and 13 (M=3.44, SD=1.36) also fell between 2.50 and 3.49, indicating a more neutral attitude among respondents. This neutrality may stem from various factors, such as the nuanced nature of the subject matter or the diverse perspectives of the respondents.

Table 5. EFL Instructors' Neutral Perceptions of AI Integration

Questionnaire Items	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
4. The use of AI technology in ESL classrooms could have negative effects on students social and emotional development.	452	1	5	2.91	1.119	.337	.115	-1.120	.229
8. I am concerned about the impact of AI tools (e.g., ChatGPT) on the development of critical thinking and creativity in English learning.	452	1	5	3.49	1.306	-.395	.115	-1.092	.229
9. I believe AI tools (e.g., ChatGPT) will significantly transform the future of English language education and can replace human English language teachers.	452	1	5	2.89	1.261	.261	.115	-1.233	.229
13. AI tools (e.g., ChatGPT) pose a threat to the role of English teachers as knowledgeable facilitators of learning.	452	1	5	3.44	1.361	-.255	.115	-1.402	.229

4.8. Qualitative Phase

The main themes derived from EFL instructors' interview datasets and written responses can be broadly classified into three major categories, namely, positive aspects, negative aspects, and potential challenges. Within

these categories, as shown in Figure 4, a multitude of positive themes emerged, highlighting the benefits of integrating AI tools into English teaching and learning practices. These aspects included round-the-clock availability; promoting collaboration and community building; facilitating effortless learning; serving as a complementary tool; providing prompt feedback; presenting authentic materials; promoting creativity among teachers; and enhancing productive skills. Furthermore, AI integration enables personalized teaching and learning experiences, saves time and energy, fosters autonomy, increases motivation, and alleviates anxiety.

While the positive aspects of AI integration in language education have been highlighted, it is equally important to acknowledge the negative aspects of this approach, as depicted in Figure 4. These aspects included concerns about cheating and misuse; the provision of inaccurate information; the potential widening of the digital divide; the creation of an artificial learning atmosphere; and the promotion of dependency on technology. Additionally, there were concerns about the increased screen time and sedentary behavior, limitations on cultural diversity/sensitivity/exchange, as well as the restriction of sociolinguistic nuances in language use. Other pertinent issues included the marginalization of teaching positions, the lack of emotional intelligence and empathy in AI systems, and the compromise of data security and privacy. There were concerns regarding the prominence of Americentric/Western-centric data, the absence of ethical considerations, the potential hindrance of the development of critical thinking and creativity, and a decrease in research effort rigor due to laziness/inertia. Addressing these issues is essential to mitigate any negative impacts on teaching and learning experiences.

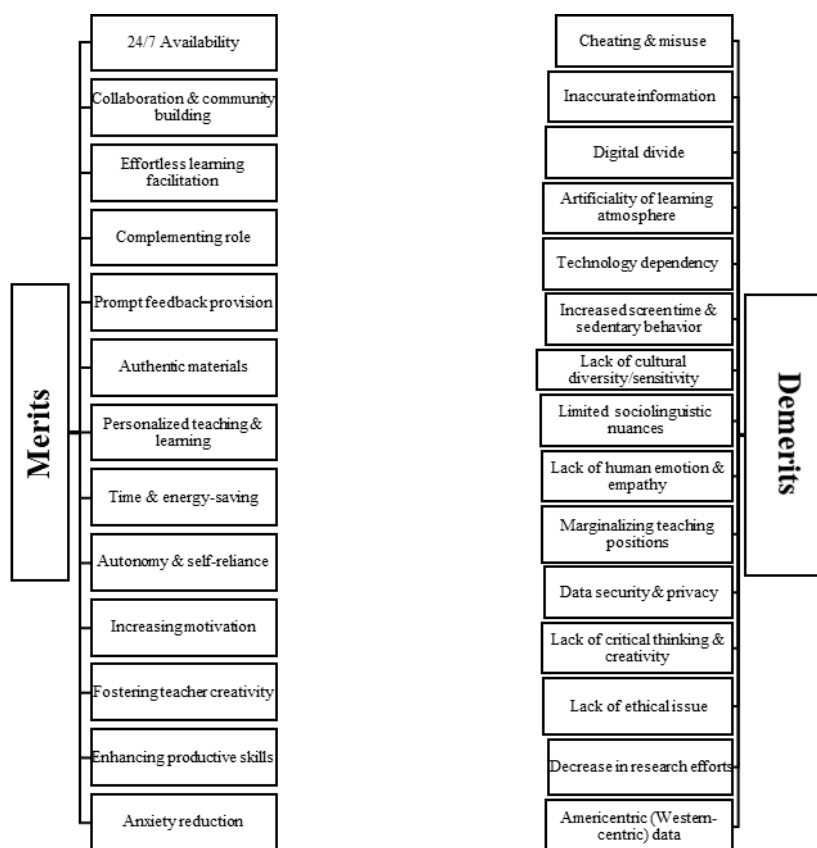


Figure 4. Merits and Demerits of AI Integration

For potential challenges, various issues have been identified. These included the inadequacy of technology infrastructure and the risk of impersonal learning experiences. Another challenge is the risk of algorithmic biases occurring, coupled with a reliance on AI as the exclusive source of information, which could lead to skewed perspectives and limited critical thinking. Furthermore, it is important to recognize several additional factors that exacerbate these challenges. For example, the impact of international sanctions imposed on Iran poses obstacles, compounded by Internet filtering mechanisms, which restricts access to certain resources. Specifically, the limited availability of premium versions of AI/ChatGPT for Iranian individuals can further intensify these issues. The formulation of input statements or prompts for AI systems has also been identified as a technical challenge that can impede effective utilization and interaction. Finally, implementation challenges are likely to emerge, particularly characterized by user apprehension toward change. Some challenges are described and illustrated with examples in Appendix B.

5. Discussion

The present study delved into the perceptions of Iranian EFL instructors regarding the integration of AI tools in English language education. The paper also examined the potential advantages, disadvantages, challenges and concerns associated with incorporating AI tools in English language instruction.

5.1. How do Iranian EFL instructors perceive the integration of AI tools (e.g., ChatGPT) in English language education?

In response to the first research question, the results revealed that EFL instructors held favorable attitudes towards integrating AI tools in English education, which aligns with recent studies (Kim and Kim 2019; Mohamed 2023; Qasem et al. 2023; Seufert et al. 2020; Woodruff et al. 2023). They generally perceived AI tools as a valuable tool that can enhance efficiency and productivity in education, foster authentic and engaging learning experiences, facilitate interactive language practice, cater to students with diverse learning styles, offer personalized language instruction based on students' needs and abilities and generate automated assessments that measure students' English proficiency and progress over time. Nevertheless, the instructors acknowledged the need for professional development and training to implement AI integration in their teaching practices. This training is necessary for several reasons.

First, EFL instructor training is essential for enhancing their familiarity with technology, understanding its applications in the classroom, and improving their teaching practices. Previous studies have indicated that instructor professional development and training, coupled with teachers' familiarity with technology, can potentially impact student achievement, leading to higher social and economic expectations and the successful implementation of technology in the classroom (Ng et al. 2023; Woodruff et al. 2023). Second, ongoing professional development such as workshops and seminars, ensures that instructors remain updated with the latest advancements in AI technology and acquire the necessary digital competencies for its effective utilization and teaching. This continuous learning process empowers instructors to leverage AI's potential to enhance student learning outcomes. Third, training helps instructors comprehend the complexities involved in AI integration and the need to adapt teaching methods accordingly. Importantly, it equips instructors with the skills to surmount challenges and integrate AI tools without requiring programming or AI expertise (Luckin et al. 2022; Pokrivcakova 2019). Overall, these findings reinforce the importance of comprehensive instructor training and support in maximizing the potential of AI in English language education. Continuous professional development is crucial for enhancing teachers' technological readiness and facilitating pedagogical integration of AI tools (Luckin et al. 2022). However, teachers' AI-related skills have not yet been well-defined due to the underutilization of AI's potential in education (Celik 2022; Luckin et al. 2016). Therefore, further empirical research in this area is warranted to delineate required AI skills and develop effective training programs.

Another domain in which EFL instructors concurred was the necessity of implementing ethical frameworks and guidelines for AI integration, which has been highlighted in previous studies (Celik 2022; Kim and Kim 2022; Kostka and Toncelli 2023; Mohamed 2023). This is because responsible use of AI tools in English teaching requires careful consideration, especially regarding student data privacy, potential bias in AI tools, and transparency of AI systems (Kostka and Toncelli 2023; Mohamed 2023). Such considerations are integral because individuals often demonstrate a willingness to compromise their privacy in exchange for a more robust connection with AI (Persson et al. 2021). Therefore, safeguarding student data privacy is necessary when using AI-powered language-learning platforms (Mohamed 2023) to prevent unintended harm or misuse that could negatively impact students. Data collection, utilization, and access protocols must be transparent and readily comprehensible to all instructors. Additionally, AI tools are only as unbiased as the data they are trained on, making diverse datasets essential for avoiding reinforcing biases. Hence, ethical guidelines can promote transparency and accountability, enabling informed decisions about AI utilization in the classroom and preventing unintended consequences.

EFL instructors also found AI tools to be beneficial for delivering real-time feedback on multiple language components such as pronunciation, vocabulary, comprehension, and grammar. This helps address challenges that instructors may struggle with individually. AI technologies can promptly analyze and provide feedback, allowing instructors to focus on other instructional aspects and facilitating more effective language learning. Consistent and immediate feedback from AI enhances the learning experience, especially for individual learners who may require additional support or practice in specific areas. Overall, AI technologies can serve as personal tutors for language students, defining unfamiliar words, generating dialogs tailored to different proficiency levels, and providing explanations of vocabulary terms in students' native languages (Kohnke 2023). While our findings align with recent research (Kohnke 2023; Pokrivcakova 2019), debates regarding the impact of AI integration on language learning persist (Kohnke 2023).

Furthermore, there was a consensus among EFL instructors that AI tools has the potential to exacerbate the digital divide. Surprisingly, this aspect has not been adequately addressed in the literature. However, this divide can stem from disparities in access to advanced technologies, digital literacy levels, financial constraints, and technology availability across regions. For example, students who possess the necessary access to AI-powered tools and digital literacy skills can have an advantage over their peers who lack these resources, leading to an unequal distribution of educational benefits and opportunities. In Iranian underprivileged areas with limited resources, not all students may have access to these advanced technologies. Overall, the potential of AI tools to widen the digital divide bears resemblance to the issue of "linguistic injustice" (Soler 2021) faced by language learners, where certain groups face disadvantages due to unequal access to resources and opportunities. We prefer to refer to this digital divide as AI-driven disparity or AI inequity to describe the unequal distribution of resources, and the differential impact of AI applications, thereby shedding light on the widening digital divide. However, AI technologies, particularly ChatGPT, have the potential to close communication gaps and promote fairer interactions through their capacity to facilitate comprehension and communication among diverse linguistic groups, thus supporting a more inclusive and equitable academic setting (Tai et al. 2023).

As for the neutrality of the four questionnaire items, several potential factors may explain this phenomenon. Firstly, the integration of AI tools into English language education in Iran is a relatively new educational program, considering the availability of this technology in late 2022 and early 2023. As a result, EFL instructors may have limited experience and familiarity with AI tools. This lack of knowledge about the practical implementation of AI in the classroom, along with a limited understanding of the implications of using AI tools, could contribute to the uncertainty and neutrality expressed by the instructors. Consequently, without a comprehensive understanding of AI technology, EFL instructors may encounter difficulties in making informed decisions and obtaining informed consent for the use of AI in their teaching practices (Luckin et al. 2022).

Another area in which EFL instructors had neutral attitudes toward AI tools was the impact of AI on students' social-emotional development. These instructors may value face-to-face communication and human connection as essential for fostering social-emotional development. However, they are uncertain about how AI tools in language instruction can either enhance or hinder students' ability to develop these important skills. Without sufficient data, EFL instructors may take a neutral stance to avoid making unfounded assumptions about AI's impact on psychological aspects of language learning (e.g., social-emotional development).

EFL instructors further expressed neutral attitudes regarding the potential threat to EFL instructors' roles with the advent of AI tools. This concern elicited mixed responses because some instructors might feel anxious about the possibility of job loss, fear of being displaced by technology, or worry about a decrease in demand for their services. On the other hand, some instructors might view AI as an opportunity to redefine their roles and utilize technology to enhance their teaching methods and engage students more effectively. However, more evidence and research may be needed before strong opinions can be formed.

Moreover, the EFL instructors expressed neutral attitudes with regard to the impact of AI tools on high order skills such as critical thinking and creativity in English education. This neutrality may stem from the ongoing evolution and integration of AI tools in educational settings, leading to uncertainty about its ultimate effects on these skills. This cautious approach might also reflect the complexity of AI's role in developing high-order skills within EFL classrooms, highlighting the necessity for continued exploration and discussion in this area as we have yet to reach a point where AI possesses the same cognitive abilities as humans.

Finally, the EFL instructors expressed neutral attitudes regarding the belief that AI tools will significantly transform the future of English language education and can replace human instructors. Their neutral stance could be attributed to their recognition of the broader aspects of language learning that extend beyond linguistic skills, such as cultural understanding, empathy, and social interaction. Given these considerations, it is reasonable for EFL instructors to feel uncertain about AI integration at this stage. Prematurely evaluating their perceptions would not be fair, as they are still in the process of familiarizing themselves with AI and its potential applications in language education.

5.2. What are the potential advantages, disadvantages, and challenges identified by Iranian EFL instructors regarding AI integration in English language education?

The qualitative analysis of the interview datasets and written responses revealed valuable insights into the potential advantages, disadvantages, and challenges that EFL instructors identified in relation to the integration of AI tools in English language education. These findings align with the quantitative data, as a majority of participants recognized AI integration as a valuable tool with numerous merits, particularly in the context of language learning. The instructors expressed their willingness to embrace and utilize AI tools in their teaching practices. However, they expressed concerns about the limitations of AI technology. In the subsequent section, we present some of the positive aspects, negative aspects, and potential challenges of AI integration along with relevant quotes and excerpts.

5.2.1. Merits

An underreported merit lies in AI's ability to promote collaboration and community building among EFL learners. AI tools, such as chatbots/ChatGPT and discussion forums, facilitate interaction and learning among learners, thereby promoting a sense of community and cooperation. For example, some of the EFL instructors stated that *"AI tools can act as a platform for communication, exchange of ideas, and support..."* and *"...language learners through joining a community can be involved in conversation with peers and answer questions..."* By connecting geographically dispersed language learners, these platforms foster a sense of community and allow the exchange of experiences and perspectives. This benefits EFL instructors in supporting their students' language learning journeys.

Another positive domain pertains to effortless learning facilitation. AI tools provide interactive and engaging learning experiences, making the language learning process more enjoyable and effective. This observation was noted by EFL instructors, who highlighted the impact of AI tools in this regard: *"...its role gradually enhances and it facilitates both teaching and learning procedures by providing the learners/teachers with their learning/teaching requirements"*, and *"I believe it can revolutionize language instruction, provide authentic language, improve teaching techniques, and create enjoyable learning experiences"*.

24/7 availability: AI tools are accessible at any time, allowing language learners to engage in language learning activities at their own convenience. As EFL instructors aptly observed, *"AI can make quality language education available to learners worldwide, regardless of their location or financial resources."*

Functioning as a complementary tool: AI enriches traditional teaching methods and materials, providing supplementary resources and support to both teachers and learners. A number of respondents emphasized this, stating, *"I find it as a wonderful complementary tool because it can facilitate access to a wide range of educational content and resources"*, and *"... It provides teachers with countless numbers of sources available across the globe so the teacher won't have much trouble preparing for the session..."*

Providing prompt feedback: AI offers immediate feedback to learners, helping them promptly identify and correct their mistakes. EFL instructors underscored the importance of this feature, expressing that *"...finally, AI technology can provide immediate feedback, helping students to identify and address their language learning gaps more efficiently"* and *"it offers real-time feedback on student performance and assists them in creating interactive and engaging lesson plans."*

Presenting authentic materials: AI can provide learners with real-life and authentic materials, enhancing their understanding and language skills. Some EFL instructors observed that *"AI-based language learning apps can simulate real-life conversations, providing language learners with interactive dialogues that reflect authentic communication scenarios."*

Promoting creativity among teachers: AI tools inspire teachers to be more creative in their lesson planning and delivery. For example, EFL instructors noted that *"It (AI) will help teachers to be more creative and produce creative and innovative methods of teaching"*, and *"In general, I believe the advantages of using AI in English classes outweigh the disadvantages...AI helps teachers prepare authentic and creative material for their classes and therefore helps students learn more efficiently."*

Reduced anxiety: AI offers a nonjudgmental and supportive environment for language learners to practice language skills, particularly productive skills (i.e., speaking and writing), reducing anxiety levels and encouraging experimentation. For example, EFL instructors remarked that *"The main benefit will be the creation of autonomy in language learners in a shorter-term frame, as well as reducing anxiety levels as learners engage in speaking and writing."* These merits, along with the relevant excerpts, are only a few statements of how beneficial AI integration could be for language learning.

5.2.2. Demerits

AI integration in language education can present several drawbacks that warrant consideration. In the subsequent section, we will discuss drawbacks that were identified only in qualitative analysis to maintain brevity. Firstly, concerns arise regarding the potential cheating and misuse of AI technology in academic contexts, as such technology may be exploited to gain an unfair advantage in assessments or language related tasks. These concerns highlight the growing emphasis on the importance of academic honesty, a widely endorsed value, especially as AI tools such as ChatGPT introduce new risks for academic dishonesty (Kostka and Toncelli 2023). Educators are apprehensive that students may no longer be responsible for producing their own work (Cotton et al. 2023). On the other hand, Lodge (2023) suggested that students may cheat due to a lack of control over the learning process. To address these issues, Lodge proposed revolutionizing assessments to encourage creative application of concepts and reflection on the learning process. These debates echo those surrounding the early stages of the Internet's impact on education, where educators were wary of students abusing it for academic purposes (Kostka and Toncelli 2023). However, a balanced perspective that considers both the risks and pedagogical benefits of AI tools is essential.

Another drawback of AI integration was its potential impact on the rigor and originality of learners' research efforts, which could result in a decrease in their diligence. While AI tools can provide instant solutions to language-related tasks (e.g., grammar checking, lexical resource, and translation), they may inadvertently foster a sense of laziness among learners by offering effortless solutions without promoting critical thinking and effort (Tlili et al. 2023). This could also lead to a decrease in learners' motivation to engage in more challenging and complex language-learning activities, as they may rely too heavily on AI outputs. Moreover, the excessive reliance on AI tools could hinder the advancement of knowledge in the field, as it may lead to a lack of originality and creativity in research efforts. Therefore, it is crucial to strike a balance between using AI as a tool to enhance learning experiences and promoting effort and originality among learners. Some EFL instructors articulated that *"...language learners may only copy information given by AI instead of doing their own homework or assignments, which could lead to plagiarism concerns and disturbed critical thinking owing to overreliance on AI tools for learning purposes"*, and *"AI may be a barrier to critical thinking in the case of lazy students who do not want to spend time doing their assignments."*

Furthermore, AI systems provide inaccurate information or responses, which can lead to misinformation and hinder language proficiency development. For example, EFL instructors stated, *"However, I also want to remind you that AI is not perfect or infallible and that you should always use your critical thinking and judgment when using AI. Sometimes, AI might make mistakes or give inaccurate or incomplete information, so you should always verify and double-check the sources and results that AI provides... In addition, it can lessen your creativity in writing or producing."* This aligns with prior research findings (Huang et al. 2023; Kim and Kim 2022; Kostka and Toncelli 2023; Mohamed 2023; Sun and Hoelscher 2023; Tlili et al. 2023), indicating that the reliability of AI cannot be assured, potentially leading to reduced motivation for both students and teachers to utilize it. Therefore, it is crucial to critically evaluate any AI-generated content and emphasize the deliberate cultivation of critical thinking skills in educational settings (Kostka and Toncelli 2023). Moreover, the integration of AI tools may create an artificial learning atmosphere, in which human interaction and genuine language use are substituted by automated systems. This can impede the development of interpersonal communication abilities. In such cases, EFL instructors noted that *"One of the main problems*

with AI, to me, is artificiality of learning climate and the lack of face-to-face verbal exchanges as it happens in real situations.”

Overreliance on AI tools in language education can also potentially promote a dependency on technology, which may lead to a lack of independence and autonomy in learners' language learning journeys. For instance, language learners may become overly reliant on AI outputs for syntax checks, rather than developing their own analytical skills through practice and feedback from human teachers or peers. EFL instructors remarked that *“The danger of overreliance on AI is that it may negatively impact students' learning processes.”*

AI integration in education also brought to light concerns regarding excessive screen time and sedentary behavior among students. These issues, while not extensively reported in the existing literature, have been articulated by EFL instructors due to their potential adverse effects on students' physical and mental well-being. Some EFL instructors have drawn parallels between the current situation and the circumstances during the COVID-19 pandemic, highlighting the similarities in terms of extensive time spent on computers or engaged in online classes, which can lead to similar health concerns. For example, they noted that *“...its potential adverse on our health is similar to the circumstances during the Covid-19 pandemic, where extensive time was spent on computers or in online classes.”*

Moreover, EFL instructors expressed that AI integration in language education may limit exposure to important facets of language learning from sociocultural and socioemotional perspectives. They asserted that AI language models may not adequately capture the contextual subtleties of language, resulting in insensitivity to sociolinguistic variations, and the reinforcement of linguistic biases and stereotypes. This is because language interactions occur in a range of contexts with a variety of interlocutors rather than merely aiming to produce context-free fluent, correct, and complicated language (Zhai and Wibowo 2023). However, AI algorithms may further face challenges in distinguishing between different English dialects or accents, potentially leading to communication breakdowns. Many language learners might find it difficult to engage in AI dialog interactions due to the complexities of understanding non-standard English variants, as highlighted by Zhai and Wibowo (2023). Tatman (2017) also observed the struggle of YouTube automatic captioning systems with Scottish English. Hence, EFL instructors noted that AI systems may not adequately capture the nuances and richness of different cultures and languages, as they remarked that *“language learning is more than just learning grammar and vocabulary, it involves communication, sociocultural understanding, and emotional connection.”* EFL instructors also highlighted that AI tools lack socioemotional aspects that can hinder the development of emotional and social skills, as well as the ability to understand and respond appropriately to human emotions and cultural contexts as they asserted that *“...Human agency still seems necessary to check cultural, ethical and emotional aspects of interaction and learning.”*

Finally, AI integration in language education may impede the development of critical thinking and creativity in language learners because it may restrict students' opportunities to independently engage in creative problem-solving and critical analysis, both of which are vital for academic and professional achievement. Overall, based on a synthesis of quantitative and qualitative data, two primary perspectives emerged regarding the impact of AI tools on critical thinking and creativity, thereby presenting a complex dilemma. As articulated by one of the EFL instructors *“...in terms of creativity, it (AI) is like a double-edge sword. It can be used positively and negatively.”* One perspective contends that AI has the potential to augment creativity for instructors, material development, and productive language skills while another argues that its integration may impede the cultivation of critical thinking and creativity among language learners. However, an emerging perspective posits that the judicious use of supervised AI tools by instructors could facilitate critical thinking and creativity. This perspective advocates a transition in AI use from technology-centered approaches to human-centered approaches, emphasizing the infusion of human and machine intelligence (see Huang et al. 2023). This approach proposes that human instructors should be at the forefront of AI applications. Overall, while the integration of AI technology in language education offers ample opportunities, it is crucial to acknowledge and address its drawbacks to ensure an effective and balanced learning environment.

5.2.3. Challenges

There were multiple potential challenges in implementing AI in language education that need to be addressed. These challenges encompassed difficulties associated with establishing the necessary technology infrastructure for AI integration. For example, the high cost of developing and implementing AI systems could be a significant challenge, as also emphasized by Woodruff et al. (2023), particularly for language learners from low-income backgrounds or developing countries such as Iran. Furthermore, there is a concern that AI-mediated learning experiences may become impersonal, lacking the human touch and personalized guidance that teachers provide. Moreover, AI systems can be susceptible to algorithmic biases, potentially perpetuating stereotypes or exhibiting favoritism towards specific groups. Kasneci et al. (2023) highlighted that biased training data may result in unfair discrimination against different populations. An over-reliance on AI tools such as ChatGPT as the sole source of information may also diminish student-teacher interaction and the opportunity for meaningful discussions and debates in the language learning process. It is important to acknowledge additional factors that contribute to these challenges. For instance, in certain regions such as Iran, the impact of sanctions and Internet filtering can hinder access and utilization of AI resources effectively. The limited availability of premium versions of AI/ChatGPT for Iranian individuals further complicates the implementation process. Implementation challenges may also arise from the apprehension of change among users, including teachers, students, and educational institutions. Resistance to adopting AI technologies and incorporating them into existing language education practices can hinder progress and innovation.

Final challenge was creation of input statements or prompts for AI systems, which has been recognized as a technical hurdle. Many Iranian EFL teachers expressed that they often struggle to engage or interact effectively with AI tools, leading to difficulties in obtaining accurate and high-quality outputs. This challenge is compounded by the fact that AI systems can sometimes produce inaccurate results. The formulation of efficient and precise prompts raises important questions about AI literacy, specifically the emerging concept of prompt literacy or prompt skill as a form of digital literacy among these users. AI literacy encompasses the skills necessary for the competent and meaningful use of AI tools, highlighting the need for educators to develop a deeper understanding of how to interact with these technologies effectively (Knoth et al. 2024). Furthermore, limited awareness of AI system capabilities contributes to this challenge, as users often find themselves engaged in extensive trial-and-error processes and iterative testing to achieve satisfactory results. Prompt construction is crucial in shaping the interaction between users and generative AI models, serving as the foundational blueprint for effective communication (Knoth et al. 2024). To effectively address the challenges associated with prompt creation for AI systems, it is essential to implement targeted training programs that enhance AI literacy among educators. Such initiatives will empower users to engage confidently with AI tools, ultimately improving the quality of educational outcomes.

6. Conclusion and Implications

The present study explored the perspectives of Iranian EFL instructors regarding AI integration in English language education. The findings revealed predominantly positive perceptions of AI technologies in English education, highlighting their potential to enhance teaching and learning processes. However, these positive views were accompanied by significant concerns regarding the capabilities and limitations of AI. The results further revealed a spectrum of opinions concerning the merits (e.g., fostering collaboration and community building), drawbacks (e.g., insufficient consideration of sociolinguistics nuances and prominence of Americentric data), and potential challenges (e.g., apprehension of change) associated with AI integration.

Given these insights, we argue that the needs of instructors and practitioners in the educational sector necessitate a more nuanced approach than merely a general AI course. A contextualized approach that aligns AI tools with the specific settings and requirements of EFL education is essential. Additionally, we emphasize the importance of recognizing the interconnectedness of AI integration and training systems in preparing EFL instructors. Instead of adopting a top-down approach to reshaping teaching and learning in the AI era, it is crucial to incorporate the perspectives of both instructors and students from the outset. This inclusive approach is vital for establishing new practices and ensuring transparency within educational institutions, as suggested by Kostka and Toncelli (2023).

As EFL instructors navigate the integration of AI in their practices, they must remain cognizant of the merits, demerits, and concerns regarding these technologies to promote their safe and ethical use. By fostering discussions that address these issues, educational stakeholders can better prepare instructors and students for the challenges that lie ahead in an increasingly AI-driven educational landscape.

The present study has several limitations that warrant acknowledgment. First, the research relies on a sample of Iranian EFL instructors, which may restrict the generalizability of the findings to broader contexts. Different educational systems and cultural backgrounds can yield varied perceptions and experiences with AI integration. Therefore, future research should aim to expand the sample to include a more diverse range of educators from various countries and contexts to enhance, thereby enhancing the validity and applicability of the results. Second, this study did not address the long-term impact of AI integration on teaching efficacy and student learning outcomes. Future investigations should adopt longitudinal approaches to evaluate how the integration of AI tools evolves over time and its subsequent effects on educational practices and learner success. By acknowledging these limitations, we hope to encourage further research that builds on our findings and contributes to a deeper understanding of AI's role in English language education.

Availability of data and material

The data is available upon request from the author.

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Declaration of Generative AI and AI-assisted technologies in the writing process

While AI was not involved in the preparation or production of this research project, the manuscript's language underwent quality checking by Springer Nature's language quality checker. (<https://beta.springernature.com/presubmission/writingquality?emailAddress=GilNP5k4KtXIHjv9W0pdctN4IPpPyBOcDw8FrXifGpU%3D&completedRequest=true>)

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Appendix A

Coding Qualitative Data		
Written Responses Extract	Codes	Themes
<p>Personally, I think the challenges in the Iranian context can be... in both ethical and technical dimensions. In Iran, many of the current AI-based tools and platforms are either unknown to the majority of people or filtered and difficult to access and as said earlier, lack of sufficient knowledge and familiarity with such tools and their possible applications in educational contexts is one of the main challenges lying ahead.</p>	<ul style="list-style-type: none"> - Ethical challenges in the Iranian context - Technical challenges in the Iranian context - Limited awareness and accessibility of AI tools - Insufficient understanding of AI tools in education 	<ul style="list-style-type: none"> Ethical implications of AI in education in Iran Technical limitations and barriers to AI adoption in Iran Lack of knowledge and availability of AI-based resources in Iran Lack of familiarity with AI and its educational applications
<p>I suppose...it could be a little hard to...to design the curriculum through AI... as it requires one-to-one negotiation of ideas by educationalists. This area... well... that is under the influence of policies and ideologies of education need contemplation... which would not be easy to hand over to tools such as ChatGPT. However, it might be possible to ask for... for help from AI to... to suggest some guidelines by investigating other accessible curriculum and lesson plans. One also ...needs to note that general areas of education are a human work and it requires considerations from the context of education.</p>	<ul style="list-style-type: none"> - Curriculum design - AI's role in education - Negotiation of ideas - Policies and ideologies of education - Contemplation and consideration 	<ul style="list-style-type: none"> - Difficulty in using AI for curriculum design - Importance of human input in education - Balancing AI assistance with contextual considerations - Utilizing AI for guideline suggestions and research

Appendix B

Challenges Described by Iranian EFL Instructors

