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Shahid Chamran University of Ahvaz

Research Paper

Enhancing Language Teacher Education: Exploring the Integration of AI-Powered Tools in Preservice Teacher Education

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Abstract

This study examines preservice language teachers' perceptions of AI tool integration in teaching. A qualitative methodology was utilized to evaluate the effects of AI tools on teacher performance and satisfaction. Twenty-five preservice language teachers engaged in a 16-week English practicum course participated in the research. The participants were senior students aged 21 to 24, having completed seven semesters of Teaching English as a Foreign Language. In the initial five weeks, they were instructed on fundamental AI usage in language teaching, such as ChatGPT, Copilot, Pi, and Sider. Subsequently, they applied these skills in classroom settings. Ultimately, they produced a microteaching video demonstrating English instruction through AI tools. The participants had one to three semesters of teaching experience with teenagers. Data collection involved semi-structured interviews with the participants. Findings indicated the participants' significant interest in AI technologies, emphasizing its role in enhancing interactivity and providing prompt feedback in educational planning and delivery. Additionally, while preservice teachers expressed positive views on AI capabilities, they articulated concerns regarding its impact on teaching roles. The results underscore the necessity of equipping preservice teachers with effective AI tool utilization skills in their pedagogy. It is recommended that teacher education programs prioritize practical experience with AI tools and prepare teachers to navigate associated challenges and limitations.

Keywords: Teacher Education; AI-Powered Tools; Preservice Teacher Training.

1. Introduction

Recent advancements in Artificial Intelligence (AI) technology have significantly transformed education, particularly in language teaching and learning (see e.g., García Laborda et al., 2024; Hockly, 2023; Traxler et al., 2023). AI provides language teachers with diverse resources that enhance teaching practices and student learning experiences (Lin, 2023; Nye et al., 2021). It also enables personalized learning and interactive practice, improving efficiency, engagement, and accessibility while fostering critical skills and digital literacy (Negrila, 2023). Tools like neural machine translation and chatbots offer instant feedback and automated assessment, enhancing student performance and teacher efficiency in university settings (Al-Awawdeh et al., 2023; García Laborda et al., 2024). While AI can positively impact English language teaching (ELT) by improving pedagogical practices and outcomes, its effective implementation requires proper training (Alhalangy & AbdAlgane, 2023). Research indicates that integrating AI into language education has various benefits, including increased confidence and student engagement (Gau & Wang, 2024) and improved learning outcomes (Wu & Yu, 2024). Despite the advantages, optimizing educational benefits depends on effective integration and awareness. Therefore, further investigation into AI's role in language teacher training is warranted (Vogt & Flindt, 2023).

Research identifies gaps in teacher education related to AI. Notably, studies exploring the relationship between AI literacy and teachers' self-efficacy are lacking (Oran, 2023). Additionally, misconceptions about AI persist due to

unclear policy guidelines and emotional responses (Dantas et al., 2022). Moreover, current AI resources may not adequately support pedagogical needs, indicating a need for more comprehensive AI curricula (Velander et al., 2023). Addressing these gaps is essential for effective AI integration in education (Andujar & Spratt, 2023).

Despite the potential benefits of AI in language teaching, challenges such as high implementation costs, integration time, and ethical concerns around data privacy and algorithmic bias remain (Brynjolfsson & McAfee, 2014). In addition, there remains a notable gap in understanding how preservice language teachers perceive these tools within their training programs. Previous studies have documented positive outcomes associated with AI usage in language learning; however, qualitative insights into preservice teachers' experiences and attitudes toward these technologies are limited (Vogt & Flindt, 2023).

Therefore, this study aims to fill this gap by exploring preservice language teachers' perceptions regarding the integration of AI-powered tools during their practicum experiences. Specifically, this research seeks to address the following objectives: (1) To investigate how preservice teachers perceive the effectiveness of AI tools in enhancing their teaching practices; (2) To identify the concerns preservice teachers have regarding the implications of AI for their roles as educators; and (3) To understand how these perceptions may influence their future teaching practices. The significance of this study lies in its focus on preservice teachers, who are at a critical juncture in their professional development. By examining their perceptions of AI integration, this research contributes to our understanding of how teacher education programs can better prepare future educators to utilize AI technologies effectively. Ultimately, this study aims to inform curriculum development and pedagogical strategies that enhance AI literacy among preservice teachers, thereby improving their confidence and competence in using these tools in their future classes.

2. Literature Review

2.1. Technology-Enhanced Education and Artificial Intelligence

Technology-enhanced learning (TEL) refers to the terminology describing the broad application of technological tools in educational areas. TEL thrives on establishing modern and novel platforms for enhancing teaching and learning outcomes for both teachers and learners. In this method, TEL offers golden opportunities for the direct utilization of information and communication tools (ICTs) to increase the horizons of teaching. It is believed that ICTs have been critically important in terms of socializing students, active engagement, and adaptive learning (Abdullah, Ward, & Ahmed, 2016). There is a growing affirmation regarding the benefits of ICTs for students, including cost-effectiveness, accessibility, and affordability, without experiencing spatial or temporal restrictions. In other words, education via ICTs will be provided fairly to all classes of society, and students can derive enormous benefits from personal tutors and receive feedback and scores online. According to Shen and Kuo (2015), online learning environments have persevered greatly in assisting students with the active co-creation of knowledge in the collective format by holding online courses. In other words, online classes have significantly contributed to increasing the knowledge of independent learners. After years of consistent work, communication and information technologies have culminated in the emergence of artificial intelligence (AI). In fact, artificial intelligence is the most modern version of TEL in education. AI has gained a great reputation for its special abilities, performing them very much like human intelligence does, including problem-solving, offering solutions, settling questions, formulating plans, and performing cognitive functions (Coppin, 2004, p.4). A quick review of the literature provided for the definition of AI shows that AI is actually a grand achievement in ICTs, performing like or similar to human intelligence. Given that artificial intelligence prevailed in its journey in different realms, its practical use was also known mainly in education. Artificial intelligence has considerably enriched learning and teaching experiences by offering new insights into learning and teaching efficiency, improving global learning and personal learning experiences (Timms, 2016). The cumulative growth of artificial intelligence (AI) has substantially contributed to the emergence of new teaching methods and the improvement of the former techniques. In particular, with respect to pedagogical paradigms, AI is known as the stepping stone, offering new insights into the effective development of pedagogical tools.

The advent of AI caused a fast transformation of educational forms from a traditional version to a modern version. In the latter, students' needs may be better accommodated, and novel educational approaches are welcomed to enhance learning and teaching efficacy (Tsou & Chen, 2019). Technology-enhanced education has come to the center of attention since the advent of artificial intelligence. Research shows that the active amalgamation between the two realms

of technology and education has substantially paved the way for the rise of customized, personalized learning in students (Spector & Kim, 2014). On the basis of these arguments, traditional forums take one framework and attempt to prevail in the process, whereas AI-powered education can effectively tailor learning material to student experiences. According to Chassignol et al. (2018), in the identification of the application of AI in education, three sectors—learning, teaching, and administration—could be considered. Following the same theoretical perspective, the present study aims to adopt the same understanding to discover what preservice teachers' feedback is regarding the integration of AI and English language learning classes. The main question to be addressed here concerns the preparation of a new generation of teachers to use AI technologies effectively in the classroom. This study investigates teachers' perceptions of AI in the context of the integration of AI and language learning classrooms. Teachers' attitudes can play a pivotal role in the approach they take regarding artificial intelligence. To achieve this goal, we believe that an array of factors must be included, one of which is teachers' beliefs about AI. Teachers' perceptions should be considered to offer them effective programs that improve their understanding and skills. Our position regarding this issue is likewise vindicated by previous studies (Farjon et al., 2019; Rüth et al., 2022).

Nonetheless, there is a paucity of research regarding teachers' interest in engaging with AI-integrated tools, especially given that a qualitative approach has been adopted in this study. In the course of our study, teachers' concerns regarding the wide use of AI in educational sectors were also highlighted, which demonstrates the degree of their willingness to implement AI technologies in their classrooms. In a similar vein, Sansui, Ayanwale, and Tolorunleke (2024) closely analyzed teachers' behavioral intentions in promoting the use of artificial intelligence in classes. Scholars offer deep insights into the possible emotions that teachers may experience while using technology. Furthermore, researchers suggest that such effects may exacerbate or inhibit teachers' intention to use AI.

2.2. Teachers, Students, and AI Benefits

The modern world is being substantially combined with technological tools such as AI and its subfields, like ChatGPT, natural language processing, robotics, computer-assisted learning and teaching, deep learning, machine learning, and neural networks (Chenong et al., 2022; Ng et al., 2023; Zawacki-Richter et al., 2019), especially in Western societies, where novel tools that paved the way earlier in education were studied. In research programs conducted by Long and Magerko (2020) and Ma et al. (2023), the advantages of integrating artificial intelligence into compulsory levels of education were perused. A quick inspection of the literature revealed that since 2018, a growing trend has become popular in investigating the benefits of applying innovative tools in designing creative pedagogical methods, curricula, and lesson plans (Mahipal et al., 2023, p.8; Sansui et al., 2022). As AI gained currency for its spectacular services to educational sectors, students were also given further opportunities to explore the capacities of AI technology in classrooms (Irgens et al., 2022; Sansui et al., 2023; Son et al., 2023). Similarly, ensuring that teachers are also equipped with adequate technical know-how to employ AI tools is critical (Ayanwale & Sansui, 2023; Sansui et al., 2022 b).

Given that the omnipresence of AI is being noticed every day, an industry has not been able to be permeated by its essence. In particular, teachers should not only have good pedagogical expertise but also demonstrate an acceptable degree of artificial intelligence literacy. Since the advent of AI-driven technologies in education, traditional forms have been largely replaced, and student-centered pedagogies have been popularized (Ali, 2020; Shin, 2018). AI is used to monitor student performance, enhance teaching and learning quality, and perform critical analyses and assessments of student achievements (Kartal & Yeşilyurt, 2024; Pokrivcakova, 2019; Zhai et al., 2021). Similarly, the wide use of AI technology in education can help both teachers and learners excel in their professional and academic careers (Southworth et al., 2023).

According to Ng et al. (2023), AI-iterate teachers serve as leaders to their students, helping them navigate the digital world of learning and use the tech to foster a collaborative, engaging, and personal learning environment. Yeh (2024) conducted a thorough analysis of the use of AI in language learning classrooms and reported the same point. The researcher positively supported the idea that AI technologies could be substantially involved in creating communicative plans by employing creative ideas offered by the technology. "Chat-bot-supported language learning" has gained a considerable reputation for increasing the willingness of students to communicate (de la Vall & Araya, 2023; Dokukina & Gumanova, 2020; Huang et al., 2022). Studies point to the positive outcomes of AI for chatbots, including improved listening and speaking skills (Goksel-Canbek & Mutlu, 2016; Tai & Chen, 2024). Under such circumstances, when AI

literacy is highly appreciated, preparing preservice teachers for the infusion of AI and education is mandatory (Chen et al., 2022; Son et al., 2023).

Teachers' knowledge of AI in education can inspire students to be more welcoming toward innovative tools and practice adaptability (Ayanwale et al., 2024). Chen et al. (2022) insisted on the same results and reiterated that AI provides adaptive frameworks for language learning. This property, according to the researchers, shows the ability of AI to tailor the academic context to learners' needs. The positive role of AI in the extrinsic motivation of students to be proactive in classes has also been studied. Ali (2020) reported a significant difference between the control and experimental groups in terms of their desire to learn English. The study revealed that students who were exposed to AI-powered classrooms were more inclined to obtain English language lessons. The subjects were positive in their views toward using AI repeatedly, as they had reached a higher level of self-efficacy in their performance while they were attending classes.

2.3. AI Literacy, Risks, and Teachers' Perceptions

Some studies have shown that too many personalized learning environments can increase student-teacher emotional interactions and understanding (Al-Tkhayneh et al., 2023; Haseski, 2019). On the other hand, some scholars are optimistic about this feature and believe that AI can alleviate teachers' burdens and effectively nurture creativity and communicative interactions in students (e.g., Bajaj et al., 2018). Second, as AI is a modern technology, having access to leading devices is crucial as well. Nonetheless, it is still probable that some students, for various reasons, encounter inequalities and lose online classes (Božić, 2023). However, in the case of students with special needs, AI-driven education can be the best option (Catlin & Blamires, 2019; Mu, 2019). Finally, research suggests that AI cannot be a reliable tool for grading students' work or evaluating the quality of their creative job, as it may undervalue the creativity or innovativeness exercised in the work; thus, it is not always recommended for use (Al-Tkhayneh et al., 2023).

The next issue to be considered is ethical considerations. According to Ng et al. (2022), to prevent students from becoming dependent on AI and showing ignorance of their tasks, teachers must practice ethical principles with regard to using technology in the classroom. Scholars believe that ethical considerations constitute the fourth level of AI literacy and should be explained repeatedly in classes to encourage students to develop ethical views toward these innovative tools. AI is an intellectual property, and ethical concerns should also be obeyed; likewise, transparency and accountability should be considered (Ahmad et al., 2020; Lee et al., 2021; Ng et al., 2022). By teaching responsible users and designers, a new generation of moral students could be expected to use information technology tools reasonably. The thought that students have largely used AI to handle their tasks instead of doing them by themselves has brought new concerns into the light, including AI and anxiety. Wang and Wang (2022), for example, explain anxiety in the AI world as a phobia preventing users from learning or applying AI.

The growing trend in anxiety can also have direct or indirect impacts on individuals' attitudes toward computer-assisted learning (Rosen et al., 1987). Similarly, negative covert or overt behaviors may take form in people, which may hinder their willingness to use computers or welcome new technologies in education (Khasawneh, 2018). One of the factors that may invoke anxiety is the excessive and reckless use of AI across various conditions. For example, a study conducted by Hopcan et al. (2024) revealed that teachers are enthusiastic about learning new technology usage in the future. However, they have real concerns about the employment rate and social standards of life. The idea of being replaced by artificial intelligence has obviously grown into a threat to teacher candidates. This form of anxiety may be controlled by developing useful instructional material, assuring teachers that learner-centered education may not always be a proper method of teaching and cannot profit education at all times.

Research has also demonstrated that AI can be used for various purposes, whether good or bad, but it is undeniable that AI can be a powerful tool for malicious ends. These occur due to "algorithmic biases" and wrong AI applications (Burgsteiner et al., 2016). It is believed that the importance of taking ethics into account is mostly snubbed or underestimated in occupational contexts, thus resulting in technical issues (Hagendorff, 2020).

AI designers are disgruntled about the lack of responsibility among users and weak AI literacy. Similarly, they believe that ethical implications are not applied to their work, especially when economic interests are involved (Hagendorff, 2020). These factors also have consequences for students, given that AI often uses data from students; thus, student privacy may be at risk (Huang, Saleh, & Liu, 2021). Therefore, preservice teachers are strongly advised to empower themselves with AI literacy, as they are able to settle issues better, offer solutions, and employ problem-solving

skills to address ethical issues or any other emerging challenges (Ayanwale, 2024; Carolus et al., 2023; Cetindamar et al., 2022). Finally, the rapid pace of technological advancement in the development of new innovative tools may outpace educational institutions and put them in a challenging position to adapt themselves to the current AI-driven environment. Under these conditions, institutions cannot provide adequate education for teachers to keep up with the recent flow of discoveries (Kengam, 2020). Hence, it is vital to strike a healthy balance between advantages and disadvantages of AI for both students and teachers.

2.4 The Present Study

Considering all the concerns outlined in this review, the present study aims to understand teacher candidates' perspectives on the use of AI in future education and their views on integrating modern technologies into the educational landscape. Therefore, the study investigated the following research questions:

1. How do preservice language teachers perceive the integration of AI-powered tools in their teaching experience?
2. What challenges do preservice language teachers face when integrating AI-powered tools into their teaching methodologies, and how do these challenges affect their overall teaching performance?
3. How can language teacher education programs effectively prepare preservice teachers to integrate AI-powered tools into their teaching practices during the practicum?

3. Method

3.1. Participants

A total of 25 preservice language teachers participated in the study. These participants were selected using purposive sampling, which allowed for the inclusion of individuals who were specifically enrolled in a 16-week English practicum course. This sampling method was chosen to ensure that the participants had no relevant experiences with AI tools in a teaching context. The participants consisted of senior students aged between 21 and 24 years (8 males and 17 females) who had completed seven semesters of coursework in Teaching English as a Foreign Language (TEFL).

This course is designed to develop students' skills in teaching English to high school students. During the first five weeks of the practicum, the participants were taught the fundamental principles of using AI in language instruction, including practical applications such as utilizing ChatGPT, Pi, Sider and Copilot for lesson planning and tutoring. Following this initial training, the students practiced these skills in class settings, culminating in the preparation of a microteaching video where they taught English using AI tools. They had between one and three semesters of experience teaching English to teenagers. The participants exhibited varying degrees of English proficiency, yet they had successfully completed the prerequisite courses necessary for the practicum. These individuals were nearing the completion of their teacher education program and had practical teaching experience. They possessed no prior knowledge or experience regarding AI applications and acquired this information throughout the course. In adherence with ethical guidelines for research involving human subjects, the privacy and confidentiality of participants were of utmost importance during the study. To safeguard their identities, all educators were given pseudonyms, which have been consistently used in all related documents and any potential publications.

3.2. Data Collection

Semi-structured interviews were conducted with all the participants at the end of the practicum to gather data for this research. The interviews aimed to assess the participants' experiences and perceptions regarding the integration of AI tools into their teaching practices. In accordance with the recommendations provided by Merriam and Tisdell (2015) for conducting qualitative research, an interview framework was developed on the basis of the literature. There were ten open-ended questions that prompted more preferential inquiries. The content validity of the questions was verified by two experts with PhDs in language education and psychology. This interview scheme covered a range of topics, from the participants' backgrounds and perceptions to the benefits, challenges, and recommendations for integrating AI-powered tools in the language teaching practicum. The questions were designed to elicit in-depth responses and provide a comprehensive understanding of the participants' experiences and perspectives on this topic. Provide consent for audio

recording and assure confidentiality. Individual interviews were held with 25 participants. The interviews took place after the conclusion of the teaching sessions by the first author. The interviewer listened to the participants and tried not to interrupt the flow of their thoughts and avoid bias. Each interview lasted 20 minutes per participant.

3.3. Data Analysis

The audio data were recorded and then transcribed by the researchers. The data were then read, and the main themes were extracted. In the next step, we employed thematic analysis of the participants' responses gathered during the interviews, which constitutes a qualitative approach utilized to identify, analyze, and relate patterns within a dataset (Braun & Clarke, 2006). The thematic analysis was conducted through a systematic process comprising six phases: (1) familiarity with the data, (2) development of coding categories, (3) formulation of themes, (4) evaluation of themes, (5) articulation and designation of themes, and (6) identification of exemplars (Khajavi & Abdolrezapour, 2022). To enhance the reliability of our findings, we implemented collaborative coding (Smagorinsky, 2008), thereby fostering space for discourse concerning the data, with each decision emerging from a reflective dialog between the two researchers regarding the terminology of each data segment. The interviewees' comments were systematically coded in this context, concentrating on the primary variables under scrutiny. Both researchers meticulously examined the ultimate themes and categories to ensure complete consensus, resulting in the presentation of the principal findings. Thematic analysis was employed to analyze the interview data. Two researchers independently coded the transcripts before discussing their findings. Discrepancies between coders were resolved through discussion until a consensus was reached, ensuring thematic consistency.

To ensure reliability and comprehensiveness in our analysis, we monitored for data saturation during coding. Data saturation was achieved when no new themes emerged from subsequent interviews, indicating that we had captured the range of participants' experiences and perceptions adequately.

4. Findings

The analysis of the interviews conducted with the participants revealed several key themes. These themes emerged through a process of coding and categorization, allowing for a deeper understanding of the participants' perspectives and experiences. Each theme is discussed in detail below, supported by direct quotes from participants that illustrate their viewpoints and experiences.

4.1. Perceptions of AI Integration

***Acceptance*:** The study revealed a high level of acceptance of AI technology among participants (95%), largely due to their identity as digital natives who welcome technology. Preservice teachers expressed enthusiasm about AI tools' potential to enhance teaching effectiveness and student engagement. One student stated"

> It was a completely new concept for me. I had never used it before. The use of AI-powered tools in language teaching offers a personalized and interactive learning experience that adapts to individual learning styles. (S5)

Another student (S7) showed her interest and asserted:

> I believe that AI chatbots are very useful because they engage learners in realistic conversations. Additionally, personalized learning plans tailored for each learner are another great feature of AI.

After the COVID-19 pandemic, all students became acquainted with technology and how it could shape their education. This can lead to increasing the interest of the students. However, few preservice student teachers exhibited skepticism regarding the reliability of AI tools and their impact on traditional teaching methods. They believed that, owing to technical issues, relying on AI tools is not fruitful.

***Enhancement of Teaching Practice*:** Preservice teachers perceived AI tools as enhancers of their teaching efficacy and engagement with students. They maintained that using AI tools increased their confidence in teaching. This is mostly conspicuous in teaching languages, which presents different challenges for teachers. AI tools are believed to enhance student motivation and engagement through interactive and personalized learning experiences.

> After I found AI tools, I tried to give my lesson plan or teach a topic from ChatGPT and Copilot. Students are able to understand the topics better by looking at the images that I asked Copilot to make. My examples are new and unique

> because I give them from AI. Overall, AI helps me greatly in updating my knowledge and the way I teach English. (S22)

The participants noted that AI significantly aided them in developing efficient lesson plans.

> "AI has been quite effective in helping me develop an interactive and interpersonal lesson plan." (S15)

AI is capable of providing teachers with several lesson plans at the same times. This can help teachers to have plan A and Plan B for their teaching easily.

4.2. Benefits of AI Tools

Personalization: All participants highlighted the personalization aspect of AI tools, stating that tailored learning experiences addressing individual student needs and learning paces are crucial. For example, one participant commented, "Students may have a better overview of their grammatical or pronunciation abilities" (S8)

***Feedback Mechanisms*:** Automated writing evaluation and intelligent tutoring provide immediate feedback that is beneficial to both teachers and students. The preservice teachers noted that timely feedback is often challenging to deliver to all students but that AI can alleviate this issue, reducing grading workloads and allowing for more focused instruction.

Resource Efficiency: The study found that AI can automate routine tasks, enabling preservice teachers to concentrate more on pedagogical strategies and direct student interactions. Participants viewed AI as an assistant that enhances their teaching capabilities. This is understandable as teachers mostly have problems in managing their time due to time limitation issues; however, AI can alleviate this problem with decreasing the time necessary for doing teaching tasks.

Reinforcing interaction: AI chatbots were highlighted as a valuable tool for engaging students in realistic conversations and improving their speaking and listening skills in practical contexts.

> "The AI chatbots are fantastic for conversation practice. My students benefit from the realistic interactions, which boost their speaking skills." (S10)

As evidenced in the interviews, teachers are in favor of practicing speaking skill out of the class but students need partners to talk with. Some AI tolls like "Pi" can help students achieve this goal.

4.3. Challenges of AI Tools

Technical challenges: Participants reported several technical difficulties, including slow internet speed and issues accessing certain websites due to VPN restrictions. For some, inadequate Wi-Fi service created barriers to the effective use of AI tools, particularly in the classroom setting.

> "Yes, there were several difficulties, such as a lack of good Wi-Fi service connections or some technical issues; however, filtering and censorship were still major challenges when AI tools or websites were used. As some students have no experience working with AI tools, they also face some difficulties." (S12).

In the same vein, another student stated:

> "The greatest challenges were due to internet problems that kept the pace of the class slightly slow and that were at the university. Some websites have banned Iranian users or, owing to the problems of currency accounts, cannot use premium accounts personally." (S15)

Technical Proficiency*:* The lack of adequate training in using AI tools was a significant concern, leading to frustrations and diminished confidence. Participants underscored the necessity of effective education and hands-on experience with AI during their training.

> "I feel unprepared to use AI tools effectively sometimes. I wish we had more training on how to use these technologies in our teaching."(S21)

Ethical Concerns: Anxiety regarding data privacy and security, as well as the ethical implications of AI use in education, emerged as critical challenges. Participants expressed the need for reassurances about data security to protect student rights.

> "I'm concerned about data privacy when using AI. It's important to know that my student's information is safe while we use these tools." (S20).

Resource Accessibility: Disparities in technology and resource accessibility hindered some students' learning experiences, particularly when accessing AI tools.

> "Not everyone in our program has access to the same technology, and that creates a gap in how effectively we can use AI tools."(S 11).

False information: Some participants noted instances of AI providing false information or unclear explanations, raising concerns about its reliability.

> "I've encountered problems with AI giving incorrect information. It's crucial to stay critical of what it generates."

Payment Barriers: Difficulty accessing international payment networks prevented participants from purchasing subscriptions for advanced AI features. One participant mentioned,

> Yes, while Copilot was used, there were some limitations. I asked AI to make some pictures for me, but it was unable to give me the pictures because of filtering. Additionally, Gamma was unable to give me the PowerPoint that I need because you have to pay money to buy the premium version. (S 10).
>
> I think the main problems we have to use these programs are the lack of access to free and high-speed internet, as well as the lack of access to international payment networks to buy special subscriptions.
>
> "Some of the best AI features require payment, which limits our access. It's frustrating when I can't use the tools I want because of costs."

Threatening creativity: A significant number of participants (75%) voiced concerns about overreliance on AI, fearing that it could undermine traditional teaching skills and personal teacher-student interactions.

One participant reflected, "AI is very helpful and makes many aspects of teaching easier. However, if these tools replace our role instead of supporting us, they may reduce our creativity and effort. (S12)

> "As a person who has relatively good language knowledge and decides to teach English in the future, I believe that the use of artificial intelligence is very helpful and makes the work of a teacher easier in many ways. However, we are all learners, and I believe that these tools are suitable and useful as long as they help us, but if they are supposed to work instead of us, they will reduce our creativity and perseverance, and we may even become lazy. (S19)
>
> "I worry that relying too heavily on AI could limit my creativity as a teacher. I want to ensure I can still bring my unique style to the classroom." (S1)

As Chris et al. (2022) rightly mention, the rapid advancement of AI text generation poses challenges for traditional writing instruction, necessitating careful evaluation of AI-generated content and the incorporation of critical thinking strategies

4.4. Preparation for Effective Integration

Curriculum Design: Participants identified a pressing need for teacher education programs to include modules focused on tech literacy, particularly regarding AI integration in language teaching.

> "I believe our teacher education program needs to focus more on AI literacy. It's vital for us to understand these tools if we're going to use them effectively in our classrooms."

Hands-on Experience: The importance of providing practical work with AI tools during training was emphasized to build competency and confidence.

> "Having hands-on experience with AI tools during our training would make a huge difference. It's so much easier to learn when you can practice using the technology."

Curriculum Gaps: Many preservice teachers indicated a lack of comprehensive training on AI tools, advocating for curriculum enhancements.

> "There's a noticeable gap in our education regarding how to use AI tools. More training on this topic would really help prepare us for teaching." (S11)

Addressing the noticeable gap in education regarding the use of AI tools is essential for preparing teachers to meet the demands of modern classrooms. Comprehensive and accessible training programs can empower educators to integrate AI effectively, ultimately enhancing teaching practices and student learning outcomes. By investing in professional development around AI, educational institutions can ensure that teachers are not only comfortable with these technologies but are also able to harness their full potential to foster engaging and impactful learning environments.

Collaboration with Tech Developers: Encouraging partnerships between teacher education programs and AI developers was identified as crucial for keeping training materials updated and relevant.

4.5. Future Outlook and Adaptation

As we look to the future of education in an increasingly technology-driven world, the need for adaptation and innovation in teacher training programs becomes clear. One promising approach is the establishment of partnerships between educational institutions and AI developers. Such collaborations could significantly enhance the quality and relevance of teacher preparation, ensuring that educators are equipped with the most up-to-date insights and tools. In this line, one student stated:

> "I think it would be beneficial if our teacher programs partnered with AI developers. It could lead to us getting the latest insights and tools." (S 20)

Evolving Teacher Roles: Participants noted that AI reshapes educators' roles from mere knowledge transmitters to facilitators of learning, with AI serving as an active partner. One participant remarked,

> "AI-powered tools are likely to become increasingly significant due to their cost-effectiveness and ability to offer customized learning experiences. I think it will play an important role in our field of study but not in the way that deletes the role of teachers". (S11)

> "I see AI changing my role as a teacher. I want to be more of a guide than just someone who delivers *information."* (S7)

Lifelong Learning: The need for ongoing professional development in AI tools was emphasized to keep pace with evolving technologies in education.

> "I know I need to keep learning about AI tools throughout my career. Technology is always changing, so staying updated is essential." (S 9).

In the contemporary, swiftly transforming technological milieu, perpetual education is of paramount importance, especially within the domain of artificial intelligence (AI) tools. As educators and practitioners, we are not only compelled to adjust to these advancements but also to assimilate them proficiently into our pedagogical methodologies. The imperative for continuous professional advancement in AI is crucial; it empowers us to remain informed about emerging innovations and practices that can significantly improve educational outcomes.

***Research and feedback loops*:** Encouraging a culture of reflective practice and ongoing research in classrooms to share experiences and findings related to AI usage was deemed essential. These themes provide a comprehensive framework for analyzing perceptions, experiences, and recommendations regarding the use of AI-powered tools in language teacher education and practicum experiences. While it is challenging to predict the exact future use of AI in education, it is evident that it will become an essential component of everyday human life, offering easier solutions to meet human needs. As technology continues to develop, AI will have an increasingly significant impact on language teaching and learning, becoming more advanced yet user-friendly. It is difficult to predict how exactly it will be used in the future, but it will definitely become an essential part of every single human's life and continue to provide us with easier solutions for human needs.

"I believe creating feedback loops and doing research on AI usage in the classroom is vital. It will help us improve our teaching practices over time." (S 17)

Since technology is an inseparable part of human life, AI will continue to update and have an important impact on our lives, specifically in language learning and teaching. It will be more sophisticated and advanced but easier to use.

5. Discussion

The current qualitative research explored how preservice language teachers perceive the integration of AI-powered tools in their teaching experience. The findings from this study shed light on preservice teachers' perceptions, experiences, and expectations regarding the integration of AI tools into their educational practices. Through thematic analysis, several key themes emerged, highlighting both the opportunities and challenges associated with adopting AI technologies in teaching and learning environments.

A notable finding is the high level of acceptance of AI technologies among preservice teachers, reflecting their identity as digital natives. Participants expressed enthusiasm about AI's potential to enhance pedagogical practices and actively engage students. This positive outlook aligns with the growing belief that technology can be a valuable partner in education (Dehghani & Mashhadi, 2024; Moulieswaran & Prasantha Kumar, 2023).

However, it is important to acknowledge that a minority of participants voiced skepticism about the reliability of AI tools. These concerns emphasize the need for comprehensive understanding and systematic training to ensure that these technologies are used effectively rather than detracting from traditional teaching methods. In line with the findings of Yeh (2024), AI technologies are directly involved in cultivating an active and engaging learning environment. The interviews also demonstrate the increasing satisfaction of preservice teachers with the AI-powered approach, as they can immediately receive constructive feedback on their offered ideas. This is not surprising as AI has been substantially influential in offering new horizons in language learning by providing personal feedback and learning experiences (Pokrivcakova, 2019; Kartal & Yeşilyurt, 2024). Furthermore, the interviews show that AI could have long-standing impacts on better learning by facilitating the gamification of learning procedures or offering innovative methods for retaining the materials learned from long-term memory. As confirmed by recent research on the wide application of AI to English language teaching, technological innovation has made a significant transition in terms of enhancing teaching qualities and students' learning (Tsou & Chen, 2019). Likewise, as suggested by Son et al. (2023), the literature review highlights the cumulative growth of AI in various domains of education, specifically teaching. Researchers argue that technology is becoming transformative and inspires substantial change in education. According to their research, AI-based approaches to learning and teaching will soon take their rightful place among research interests; thus, novice teachers must be fully familiarized with recent trends in educational research.

The participants pointed to the critical role of AI in providing helpful guidance for a good educational context according to the students' required cultural and personal backgrounds. The findings suggest that computer-assisted teaching can also be effective in developing a localized learning context for students. As highlighted before in the literature, Chen et al. (2021) adhere to the same findings and encourage researchers to adopt AI-driven frameworks for teaching, as they can promote adaptability between learners and provide teaching material on the basis of their needs.

The interviews draw attention to the point that AI has paved the way for the rise of a new educational and technological approach toward teaching. Preservice teachers believe that the integration of AI has been conducive not only to the cultivation of a better academic environment but also to enhancing learning opportunities. The participants were optimistic about further interactions between artificial intelligence and educational disciplines. The themes of personalization, feedback mechanisms, resource efficiency, and enhanced interactions in the findings underscore the diverse benefits that AI tools can bring to education. Participants highlighted the importance of personalized learning experiences facilitated by AI, which cater to individual student needs and are particularly beneficial in language education, where proficiency levels can vary significantly. AI tools also offer immediate feedback, addressing a critical challenge many teachers face: timely assessment of student performance. The findings suggest that AI can alleviate some grading burdens, allowing educators to focus more on interactive teaching methods. Moreover, the ability of AI chatbots to foster realistic conversations represents a paradigm shift in language learning, moving away from rote memorization toward more dynamic, conversation-based skill development. Overall, while preservice teachers are generally optimistic about

the integration of AI in education, ongoing training, and support are essential to maximize its benefits and address any concerns.

Preservice teachers also highlighted the usefulness of AI in covering various educational resources despite their time-consuming nature. Similarly, the participants added that AI was practically effective in providing a moving learning experience by employing chats and vibrant pictures. In a similar vein, research has demonstrated that "chatbot-supported language learning" has offered tremendous learning opportunities to students (de la Vall, & Araya, 2023; Dokukina & Gumanova, 2020; Huang et al., 2022). The findings were in agreement with the reports of a study by Goksel-Canbek and Mutlu (2016), as teachers were positive in their view that AI can increase speaking and listening opportunities. However, they admitted a lack of prior experience in applying AI in their teaching practices. This finding underscores the need to educate the new generation of teachers on effectively utilizing AI in their classrooms, thereby alleviating difficulties and leveraging learning opportunities.

Preservice teachers reported encountering technical difficulties such as slow internet connections and access restrictions, particularly in some geographical regions. These issues not only impede the effective use of AI tools but also highlight the digital divide, which can exacerbate inequities in educational access and quality. The disparity in technology access raises concerns about fairness in educational opportunities for all students. The implementation of AI technologies in education presents several challenges despite their numerous benefits. Key barriers identified include technical difficulties, insufficient training, and ethical concerns surrounding data privacy.

One prominent concern among participants was related to payment barriers associated with accessing certain AI tools. Many preservice teachers indicated that financial constraints limited their ability to utilize advanced technologies effectively. This finding aligns with previous research highlighting that economic factors often hinder educators' access to innovative teaching resources (Owuondo, 2023). To address these barriers, it is essential for educational institutions to explore alternative funding models or provide institutional support that enables preservice teachers to access necessary AI tools without experiencing significant costs.

Another critical theme identified in our findings was the prevalence of false information regarding AI tools and their capabilities. Several participants reported feeling hesitant to adopt AI technologies due to misconceptions about their effectiveness or concerns about reliability. For instance, some preservice teachers believed that AI could replace traditional teaching methods entirely, leading to resistance in integrating these tools into their pedagogical practices. This highlights a significant gap in knowledge that teacher education programs must address.

To avoid misinformation, it is vital for teacher education curricula to incorporate comprehensive training sessions that clarify the functionalities and limitations of AI tools. By providing accurate information and fostering a deeper understanding of how AI can complement traditional teaching methods, we can empower preservice teachers to embrace these technologies confidently.

Furthermore, practical recommendations for addressing these challenges, such as strategies for mitigating financial barriers or improving AI tool reliability, would strengthen the section. Explicitly linking the findings back to the study's research questions would also enhance coherence and demonstrate the study's contributions more clearly.

Participants also expressed apprehensions regarding the ethical implications of using AI, particularly concerning data privacy. There is a fear that overreliance on AI could lead to a decrease in creativity among educators, as they may lean too heavily on technology rather than employing their unique instructional approaches. This necessitates a careful balance between utilizing AI functionalities and maintaining the integrity of traditional teaching methods. Educators must cultivate a critical mindset towards AI, ensuring that they leverage these tools while preserving their creative and professional integrity.

The findings indicate a strong demand among preservice teachers for improved training and curriculum design focused on AI tools. There is an urgent need for teacher education programs to prioritize technology literacy and provide hands-on experiences with AI technologies. By addressing existing curriculum gaps, educational institutions can equip future educators with the necessary skills and confidence to integrate AI effectively into their classrooms. Collaborating with technology developers can further enhance curriculum relevance, keeping preservice teachers informed about the latest advancements in educational technology.

As the role of teachers evolves from mere transmitters of knowledge to facilitators of learning, participants envision a future where AI tools support teaching practices without overshadowing traditional pedagogical approaches. This shift requires ongoing professional development to keep pace with technological advancements. Emphasizing a culture of research and feedback is crucial for continuously reflecting on and adapting teaching practices.

The findings suggest that while AI technologies can significantly enhance learning experiences, careful implementation and professional development are essential to mitigate existing challenges. As the educational landscape evolves, embracing the potential of AI while upholding core teaching values will be vital in shaping the future of language education (Bannister, 2024).

As discussed by Son et al. (2023) and Chen et al. (2022), teachers should ensure that their knowledge of AI is sufficient for leading an AI-powered classroom. Scholars encourage policymakers to develop a practical, solid framework that can efficiently address these issues with the application of artificial intelligence in classrooms. This solid framework, as our research suggests, is crucial for the successful integration of AI into the learning process. On the basis of these discoveries, successful integration of AI will not guarantee the successful utilization of the technology in the class (Chen et al., 2022). Teachers' knowledge should effectively accommodate both the technological and educational needs of both teachers and learners (Yeh, 2024). Therefore, there is a need to bridge the gap between the theoretical claims regarding the use of AI and the practical aspects of it in the classroom.

The participants expressed concerns regarding the dominant role of AI in educational contexts, which could lead to the weakening of teachers' roles in teaching classes. This is in line with Shin's (2018) study, which claims that artificial intelligence can handle a classroom without the need for the presence of a teacher or instructor (Shin, 2018). These features, according to the researcher, are more learner-based; hence, they could be more beneficial (Ali, 2020). However, some participants mentioned that although the teacher's role in the classroom may be underestimated, fair education will be available for all classes of society, especially students with mental or physical disorders. The dominant belief of teachers toward the use of AI in classrooms was to regard AI as a teacher-assistant rather than the teacher itself. The participants argued that despite the wide use of AI in different contexts if the tool replaces teachers or fulfills tasks instead of learners, there will be enormous threats to effective learning. The students are supposed to handle their tasks, not pass them to AI tools.

Under such circumstances, AI will render conflicting results, and students will fail to obtain their expected materials. Hence, both teachers and learners do not have an optimistic view of the application of AI in class. Therefore, good supervision should be allocated to such issues. These concerns denote the fourth principle of applying AI to educational contexts, known as ethics (Ng et al., 2022). Teachers' fear of students' overreliance on AI highlights the need for the reciprocal cultivation of AI literacy in students as well. Scholars persist on the point that students should also learn that using AI on some occasions could be legally binding and that the intellectual property of the technology must be respected. Thus, an increase in knowledge can undoubtedly promote awareness and increase the number of socially accountable users and designers (Lee et al., 2021; Ng et al., 2022). Furthermore, the findings show some degree of anxiety in teachers about their future positions, considering the dominant growth of AI in education. This out-of-control application of AI has instilled fear in teachers regarding their job safety and occupational success. The statements by the candidates are in line with the results reported by Hopcan (2024), who demonstrated that teachers are at unease for their concerns regarding the overuse of AI.

6. Conclusion

The current study examined the potential of artificial intelligence (AI) in language teacher education, particularly for preservice teachers. The findings revealed a prevalent interest among participants in AI technologies, highlighting their effectiveness in enhancing interactivity and providing immediate feedback in lesson planning and teaching. Moreover, while preservice teachers expressed optimism regarding the capabilities of AI, they also raised critical concerns about its implications for teacher roles. Their hesitations about AI possibly undermining the teaching profession emphasize the need for a careful equilibrium between technological integration and the essential human facet of teaching. Future instructors must be proficient in AI applications and remember their central role in guiding and facilitating student learning. The study advocates the development of comprehensive frameworks and training programs that equip teachers with the knowledge and skills to implement AI effectively in their pedagogical practices.

Ultimately, as AI continues to evolve and reshape the educational landscape, teacher education programs must embrace these changes proactively, preparing preservice teachers to navigate the complexities of AI integration while safeguarding the core values of teaching. By addressing the potential challenges and capturing the positive aspects of AI, we can foster an educational environment that maximizes learning opportunities for all students, ensuring that technology enhances education. In conclusion, this study illustrates the complex interplay between acceptance, benefits, challenges, and preparation for integrating AI in language teaching. Navigating these dynamics will require collaboration among educators, institutions, and technology developers to create an enriching educational environment that embraces innovation while prioritizing quality teaching.

The study involved a relatively small sample size of twenty-five preservice teachers. This may limit the generalizability of the findings to a broader population of language teacher candidates. Future research could benefit from larger, more diverse samples that include participants from different educational backgrounds and institutions. The reliance on self-reported data from participants may also lead to biases, such as social desirability bias, where participants might provide responses they believe are more favorable or acceptable rather than reflecting their true feelings or experiences.

Information on Informed Consent or any Data Privacy Statements

Informed consent was obtained from all participants involved in this study. Participants were provided with detailed information regarding the purpose of the research, the use of their data, and their rights to withdraw at any time. All data collected were anonymized to ensure privacy and confidentiality, in accordance with relevant data protection regulations.

Conflict of Interest

The authors have no conflicts of interest to declare.

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