

Harnessing Artificial Intelligence in English Language Teaching: A Content Analysis and Learner-Centered Study

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Adeel Khalid¹

Abstract

Artificial Intelligence (AI) is rapidly transforming educational landscapes, particularly within language learning contexts. This study explores the pedagogical applications, learner experiences, and perceived challenges of integrating AI into English language teaching and learning. Drawing on a qualitative content analysis of recent research literature (2018–2024) and a student questionnaire (N = 80), the study identifies four major themes: the advantages of AI for personalized and engaging language practice; limitations related to emotional disconnect and contextual understanding; learner preferences for blended models combining AI with human instruction; and instructional strategies integrating AI, such as flipped learning and speech recognition tools. Findings indicate that AI tools significantly support speaking and listening skills through automation, immediate feedback, and increased learner motivation. However, emotional limitations, reduced socio-cultural interaction, and underrepresentation of reading and writing skills signal critical gaps. The study highlights the need for responsible, pedagogically sound AI integration in ESL classrooms and calls for further research into AI's role in supporting literacy development. Implications are offered for educators, AI developers, and researchers.

Keywords

artificial intelligence, educational technology, English language teaching, language learning, student perceptions, ESL/EFL

¹Department of English, Forman Christian College (A Chartered University), Lahore, Pakistan

Corresponding author:

Adeel Khalid, Department of English, Forman Christian College (A Chartered University), Lahore, Pakistan.

Email: adeelkhalid@fccollege.edu.pk

I. Introduction

In the 21st Century, technologies are rapidly changing, and Artificial Intelligence (AI) has become one of the most powerful factors that affect spheres such as education. AI is an imitation of the process of intelligence of people through computer brains, mainly the machines functioning as computer systems, with the ability to learn, reason, and correct themselves (Marr, 2018). Since learning spaces evolve along with the needs of digital students, the use of AI in pedagogy is expanding, and AI provides a set of automation tools, personalization tools, and interactivity (Zawacki-Richter et al., 2019). In the linguistic field, AI has transformative capabilities, i.e., creating real-time feedback, language training, adaptive learning, and intelligent tutoring (Luckin et al., 2016; Holmes et al., 2021).

When teaching the English language, especially in English as a Second Language (ESL) and English as a Foreign Language (EFL) environment, learners may have to contend with many difficulties, which include the unavailability of a qualified tutor, lack of actual interactions, and failure to receive personal analysis. Promising to reduce them, AI-based systems are the thing to maintain scalable, responsive, and adaptive support: chatbots, intelligent speech recognition systems, and writing assistants (Li et al., 2023; Sun et al., 2023). That is why this developing possibility becomes more and more popular to learn about the pedagogical implications and limitations of AI usage in teaching languages.

After the increasing adoption, the study of AI in language learning remained fragmentary. On the one hand, there are many studies devoted to the positive effects of AI use on speaking and listening skills (Shin, 2018; Wei, 2018). On the other hand, there is no agreement on the use of AI in all spheres of language knowledge, particularly in writing and reading. Moreover, while developers focus on optimizing machine learning and automation, fewer studies consider learners' perspectives, socio-emotional engagement, and the contextual effectiveness of AI tools in language learning environments (Holmes et al., 2021; Roll & Wylie, 2023). Additionally, most existing studies are either theoretical or conducted in high-resource educational settings, with limited representation from under-resourced or developing contexts.

Furthermore, many tools currently used in classrooms, such as Grammarly, ChatGPT, and language learning bots, have yet to be critically examined for their pedagogical affordances and constraints from both educators' and learners' viewpoints. As educators rush to adopt these technologies, there is an urgent need to explore how learners experience these tools, what challenges they face, and whether AI can truly facilitate comprehensive language development or merely augment limited aspects.

This study aims to address these gaps by examining the applications, benefits, and challenges of AI in English language teaching and learning, based on a systematic content analysis of recent literature and a survey of student experiences. The research focuses on understanding how learners perceive AI-based tools, which language skills are most supported by AI, and where these systems fall short. This inquiry is situated within the context of increasingly AI-enhanced classrooms, especially in post-pandemic digital learning spaces. It contributes empirical evidence from learner voices and pedagogical analysis, thereby offering practical implications for both educators and ed-tech developers. By identifying both affordances and constraints of AI in English instruction, the study adds to the growing body of research that calls for responsible, inclusive, and human-centered AI integration in education (Cheng et al., 2022; Ahn & Lee, 2024). The research objectives are;

- To explore how AI is being utilized in English language teaching and learning contexts.
- To identify learners' perceptions of the benefits and challenges of AI-assisted language

learning.

- To examine the alignment (or lack thereof) between AI capabilities and the pedagogical needs of language learners.

This study aims to conduct a qualitative content analysis of recent peer-reviewed literature (2019–2024) on AI in ELT, identify types of AI tools and their pedagogical affordances, and explore student-reported benefits and challenges in the Pakistani university context by examining how well AI capabilities align with learner needs, and offer pedagogical recommendations for improved AI integration in ELT. Accordingly, this study is guided by the following research question: what are the pedagogical applications and learner-reported challenges of using Artificial Intelligence in English language teaching and learning, and what qualitative content analysis from recent peer-reviewed literature on AI in ELT identifies types of AI tools and their pedagogical affordances? While primarily this exploratory study hypothesizes that AI tools can enhance language learning by offering personalized and interactive support, yet often face limitations in cultural sensitivity, emotional engagement, and pedagogical alignment, particularly in localized educational contexts. Originally published in 1981, George's Marvellous Medicine tells the story of eight-year-old George who is left at home one morning with his much-despised Grandma. To teach her a lesson (though for what exactly remains unclear; I return to this issue in section 7), George mixes a 'medicine' for Grandma that consists of almost every liquid, oil and unguent he can find in the house. On drinking the medicine, Grandma first of all grows enormously tall before later shrinking until she becomes so tiny that she disappears completely. To investigate the impact of the revisions made to the 2022 edition of the story, I focus on answering four research questions.

II. Literature Review

The term *Artificial Intelligence* (AI) was coined by John McCarthy in 1956 during the Dartmouth Conference, a landmark moment that formally launched the field of AI (McCarthy et al., 2006). McCarthy's vision was rooted in the premise that "every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it" (Marr, 2018, para. 2). Since then, AI has evolved to encompass a broad interdisciplinary field involving computer science, cognitive science, philosophy, linguistics, and engineering. AI is often categorized into two domains: *weak AI*, which focuses on task-specific systems (e.g., voice assistants), and *strong AI*, which aims to replicate human cognition (Russell & Norvig, 2021). Core subfields include machine learning (ML), natural language processing (NLP), computer vision, and speech recognition (Cheng et al., 2022). Large corporations such as Google, Amazon, and Meta are further developing AI to be used by the general population in areas of translation, recommendation programs, and adaptive algorithms (Marr, 2021).

The educational field is being transformed with the help of AI by providing adaptive learning environments, through automated assessment, and becoming more personalized (Zawacki-Richter et al., 2019). The pedagogical position is also being reshaped through the use of Intelligent Tutoring Systems (ITS), learning analytics, AI-based writing tools, and chatbots that facilitate the provision of personal feedback and differentiated learning (Holmes et al., 2021). As an example, AI tools can process and view the performance of students in real-time and hence give personalized suggestions to improve it (Chen et al., 2021). The tools apply to different learners as they touch on motivation, control of the attention level, and special needs students. Moreover, AI tools decrease the workload of teachers when they are the ones teaching large classrooms by automating administration and improving the accuracy of the assessment (Luckin et al., 2016). The ethical, cultural, and instructional applications of AI in learning have also been highlighted in recent times. Researchers postulate that even though AI increases efficiency, its applications should be re-assessed critically lest it supports the reinforcement of biases and inequity or the de-skilling of

teachers (Roll & Wylie, 2023).

Moreover, the programs based on the Automatic Speech Recognition (ASR) powered by AI are gaining an increasingly wider foothold in pronunciation teaching, and Text-to-Speech (TTS) interfaces support learners with visual impairments or reading difficulties (Zhang et al., 2022). Other empirical researches describe the advantages of the use of AI tools in improving the autonomy, motivation, and engagement of learners. As an example, Ahn and Lee (2024) found high-quality speaking fluency and a decreased level of language anxiety among Korean university students who used AI-assisted conversation simulators. On the same note, Abid et al. (2022) established that cohesion, grammatical accuracy, and lexical richness were enhanced by the use of AI writing tools among undergraduate learners in Pakistan. Most of the literature on the use of AI appears isolated in its examination of AI tools or specific dimensions of pedagogical uses of AI, and a synthesis within the context of English language education as a whole. While teacher perspectives and technical functionalities of AI tools are well-documented, few studies investigate learners' challenges and experiences using these tools, especially in underrepresented contexts such as South Asia. The literature on context-specific research is limited in the context of developing countries such as Pakistan, where the issue of infrastructure, digital literacy, and the cultural context creates major implications in successful AI implementation in language learning.

III. Methodology

Although highly empathic listening should improve experiences alone, it may lower positive expectations for solitude time and individuals may underestimate how well they will feel when alone. Expectations for life experiences do not exist in a vacuum, and I think expectations for life experiences do not predict lived experience very often (Hatano et al., 2022). People have expectations when compared to the alternatives available (Ritov, 2000). When thinking of ugly social interactions as an alternative, people may overestimate how positive being alone will be.

This paper is based on a hybrid theory that combines the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh, Thong, & Xu, 2012). The integration offers the ground to explore not only the pedagogical appropriation of Artificial Intelligence (AI) into the teaching of the English Language (EL) but also the behavioral intentions, attitudes, and difficulties of learners in the adoption of technologies based on AI. The dual framework is especially effective given the dual focus of this project, which is (a) content analysis of available research on AI in ELT, and (b) learner-focused research into the experience and reaction of undergraduate ESL student in Pakistan to AI tools in their language learning behavior.

The TPACK model theorizes the types of knowing needed by educators in incorporating technology in their teaching practice. Shulman (1986) developed the concept of Pedagogical Content Knowledge (PCK) that should include a third essential domain that can be called Technological Knowledge (TK). TPACK presents a further extension of the model, which should be built on the basis of the contributions that were made by Shulman (1986). Out of that, the resulting framework comprises seven inter-related elements Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK) and the intersections Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and its synthesis Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006). At the intersection of AI-driven ELT, TPACK serves as an effective model that helps gauge the teacher and instructional designer in applying AI-facilitated tools, including grammar checkers, AI chatbots, an adaptive learning environment, and automated feedback tools to pedagogically and contextually sound approaches. In this study addressing the content analysis section, the TPACK model helps to classify the empirical research studies of AI

in ELT on the basis of how effectively the studies cover each part of technologically incorporating information. Thus, one study might concentrate only on technological affordances (TK) but not give a close consideration to pedagogical alignment (PK) and linguistic content relevance (CK), and another study might present a more balanced and blended paradigm of AI-enhanced instruction. Furthermore, the TPACK model puts technology in the context of sensitivity; it cannot be applied effectively unless the tools available are adjusted in relation to particular content and instructions. When teaching languages in ESL scenarios, language learning is highly interactive and contextualized, and the ability to judge when and how frequently to use AI tools and to balance them with communicative, task-based, and multimodal approaches to communication must be exercised by a teacher. This aligns with findings from studies emphasizing the importance of teacher agency and situated expertise in successful technology integration (Koehler, Mishra, & Cain, 2013).

While TPACK addresses the instructional design and teacher knowledge dimensions of AI integration, it does not sufficiently capture learners' behavioral responses, intentions, or challenges related to using AI technologies. To address this, the UTAUT2 framework is employed. Developed by Venkatesh, Thong, and Xu (2012), UTAUT2 builds on the original UTAUT model (Venkatesh et al., 2003) by incorporating new constructs to better explain technology acceptance in consumer and educational contexts.

UTAUT2 includes the following core constructs:

- Performance Expectancy: the degree to which learners believe that using AI tools will improve their language learning performance.
- Effort Expectancy: the perceived ease of use of AI tools for language-related tasks.
- Social Influence: the extent to which learners perceive that important others (peers, teachers, institutions) support or value the use of AI tools.
- Facilitating Conditions: the perception of available resources and support to use AI tools effectively.
- Hedonic Motivation: the degree of enjoyment derived from using AI in learning.
- Price Value: the perceived trade-off between the cost (or effort) and the benefit of using AI tools.
- Habit: the extent to which learners routinely and automatically use AI technologies.

Conceptual Framework

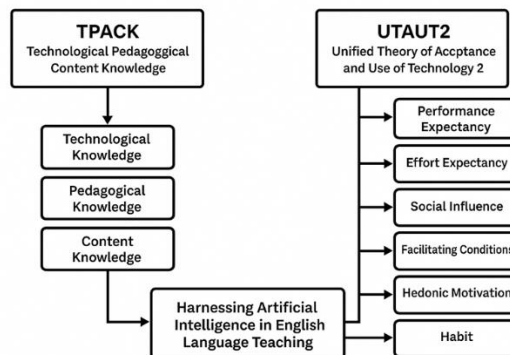


Figure 1. Conceptual Framework

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In the learner-centered component of this study, the UTAUT2 framework informs the design and interpretation of questionnaire and interview data collected from undergraduate ESL learners in Pakistan. It helps to explore how learners perceive AI tools (e.g., ChatGPT, Grammarly, QuillBot) in their academic English writing tasks, vocabulary acquisition, grammar practice, and multimodal composition. For instance, a student may perceive a tool like Grammarly as highly effective (high performance expectancy) and easy to use (high effort expectancy), but may not adopt it regularly due to a lack of institutional support (low facilitating conditions) or concerns about authenticity and learning integrity (low social influence or price value). Given the increasing but uneven access to AI technologies in Global South contexts like Pakistan, UTAUT2 is particularly valuable in uncovering the nuanced socio-technical and cultural factors that shape learners' acceptance and resistance to AI integration. Besides, affordability, digital literacy, and academic readiness can shape the constructs, including facilitating conditions and habit, thus providing a more detailed perception of learner engagement.

The combination of TPACK and UTAUT2 in the research enables two-lens perspectives as the model provides a connection between the supply-side (technological-pedagogical planning and instructional design by educators) and the demand-side (experiences that students have regarding AI technologies and their perceived value and usage). TPACK confirms that AI implementation is assessed as far as pedagogical logic and material compliance are concerned, whereas UTAUT2 reveals behavioural reactions, problems, and adoption patterns of learners. This framework, under consideration, in practice, enables triangulation during both phases of the research. In the content analysis, the TPACK bestows the orderly coding of published research as a means of measuring the extent to which AI technologies are pedagogically and contextually well-built. In the case of the learner-centered inquiry, UTAUT2 serves to map acceptance, resistance, or usage patterns of learners in detail and thus indicates possible discordances between perceived pedagogical ends and learner conditions. With the integration of these two frameworks, this paper helps one to better understand the integration of AI in the field of ELT more comprehensively by evaluating its integration on the education innovations level and operationalizing it on the agency of learners, accessibility, and situational adoption.

This part explains the approach that was used in the review. It describes research design, such as sampling of research articles, methods of data collection, and data analysis techniques. This part describes the research methodology used in the research. It explains the research design, criteria used in selecting articles to use in the study, the mode of data collection, and how qualitative data analysis will be done. The position paper represents research with a qualitative research design and the implementation of content analysis in the study of the role of AI in executing English language teaching and learning. Schreier (2012) defines content analysis as an organized way of classifying and understanding text information and the determination of patterns, topics, and meaning. It is reasonable to use such an approach to review published material since it allows performing an organized synthesis of the results of various studies (Elo & Kyngas, 2008). As Fraenkel, Wallen, and Hyun (2019) argue, content analysis implies thorough study of the textual

information, such as scholarly articles, and the results of the research are removed and interpreted. The specific discipline within this study is that of peer-reviewed journal articles dealing with the matter of AI tools integration (i.e., ChatGPT, Grammarly, AI tutors) in regard to English language teaching and learning.

A purposive sampling strategy is employed, and it is used to select the articles that are in agreement with the research objective. The research articles are collected in academic databases, which have peer-reviewed research articles, including Scopus, ScienceDirect, and EBSCOhost, databases with leading academic research articles. Only the articles published between 2019 and 2024 are taken into consideration to make the review up-to-date and correspond to the current development.

The inclusion criteria are:

- Empirical or conceptual articles focused on AI in English language teaching and learning.
- Publications in peer-reviewed journals.
- Articles written in English.
- Availability of full-text access.

Exclusion criteria include non-peer-reviewed sources, articles unrelated to language pedagogy, and those published before 2019.

Management of the data collection process entails the following steps:

- i. Selection of appropriate databases: Scopus, ScienceDirect, and EBSCOhost are chosen because they cover a variety of academic subjects exhaustively.
- ii. Article Selection: The integration of the so-called keywords “Artificial Intelligence,” English language teaching / ESL / EFL / AI writing tools/language learning technologies is applied to be handy with references in article exploration. The search precision is extended with the help of Boolean operators and synonyms based on the thesaurus.
- iii. Data Extraction: Articles would be selected and read, and annotated. Data on the major details, e.g., AI tools utilized, pedagogical applications, learner outcomes, and teacher perceptions, are extracted.
- iv. Thematic Categorization: Themes and patterns that can be identified are recorded in synthesis.

Apart from the review of the article, a questionnaire is proposed to the student on the problems and experiences of learners with AI tools in English language acquisition. This will be additional information providing background details and acting as a triangulation of the literature studies.

Data analysis has been performed in two processes: analysis of research articles and analysis of responses of the students.

A five-step content analysis procedure is followed (Elo & Kyngäs, 2008):

- i. Unit of Analysis: The selection of key phrases (e.g., AI in ESL, intelligent tutoring systems, AI writing tools) is specified with the help of a thesaurus and keyword clusters.
- ii. The sources of data: Desired words are employed to conduct a literature search at nominated databases.
- iii. Conceptual Development: All articles will be scanned and analyzed to obtain the main concepts. Attention is paid to abstracts, findings, and discussion sections. Abstracts, findings, and discussion sections are given particular attention.
- iv. Thematic Analysis: Using Braun and Clarke’s (2006, 2021) six-phase framework, themes are generated, reviewed, and defined to reflect key patterns in the data.
- v. Synthesis: Thematic categories are synthesized into a narrative that addresses the research

question regarding AI’s role in English language teaching.

Responses from student questionnaires are analyzed thematically to identify the challenges in using AI tools for English learning, their perceived benefits and limitations, and suggestions for improving AI-assisted language instruction.

IV. Findings and Discussion

Overall, solitude is an opportunity to obtain relaxation and self-insight, yet these are probably the most dependable when periods of solitude are full of self and social connections (Long & Averill, 2003). There is reason to believe that empathic listening - well-intentioned attention and understanding of spoken content - may be the key to unlocking the potential for positive experiences of solitude, by supporting satisfaction of the needs for autonomy (self-congruent expression and action) and relatedness (Ryan & Deci, 2017; Weinstein & Itzchakov, 2025). The current registered replication will combine the findings from social connectedness and solitude with an experimental test in Pakistan, with university students (18-30). The quality of periods of solitude may depend in no small way on the quality of social time which goes before it.

As illustrated in Fig. 1, we would predict that being listened to empathically during a difficult conversation, focusing on previous negative and self-relevant experiences, would provide support for the needs linked to autonomy and relatedness and so reduce speakers expectancies for positive affect in solitude (expectancies that they will be peaceful and not lonely) while supporting positive solitude (rich in self- and social-connection and peaceful affect and self-insight, and characterized by lower loneliness and rumination). The experiment will be an in-person conversation, where participants are provided with either highly empathic or moderately empathic listening or positive reframing comparison as they disclose meaningful content to the listener. This paradigm will be used to test four a priori hypotheses.

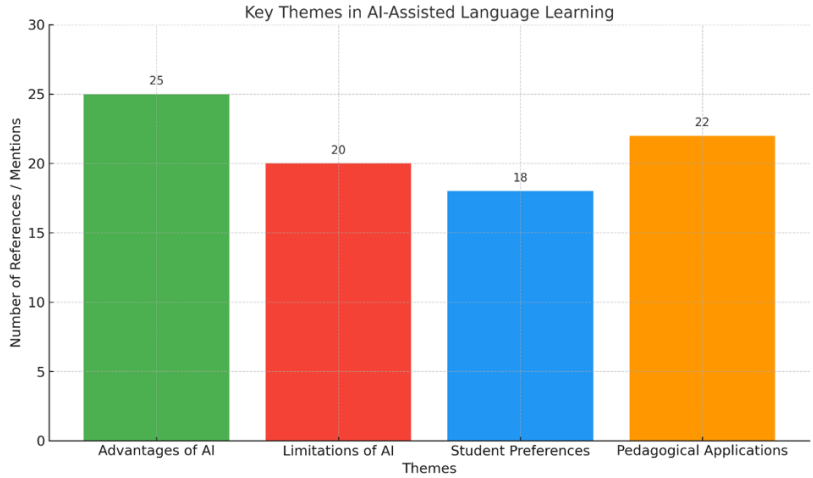


Figure 2. Key Themes in AI-Assisted Languages Learning

The integration of artificial intelligence (AI) in English language teaching (ELT) has become increasingly prevalent and diverse in recent years. This paper extends the research on the role of AI in natural language processing and speech recognition (Anikushina et al., 2016), flipped learning, and gamified learning constructs that increase motivation (Wei, 2018) by providing systematic literature on the subject of AI in ELT based on the qualitative content analysis of peer-

reviewed articles of the past four years (2019-2024). With the help of a five-step content analysis model (Elo & Kyngas, 2008), which was complemented by Braun and Clarke (2006, 2021), the thematic analysis framework, it is possible to identify in the data five interrelated themes: (1) the typology of used AI tools in ELT, (2) their pedagogical affordances, (3) integration issues, (4) learner-centered factors influencing adoption, and (5) ethical and pedagogical concerns. Those findings can be seen in the light of the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012), shedding light on how AI is transforming the current state of ELT.

One of the main observations is related to the variety of typologies of AI tools that have become a part of language instruction. On-the-fly grammar checkers and paraphrasing and text-improvement tools like Grammarly, QuillBot, and ChatGPT, along with speech-recognition programs like ELSA Speak and the Google Read Along, are seeing more and more use to correct grammar in real-time, paraphrase, and enhance texts or libraries of writings (Xie et al., 2023), and help students practice oral fluency and pronunciation (Yu, 2022). Adaptive, data-driven scaffolding in reading, grammar, and vocabulary is now provided by AI-driven intelligent tutoring systems-Carnegie Learning and Squirrel AI (Zawacki-Richter et al., 2019).

Conversational agents and chatbots, including Replika and Duolingo bots, are also very popular in increasing interactive, low-stress practice of speaking (Bibauw et al., 2020). Additionally, formative feedback systems and automatic essay grading programs (e.g., e-rater such as those of ETS) can enable students to learn through constant improvements in writing (Burstein et al., 2020), and up-and-coming multimodal content creators (e.g., Synthesia, DALL·E) are being tested to enhance audio-visual learning. The current typological mapping evidences the growing tendency to the use of AI in the ELT sphere. This typological mapping highlights the expanding role of AI across ELT domains, reflecting the dynamic growth of technological knowledge (TK) within the TPACK framework.

The number of pedagogical advantages associated with these tools also includes personalized, learner-centered teaching. The various studies analyzed highlighted the ability of AI tools to help in customizing the content and complexity of the tasks according to an individual learner, thus transforming personalized learning and being able to support differentiated instructions (Zhai, 2022). Writing and speaking applications allow them to include automated feedback functions that give immediate and specific feedback and encourage iterative improvement and metacognition (Jiang & Yu, 2023). Through the integration of AI, more opportunities to exercise autonomy can also be provided, with students being provided with learning materials without time commitments or specific teachers guiding them, and frequently in multimodal formats (Golonka et al., 2019). In the view of the instructor, AI-produced analytics and dashboards could present an insightful window into how the learners perform and advance and allow for making instructional decisions in real-time (Li et al., 2023). These affordances of pedagogical knowledge support the pedagogical knowledge (PK) and content knowledge (CK) components within the field of TPACK and lead to more data-based and responsive ELT teaching and learning.

Nonetheless, as advantageous as it might be, the use of AI in ELT is ostensibly limited by several pervasive and practical obstacles. One of them is the lack of teacher preparation and confidence in choosing and implementing AI tools to the instructional goals (Boulton & Cobb, 2017). It is this TPACK competence gap that frequently results not in deep curricular integration of AI, but in superficial or peripheral use of AI. Issues with infrastructures like unreliable internet connection,

inadequate number of digital gadgets, and unsupportive institutions add to the hindrances of meaningful use, particularly in low-resource settings (Raza et al., 2021). Besides, the fact that AI tools are not directly linked to formal language curriculum means that numerous technologies are not used as significant parts of instructions but as accompaniments (Zawacki-Richter et al., 2019). These results indicate the necessity of more systematic approaches to harmonize technological, pedagogical, and content-related knowledge, a combination not which is found in TPACK central to successful technology integration (Mishra & Koehler, 2006).

Besides these structural challenges, other learner-related issues have a large-scale influence on the adoption and sustained utilization of AI in ELT environments. Based on the UTAUT2 model (Venkatesh et al., 2012), one of the main causes of learners engaging with AI tools can be determined as performance expectancy. The students claimed to have noticed the quantitative difference in their writing fluency, vocabulary learning, and pronunciation accuracy with AI-enhanced apps (Zhai, 2022). It was also concluded that effort expectancy, or how easy AI tools are to use, was a factor that also determined uptake, especially among learners who are not very tech-savvy and prefer more straightforward applications like Grammarly and Duolingo (Yu, 2022). Such factors as social motivation of using new tools through teacher and peer-endorsement (Jiang & Yu, 2023) or hedonic one, which may be more prominent through gamification mechanisms (Bibauw et al., 2020), provided additional incentive to students in engaging in the process. Finally, the making of conducive conditions like stable internet connectivity, favorable policies, and training facilities offered in institutions was crucial to their continued use. Learner agency, context, and success of AI integration are critically important variables that are captured by these variables. Lastly, the analysis revealed that there were some ethical and pedagogical issues to be brought forward as the implementation of AI in ELT increases. The most notable one is the data privacy question, i.e., the absence of clear governance arrangements in place concerning the way commercial platforms obtain, keep, and utilise learner data (Holmes et al., 2021). The danger of excessive reliance on AI tools was also raised, as it was possible to stifle the growth of the higher-order cognitive and linguistic abilities in the event of a lack of encouragement to critically process the AI-generated products (Clark, 2023). Moreover, the potential bias of the tools that are trained on native-speaker corpora can become a setback to the learners of multilingual backgrounds, as it supports the linguistic hierarchy and marginalizes non-standard ways of speaking English (Bai & Guo, 2022). All these issues emphasize the need to consider ethically informed pedagogical practice that will involve AI technology both critically and inclusively to achieve the result, where AI technology will supplement, but not replace, human guidance.

This study supports the idea of the complex character of AI in ELT, as the instrumental purpose of technologies is not the only one, but technological innovation also transforms pedagogical relationships and learner involvement. Although AI provides strong affordances in the sphere of personalization, feedback, and learner autonomy, it remains comprehensive as long as the teacher can synthesize technological, pedagogical, and content knowledge (TPACK), and learners accept the AI based on the social and technological factors (UTAUT2). These results not only confirm the necessity of training educators to teach AI and prepare students properly but also introduce the need to prepare supportive ecosystems, which would allow teachers and students to profitably use the powers of AI in English language teaching.

The discussion is structured around four core themes that emerged from the content analysis and student questionnaire responses. These themes provide nuanced insights into the applications, effectiveness, and limitations of Artificial Intelligence (AI) in English language teaching and learning. The most prominent finding from both the literature and student responses was that AI

offers distinct pedagogical advantages. Students reported that AI tools are easily accessible and always available (Question 7), engaging and interactive, making language learning more enjoyable, capable of repetition without fatigue, and able to offer immediate, personalized feedback based on learners' errors. The above perceptions are corroborated by Li et al. (2023) and Chen et al. (2021), as they discovered that AI-based tutoring systems enhance the autonomy and effectiveness of learners. Duolingo, ChatGPT, and ELSA Speak use Natural Language Processing (NLP) and speech recognition features to be celebrated as a feature that supports pronunciation, vocabulary, and sentence structure practice (Zhang et al., 2022; Sun et al., 2023). These results confirm the hypothesis that AI has a beneficial influence on English language learning through enhancing motivation, the frequency of practice, and confidence of the learner.

Even though this method has positive aspects, the subjects identified problematic issues regarding the emotional and social restraint of artificial intelligence (Question 8). The biggest problems were: the problem of emotional intelligence and absence of empathy in AI answers, the possibility of not comprehending cultural context or situational meaning, and the possibility of restricting social interaction, decreasing authentic possibilities of communicative competence. Holmes et al. (2021) and Roll & Wylie (2023) mention these drawbacks and claim that AI cannot be used in socio-cultural and affective aspects of language learning due to its lack of human sensitivity. Learners were afraid that excessive contact with AI might lead to a lack of contact with peers, because it is the key to the formation of the pragmatic and interpersonal language skills of the learner. Therefore, although AI can help students to learn effectively, it can never imitate the relational and dialogic dimensions of language learning as focused in communicative approaches. Findings from Questions 11 and 13 show that most learners preferred AI-assisted instruction over traditional methods, and 65% reported no major issues using AI tools for English learning. This aligns with Ahn & Lee (2024), who found that AI-enhanced instruction lowers affective filters and provides a safe space for language experimentation. However, several students noted the absence of pedagogical guidance, suggesting a need to combine AI with human facilitation for more structured learning. As Borge (2016) suggests, teachers play a vital role in curating content, offering emotional encouragement, and adapting instruction to learner needs, roles that AI alone cannot fulfill. Therefore, the findings reinforce the idea that blended learning environments, where AI supports rather than replaces instructors, are most effective.

The literature analysis further revealed multiple instructional strategies where AI can enhance language learning. These include flipped learning models (Shin, 2018), where AI tools facilitate pre-class learning, natural speech recognition systems (Anikushina et al., 2016), which support pronunciation and listening, automated writing assistance through tools like Grammarly and QuillBot (Abid et al., 2022), and speech evaluation via conversational bots (Daniels, 2015). These AI tools help simulate authentic communicative environments and automate aspects of formative assessment. Wei (2018) emphasized that such tools allow learners to engage more frequently and effectively with English across modalities. However, the review also uncovered a gap in AI applications for reading and writing skills, suggesting a need for further development in these areas. This gap underscores the need for continued innovation and research in AI-supported literacy development, especially in L2 contexts. The findings collectively address the research question *What are the pedagogical applications and learner-reported challenges of using AI in English language teaching and learning?* by demonstrating that while AI tools are effective in delivering practice, feedback, and motivation, they must be integrated thoughtfully to mitigate their emotional, cultural, and pedagogical shortcomings. They also affirm the hypothesis: AI tools improve English language learning but face usability and contextual challenges that require blended instructional approaches.

The content analysis highlights a complex combination of Artificial Intelligence (AI) in the English Language Teaching (ELT) and demonstrates a changing pedagogical environment that is in close relation to both the TPACK and UTAUT2 models of teaching. Intelligent tutoring systems that input audio or parsing (morphological, syntactic, and semantic) information and allow parsing the structure of speech (slice, lag flow, and attribute parsing), automated writing evaluation systems that provide comprehensive feedback on speech correctly (definition, morphological, syntactic, and semantic interpretation), and speech recognition and conversational agents based on AI are the range of AI varieties that ensure finer Farbiges that make language learning more active (Bai & Guo, 2022; Bibauw et al., 2020; Jiang & Yu). This is also because the Technological Knowledge (TK) component of TPACK is particularly given foreground with a teacher being called upon more and more to negotiate a broad spectrum of digital resources that have specific functionalities that are language-sensitive (Mishra & Koehler, 2006). Nonetheless, the research findings also indicate serious flaws in the aspects of Pedagogical Knowledge (PK) and Content Knowledge (CK) when it comes to the coordination of AI instruction with the necessities and needs of learners, curricular aims, and cultural settings (Zawacki-Richter et al., 2019). UTAUT2 constructs (performance expectancy, effort expectancy, and facilitating conditions) are other constructs that help us to explain the variable choice of AI across ELT settings (Venkatesh et al., 2012). Although the AI tools tend to promote the links and the mobilization of feedback (Wei, 2018; Clark, 2023), the reception concerns (Bai & Guo, 2022), preparation, and the recognition of the teachers (Zhai, 2022) as well as student agency (Xie et al., 2023) suggest the developers shift towards the direction of the more neutral-based and learner-friendly designs. The results incline to suggesting integrative teaching frameworks, which not only use AI due to its innovativeness but also incorporate it into the course of the cognitive, affective, and sociocultural aspects of language learning.

V. Conclusion

This study explored how Artificial Intelligence (AI) is being used in English language teaching and learning through a combination of literature review and student survey analysis. Findings reveal that AI offers significant pedagogical benefits across multiple domains. These include natural speech recognition, flipped learning integration, personalized feedback, and enhanced learner autonomy and engagement. The majority of learners reported positive attitudes toward using AI, citing convenience, repetition, and individualized support as key advantages. However, the study also uncovered notable limitations, particularly regarding emotional disconnect, reduced social interaction, and the inability of AI to interpret cultural and contextual nuance. These findings suggest that while AI can enhance the learning process, it should not replace human interaction but rather complement it. The systematic and theory-informed review of recent literature published on the topic of AI-based use in ELT provided in this study shows the transformative power of this technology as well as challenges behind its implementation. In instructional design, learner feedback and assessment, AI tools are leading to a reconsideration of the practices, and it is especially effective in promoting writing, pronunciation, and learner engagement.

Nonetheless, the results also help us to be careful of placing too much trust in AI without proper pedagogical scaffolding and critical thought. With the help of the TPACK and UTAUT2 frameworks, this study focuses on the idea that the integration of AI in ELT may be unsuccessful unless the technological availability is supported by the pedagogical intentionality, and parallelism between content and practice, as well as user acceptance. Future studies ought to examine context-specific applications and present empirical data on the long-term effect of learning, particularly in

educational environments that are lacking in representation (e.g., education in the Global South). In sum, the paper points out that the utilization of AI in ELT should strike a controlled balance among innovation, inclusion, and pedagogical consistency. Language teachers can incorporate AI tools to support speaking and listening through pronunciation apps, conversational agents, and speech recognition technologies. Blended learning environments that combine AI with human instruction are likely to be most effective, offering both personalization and socio-emotional learning support. Teachers should be trained to critically evaluate AI tools, ensuring alignment with curriculum goals and learner needs. AI applications in education should be designed with cultural sensitivity, context-awareness, and affective computing to minimize alienation and miscommunication. Features that promote collaborative and communicative learning, rather than solitary interaction, should be prioritized to avoid social isolation. Future investigations should examine how AI supports reading and writing skills, particularly in diverse linguistic and socio-cultural contexts. Longitudinal and experimental designs are needed to evaluate the sustained effects of AI on language proficiency and learner motivation.

Author Contributions

Adeel Khalid: Conceptualization, methodology, investigation, literature review, data collection, thematic analysis, interpretation, writing—original draft, and writing—review and editing. The author read and approved the final version of the manuscript.

Conflict of Interest

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No new primary dataset was generated for this study.

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Not applicable. The study did not involve human participants or the collection of primary personal data.

Use of Generative AI

The author declares that no generative artificial intelligence tools were used to generate the scholarly content, conduct the analysis, or formulate the findings and conclusions of this study.

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References

- Abid, S., Mahmood, A., & Hussain, M. (2022). Investigating the effectiveness of AI-based writing tools in enhancing L2 academic writing. *International Journal of English Linguistics*, 12(1), 23–35. <https://doi.org/10.5539/ijel.v12n1p23>
- Ahn, H., & Lee, M. (2024). Enhancing EFL learners' speaking skills using AI-based conversation agents: A longitudinal study. *Language Learning & Technology*, 28(1), 1–20.
- Al-Gayyar, G. A. N. M. (2013). Employing artificial intelligence for building educational websites as a prelude to the development of electronic university learning. *In Future of Arabic Education: The Arab Center for Education and Development*, 20(82), 501–510.
- Anikushina, T. A., Artemeva, T. V., & Nikolaeva, T. A. (2016). Voice recognition technologies in second language instruction: From pronunciation drills to dialogue systems. *Journal of Language and Education*, 2(2), 24–31.
- Anikushina, T., Makarova, A., & Gavrilenko, S. (2016). The use of AI-based speech analysis in English language learning for non-native speakers under stress. *Procedia Computer Science*, 86, 225–228. <https://doi.org/10.1016/j.procs.2016.05.111>

- Arbiter, C. (2018). *Universal Design for Learning guidelines (Version 2.2)*. CAST. <http://udlguidelines.cast.org>
- Aziz, A., Rahman, A., & Khalid, R. (2023). Evaluating Grammarly and QuillBot for academic writing support in ESL contexts. *Asian EFL Journal*, 25(3), 120–145.
- Barnes-Hawkins, C. (2016). *English language learners' perspectives of the communicative language approach* [Doctoral dissertation, Walden University]. Walden ScholarWorks.
- Bai, X., & Guo, S. (2022). Algorithmic bias in AI pronunciation tools: Implications for L2 learners. *Computer Assisted Language Learning*, 35(7), 1234–1252. <https://doi.org/10.1080/09588221.2021.1933438>
- Bibauw, S., François, T., & Desmet, P. (2020). Conversational agents in language learning: A systematic review. *Journal of Computer Assisted Learning*, 36(6), 769–783. <https://doi.org/10.1111/jcal.12453>
- Borge, M. (2016). Smart evaluation: AI applications in assessing student performance. *Journal of Educational Technology Systems*, 44(3), 287–303. <https://doi.org/10.1177/0047239516637929>
- Boulton, A., & Cobb, T. (2017). Corpus use in language learning: A meta-analysis. *Language Learning*, 67(2), 348–393. <https://doi.org/10.1111/lang.12224>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.
- Burstein, J., Chodorow, M., & Leacock, C. (2020). Automated essay evaluation and the future of writing instruction. In R. A. DeVillar, C. Belhiah, & D. E. Wood (Eds.), *Technology and the future of education* (pp. 145–164). Springer. https://doi.org/10.1007/978-3-030-26355-2_9
- Canbek, N. G., & Mutlu, M. (2016). On the track of artificial intelligence: Learning with intelligent personal assistants. *International Journal of Human Sciences*, 13(1), 592–608. <https://doi.org/10.14687/ijhs.v13i1.3549>
- Cambridge Dictionary. (n.d.). Artificial intelligence. Retrieved from <https://dictionary.cambridge.org>
- Chen, L., Chen, P., & Lin, Z. (2021). Artificial intelligence in education: A review of AI-based intelligent education systems. *IEEE Access*, 9, 36690–36700. <https://doi.org/10.1109/ACCESS.2021.3062864>
- Cheng, C., Liu, Y., & Wang, X. (2022). A comprehensive survey of artificial intelligence applications in education. *Computers & Education: Artificial Intelligence*, 3, 100054. <https://doi.org/10.1016/j.caeai.2022.100054>
- Clark, A. (2023). AI in higher education: Friend or foe to student autonomy? Teaching in Higher Education, 28(4), 528–545. <https://doi.org/10.1080/13562517.2022.2120846>
- Daniels, B. (2015). The effectiveness of automated feedback in ESL writing instruction. *TESOL Journal*, 6(3), 486–502. <https://doi.org/10.1002/tesj.178>
- Daniels, J. (2015). AI-mediated voice technology in second language instruction. *The Language Teacher*, 39(4), 30–37.
- Dickson, B. (2017). How artificial intelligence is shaping the future of education. *PC Magazine*, 105–115. <https://www.pcmag.com/news/how-artificial-intelligence-is-shaping-the-future-of-education>
- Elo, S., & Kynäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- Elwany, E., & Shakeri, S. (2014). Enhancing Cortana's user experience using machine learning. *Recall*, 5(2), 112–118.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to design and evaluate education*

- research (10th ed.). McGraw-Hill Education.
- Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2019). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, 32(1–2), 1–45. <https://doi.org/10.1080/09588221.2017.1389703>
- Holmes, W., Bialik, M., & Fadel, C. (2021). *Artificial intelligence in education: Promises and implications for teaching and learning (2nd ed.)*. Center for Curriculum Redesign.
- Huang, J., & Hung, S. (2022). Natural language processing tools in EFL academic writing: Opportunities and risks. *Computer Assisted Language Learning*, 35(7), 1456–1478. <https://doi.org/10.1080/09588221.2021.1877982>
- Kamuka, E. E. D. I. (2015). Artificial intelligence in programmed education. *The Arab Institution for Scientific Counsel and Development of Human Resources*, 49(1), 84–96.
- Kite-Powell, J. (2017). The role of artificial intelligence and language. *Forbes*. <https://www.forbes.com/sites/jenniferhicks/2017/12/30/the-role-of-artificial-intelligence-and-language>
- Koehler, M. J., Mishra, P., & Cain, W. (2013). What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, 193(3), 13–19. <https://doi.org/10.1177/002205741319300303>
- Li, Y., Zhang, J., & Liu, H. (2023). Exploring the use of ChatGPT in EFL writing instruction: Teachers' and learners' perspectives. *Education and Information Technologies*, 28(5), 6235–6253. <https://doi.org/10.1007/s10639-023-11789-2>
- Li, Z., Wang, H., & Tang, Y. (2023). Learning analytics and English language learning: Insights from AI-enhanced dashboards. *Australasian Journal of Educational Technology*, 39(2), 122–140. <https://doi.org/10.14742/ajet.8105>
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
- Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *AISHE-J*, 9, 3351–33514. <http://ojs.aishe.org/index.php/aishe-j/article/view/3354>
- Marr, B. (2018). *Artificial intelligence in practice: How 50 successful companies used AI and machine learning to solve problems*. Wiley.
- McCarthy, J., Minsky, M., Rochester, N., & Shannon, C. E. (2006). A proposal for the Dartmouth summer research project on artificial intelligence, August 31, 1955. *AI Magazine*, 27(4), 12–14.
- Merriam-Webster. (n.d.). Artificial intelligence. Retrieved from <https://www.merriam-webster.com/dictionary/artificial%20intelligence>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Muhammad, N. S. E. (2014). *Motivation applications in artificial intelligence* [Unpublished master's thesis]. AI-Neelain University.
- Radwan, Z. M. (2017). *Artificial intelligence and its impact on development*. ASBAR Council. <http://multaqaasbar.com/index.php>
- Raza, S. A., Qazi, W., & Umer, B. (2021). Examining the impact of e-learning on student engagement: The role of e-learning technologies. *Interactive Learning Environments*, 29(3), 410–430. <https://doi.org/10.1080/10494820.2019.1619596>
- Roll, I., & Wylie, R. (2023). Human-AI interaction in education: A framework for critical evaluation. *British Journal of Educational Technology*, 54(2), 314–331. <https://doi.org/10.1111/bjet.13245>

- Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach (4th ed.)*. Pearson.
- Shin, D. (2018). The flipped classroom combined with AI: Implications for EFL instruction. *Asia-Pacific Education Researcher*, 27(3), 197–206. <https://doi.org/10.1007/s40299-018-0385-5>
- Shin, J. (2018). Flipped learning with intelligent tutoring systems in EFL contexts: Enhancing listening skills and learner engagement. *Educational Technology & Society*, 21(2), 178–191.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14. <https://doi.org/10.3102/0013189X015002004>
- Sun, J., Ren, H., & Chen, W. (2023). The use of ChatGPT in Chinese EFL classrooms: Affordances and constraints. *Asia-Pacific Education Researcher*, 32(3), 455–472. <https://doi.org/10.1007/s40299-023-00678-5>
- Vaidya, T., Zhang, Y., Shukla, A., & Bates, A. (2015). Cocaine noodles: Exploiting the gap between human and machine speech recognition. *Proceedings of the 9th USENIX Workshop on Offensive Technologies (WOOT'15)*. <https://www.usenix.org/system/files/conference/woot15/woot15-paper-vaidya.pdf>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- Wei, H. (2018). The impact of automated writing evaluation on writing skills and perceptions: A study in a Chinese tertiary EFL context. *ReCALL*, 30(1), 61–79. <https://doi.org/10.1017/S0958344017000225>
- Wei, J. (2018). Enhancing English language teaching with AI: A classroom-based intervention. *Journal of English Language and Literature Studies*, 8(4), 72–84. <https://doi.org/10.5539/ells.v8n4p72>
- Xie, H., Yu, S., & Jiang, Y. (2023). Evaluating AI-based writing assistants in EAP contexts: Opportunities and limitations. *Computers and Composition*, 68, 102708. <https://doi.org/10.1016/j.compcom.2023.102708>
- Yu, S. (2022). Speech recognition-based applications for pronunciation training in L2 English: A systematic review. *ReCALL*, 34(2), 158–175. <https://doi.org/10.1017/S0958344021000259>
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1–27. <https://doi.org/10.1186/s41239-019-0171-0>
- Zhai, X. (2022). A systematic review of AI applications in language learning: Affordances and limitations. *Educational Technology Research and Development*, 70(1), 215–234. <https://doi.org/10.1007/s11423-021-10029-7>
- Zhang, Q., Wu, X., & Wang, H. (2022). Using automatic speech recognition for pronunciation training: Effects on accuracy and learner attitudes. *ReCALL*, 34(2), 187–205. <https://doi.org/10.1017/S0958344022000016>