



The Role of Artificial Intelligence in Developing Listening Skills in English: A Review Study

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ABSTRACT

Listening comprehension is a very multifaceted and not given due attention in ESL/EFL pedagogy. The latest trends in Artificial Intelligence (AI) have provided a new platform of opportunities to overcome the long-standing problem of listening by means of adaptive, interactive, and personalized learning space. In this review, the authors conduct a synthesis of published empirical research studies written in 2022-2025 that examine how AI technologies can be used to improve English listening skills. The results of a thematic synthesis of peer-reviewed materials have shown that AI-driven tools, i.e., chatbots, intelligent tutoring systems, speech recognition tools, and adaptive platforms, have a positive impact on listening comprehension, learner engagement, motivation, and autonomy. In comparison to the traditional approach, AI-aided instructions are always more effective in terms of providing feedback in real-time and individualized instructions on the learning process as well as addressing the issues of the long-term efficacy, affective factors, and ethical aspects. The review supports the positive potential of AI in the work of ESL/EFL listening instruction, indicating the gaps in the aspect of the long-term effectiveness, affective variables, and ethical implications. The studies that should be carried out in the future should concentrate on the longitudinal studies, the analysis of tools used in comparison, and the



1.0 Introduction

Growing global interconnectedness is an important factor entailing the importance of effective ways of acquiring the language as lingua franca. Listening comprehension is one of the four language core skills to face a lot of difficulties in English as a Second Language and English as a Foreign Language students (Abbasian and Modarresi, 2022; Lei et al., 2023). This comprehension and interpretation of spoken language are the key to successful communication and academic performance (Gilakjani and Sabouri, 2016; Hudiati and Sulistyani, 2022). In spite of its recognized prominence, listening has long been a Cinderella skill in second language teaching, the aspect that has received less research attention than other language skills since it is an implicit type of skill and the listening input and process is difficult to research (Fu et al., 2023; Lei et al., 2023). Students often face challenges with such aspects when the phonological differences, fast speech, new vocabulary, and cultural peculiarities hinder the process of understanding (Kajiura et al., 2025; Raza et al., 2024).

At the same time, the accelerated progress of Artificial Intelligence has started radically transforming many fields of education, providing innovative technologies and approaches that can help improve the results of the learning process (Lu and Yang, 2024; Nurjanah et al., 2024; Son et al., 2023). The potential of AI to transform the sphere of education has already been mentioned, and its implications and influence constantly develop (Gutierrez, 2023; Jaleniauskiene et al., 2023). It is a review that examines the overlaps of these two key fields with specific reference to the empirical evidence that AI technologies enhance listening proficiency in ESL/EFL situations.

1.1 General Introduction to Listening Comprehension in Second Language Acquisition

Listening in the second language acquisition is a complex cognitive process which encompasses the perception of sounds, recognition of words, understanding of grammatical structure and interpretation of meaning in a particular context (Nazarieh et al., 2022). In contrast to the processing at a self-paced rate of reading, listening may require spontaneous and immediate processing of temporal auditory information (Kajiura et al., 2025). It poses an issue of frustration to learners because they find it difficult to follow the speed of the native level speech, various accents, and adhoc combination of ongoing speech (Fu et al., 2023; Kajiura et al., 2025). Conventional methods of teaching listening have been mainly based on repetitive listening tasks, dictation, and teacher facilitated tasks. These approaches are desirable, but they might not be effective in all cases in providing personalized, adaptive, and real-time feedback to meet



individual learner needs and to support the development of skills faster (Raza et al., 2024). It is essential to gain a thorough insight into the complexity of L2 listening to create effective interventions and use the new technologies to address these unavoidable difficulties (Fu et al., 2023).

1.2 Justification of AI Integration in the English language learning

The introduction of the concept of artificial intelligence into the field of English language teaching is largely motivated by the ability to provide very personalized, dynamic, and interactive learning experiences, which existed before was not possible (Nurjanah et al., 2024). An example of AI-based tools includes intelligent tutoring systems, chatbots, speech recognition systems, and adaptive assessment platforms that learners respond to by customizing content, providing real-time feedback, and adjusting lesson sequences based on individual performance indicators and learning trajectories (Liu and Li, 2025; Raza et al., 2024; Son et al., 2023). When it comes to the listening proficiency area, AI is capable of emulating a realistic communicative situation and presenting trainees with a range of accents and speech rates and provide instant correction as to pronunciation and comprehension mistakes (Raza et al., 2024; Xiao, 2025). These personalized methods of instruction have been indicated to significantly improve learner attention, motivation, and independent learning abilities (Wang and Li, 2025). Recent meta-analyses support the idea that artificial intelligence has a large impact on each of the five main language proficiency areas, with the overall effect size of medium-to-large effects, and the listening domain showing the strongest effect of the technology (Torres and Kahveci, 2025). Empirical studies of these technologies have been on the rise over the last years, highlighting the appreciation of the scholarly community of the transformative nature of AI that can expand the traditional boundaries of the pedagogy and streamline the mechanisms of language acquisition (Goh and Aryadoust, 2025; Vincent et al., 2025; Wang and Li, 2025; Zhang, 2025; Zhou et al., 2025).

Namely, speech recognition facilitated by AI has been proven to enhance the English as a Foreign Language listening comprehension (Xiao, 2025), and AI platforms have had a strong positive effect on both listening and speaking abilities among primary ESL students (Vincent et al., 2025). Moreover, artificial intelligence can be applied to challenging issues like a lack of contextual knowledge, active exposure to multiple accents, and the ability to quickly process speech through the provision of tailored learning environments, as well as dynamically adjusting learning tasks (Raza et al., 2024).

1.3 The purposes of the Review



The proposed review aims at synthesizing the empirical evidence published in 2022-2025 on the use of AI technologies to improve listening skills in ESL/EFL students. Precisely, this review seeks to:

- Give a concise conceptualized picture of listening comprehension in acquisition of a second/foreign language.
- Locate and critically evaluate recent empirical research that examines the ways in which different AI technologies enhance listening abilities in ESL/EFL situations.
- Discuss the pedagogical performance, learning outcomes and theoretical frameworks upon which AI is applied in listening instruction.
- Explain why there are constraints of the existing studies and point out some gaps in the literature.
- Offer recommendations on future research to widen the scope of knowledge and use of AI in the area of improving the L2 listening comprehension.
- By these goals, this review will present a full picture of the current research, which can serve as a great source of knowledge to educators, researchers, and developers of the sphere of language learning with the help of AI.

2.0 Methodology

This review adhered to the guidelines offered by systematic reviews since the aim was to present synthesis of the empirical evidence on the use of Artificial Intelligence (AI) to enhance listening skills in the context of English as a Second Language (ESL) and English as a Foreign Language (EFL). The review takes into account only the studies published in 2022-2025, which makes it concentrate on the current development and trends in the field.

2.1 Search Strategy and Databases

Methodical search was conducted in various academic databases and relevant empirical studies found. The databases that have been chosen include:

- Scopus: Scopus is known to have a large scope in covering scientific, technical, medical, and social science literature.
- Web of Science: It is characterized by its multidisciplinary nature such as arts, humanities, and social sciences and its ability to index its citation.



- ERIC: Explicitly devoted to education literature and research.
- Education Research Complete: It is a collection of extensive education-related journals, books, and conference papers.
- Relevant Springer and Springer Open Journals: These publications are aimed to capture high-impact research in the fields of applied linguistics, and educational technology, reflecting the popularity of publishers in the area of the problem.

Keywords related to AI, English language learning, and listening skills were considered as a search strategy. To expand the retrieval and at the same time, to remain specific, the use of Boolean operators and truncation was utilized. Key words used were, but not limited to:

- including Artificial Intelligence or AI or Machine Learning or Deep Learning or Natural Language Processing or NLP or Adaptive Learning or Intelligent Tutoring Systems or Chatbots or Speech Recognition
- “ESL” OR “EFL” OR “English Language Learning” OR “Second Language Acquisition” OR “L2 Learning” OR “Foreign Language Education.
- Listening Skills or Listening Comprehension or Auditory Comprehension.

The example search query was: ((Artificial Intelligence OR AI OR Machine Learning) AND (Listening Skills or Listening Comprehension) AND (ESL or EFL or English Language Learning)). This search was limited to articles that were published between January 1, 2022, and December 31, 2025.

2.3 Inclusion and Exclusion Criteria

A strict screening process was conducted on the studies found in the search strategy based on predetermined inclusion and exclusion criteria.

Inclusion Criteria:

- Publication Date: Empirical studies that are published in the period of January 2022-December 2025.
- Language: Articles in the English language.
- Study Design: Empirical research (e.g., experimental, quasi-experimental, correlational, mixed-methods with an evident empirical part) about the use of AI.



- Population : ESL/ EFL students of all ages and levels of proficiency.
- Intervention: Artificial Intelligence studies using technologies to improve, or measure, listening skills.
- Outcome Measures: The research outcomes based on the listening comprehension, listening proficiency, or engagement of learners, motivation or other aptitude variables in AI-enhanced learning settings.
- Peer-Reviewed: The articles that have been published in peer-reviewed journals.

Exclusion Criteria:

- Publication Type: Theoretical articles, opinion articles, book reviews, conference abstracts without full papers, dissertations, and non peer reviewed publications.
- Focus: The research that is not focused directly on the role of AI in the improvement of listening skills in ESL/EFL.
- AI Application: Research where AI is not a key part of the intervention or analysis (e.g., the general use of technology, not AI).
- Language: Articles that were not published in English.

2.4 Information Mining and Assessment

Standardized extraction form was used to extract data of the selected studies in a systematic manner. The following significant information was captured in the form:

- Characteristics of the Study: Authors, year of publication, country, research design, sample size, demographics of participants (e.g. age, level of proficiency).
- AI Intervention Content: Type of AI technology used (e.g. chatbots, speech recognition, adaptive platforms), time of intervention, learning processes, and AI integration.
- Outcome Measures: The kind of listening skills that have been measured, the measuring instruments, and the significant findings concerning listening comprehension and other related variables.
- the theoretical Framework: Theories or models underlying the research.
- Limitations: Limitations of the study.



2.5 Data Synthesis Approach

The data that was extracted was analyzed using thematic synthesis methodology. This qualitative approach is considered to be suitable to summarize the data on a large amount of empirical literature and outline the general trends and patterns in the field.

3.0 Thematic Synthesis of Empirical Evidence

Varying and recent empirical studies, especially since 2022-25, continue to note the major and diverse contributions of Artificial Intelligence (AI) to improving English as a Second Language (ESL) and English as a Foreign Language (EFL) listening. Using this thematic synthesis, the empirical results can be divided into major areas, discussing the AI application types, its effects, and the very mechanisms that can help to understand listening better.

The AI chatbots and the adaptive feedback systems on listening skills have become very effective methods of developing listening skills as they provide the learner with a personalized and flexible learning experience (Son et al., 2023; Zhou et al., 2025). The systems tackle issues like a lack of contextual information, different accents, and fast speaking by delivering customized content and instant feedback (Raza et al., 2024). Chatbots make communication interactive where learners are able to interact with contextual speech and get instant feedback that encourages them to listen more and lessens anxiety about the foreign language (Zhou et al., 2025). Research has revealed that regular exposure to AI-generated speech in chatbot-mediated conversations may enhance listening skills to a considerable extent (Zhou et al., 2025).

Intelligent Tutoring Systems (ITS) may involve the use of AI and machine learning, which offer individualized experiences to a learner by measuring their abilities, identifying mistakes, and providing feedback on corrective measures (Son et al., 2023). Such systems provide activities that are specifically focused on the areas in which one needs improvement e.g. pronunciation, vocabulary, or grammar, and they can also offer a situational context (Son et al., 2023). Studies have shown that education based on ITS can be quite helpful in improving the results in language learning and explained this success by individualized and adaptable feedback provided to the students according to their individual needs and styles of learning (Rababah, 2023). A listening system that implements AI-based mechanisms that operationalize key Second Language Acquisition theories has been demonstrated to balance auditory cognition by integrating implicit affective and explicit scaffolding, thus enhancing the listening ability of EFL undergraduates (Liu and Li, 2025).



The use of AI-based assessment tools and especially the use of speech recognition technologies are having a great impact on evaluating and training listening skills. Such instruments provide effective and reliable scoring to large-scale assessments and transcend the previous methods that only offer limited feedback and dedication to specific skills (Abdellatif et al., 2024; Gong, 2023). The feedback and adaptive exercises of systems like Speechace and Listenwise are directly related to listening comprehension and critical thinking (Raza et al., 2024). Individuals who have been subjected to AI-based evaluations have demonstrated considerable improvement of listening abilities, as well as the self-competence, attitudes, and robustness (Abdellatif et al., 2024). In addition, large language models are also opening up new opportunities to improve automated item generation processes, which enable the generation of more complex content and built-in tasks to establish more authentic, deeper assessment of interactive listening capacity (Runge et al., 2024). Although the development of automated speech scoring has been fast, on the one hand, with the use of such systems as SpeechRater, the study also shows that full accuracy is not always achieved, in particular in non-Western settings, and that algorithms must take into account specifics of the language (Chen and Sun, 2025; Gong, 2023). Automatic Speech Recognition is an important aspect of computer-aided language learning and testing, and currently researchers assess how accurate recent ASR systems are in recognizing non-native accented English speech (McGuire, 2025). However, the use of ASR alone as the method of assessing speech intelligibility might not be sufficient to give full feedback to L2 speakers, and the use of textual feedback is not always adequate to determine the parts of the text a speaker cannot understand (Geng et al., 2024).

The artificial intelligence learning spaces encourage the increased autonomy of learners and may have a substantial influence on the processes of motivation in learning listening skills. There are mobile-aided applications (which can be provided by AI) that have shown evidence of promoting learner independence by enhancing engagement, motivation, and responsibility in the learning process (Nguyen, 2023). The learners will be able to make intentional choices of the learning content and apply their learning strategies effectively, thus leading to better listening competence (Nguyen, 2023). The customization of AI chatbots, such as, results in learning satisfaction and motivation both significantly higher, since the students have control and can customize their learning process (Zhou et al., 2025). Such an individualized strategy will enable the incremental skill development without burdening the students, and it will help learners with lower achievement levels because the difficulty can be varied to their exact requirements (Zhou et al., 2025). AI tools can help to motivate learners by offering feedback in a timely manner, tailored learning experiences, and interactive learning (Zhai and Nezakatgoo, 2025).



These tools are in tandem with the self-determination theory, as they facilitate the psychological needs of the learners to have autonomy, competence, and relatedness thus facilitating self-regulated learning and intrinsic motivation (Zhai and Nezakatgoo, 2025). Research has established that AI tools are a major boost to the interest and motivation of learners by providing personalized feedback and real-time correction of errors (Fang, 2025). Although AI tools are effective in improving self-management and self-reflectiveness of students, in some works, AI tools turn out to be less efficient in promoting intrinsic motivation when they are too functional and not emotional (Zhang and Li, 2025). However, the net effect of AI on studying motivation and performance in EFL settings has been reported to be powerful, especially based on the personalized learning, curiosity, and feedback in time (Wang and Xue, 2024).

The comparative effectiveness of AI-assisted and traditional listening teaching has consistently shown that the AI-assisted instruction has benefits compared to traditional one, particularly in overcoming the natural limitations of second-language listening. Conventional pedagogical methods usually focus on grammar and vocabulary although they can be insufficient to develop interactive and communicative settings that facilitate effective learning of listening skills (Zhou et al., 2025). Conversely, AI tools facilitate personal learning, real-time feedback, and adaptive exercises that may serve the various needs and preferences of learners (Raza et al., 2024). As an example, a randomized controlled trial, which compared an AI-based listening system with conventional classroom teaching, discovered that the AI system was much better than conventional classroom teaching in improving listening abilities amongst the EFL undergraduates (Liu and Li, 2025). The reviews show that AI-based teaching results in better pronunciation and speech recognition technologies delivery speech fluency and enhanced learner engagement due to the use of gamified and adaptive applications as well as the acquisition of digital literacy (Wang and Li, 2025). It is critical to draw a line between AI-based systems, which can replicate human cognition and behavior, and conventional technology solutions that can only process audio or video files but adapt to AI behavior (Sharadgah and Sa'di, 2022). The ability of AI to use large volumes of data and make subtle conclusions is a key distinction (Sharadgah and Sa'di, 2022). Although it is true that even the most basic human languages are highly complex, including paralinguistic communication, which AI is still yet to fully understand, the benefits of AI in enhancing listening and speaking skills, especially with the speech recognition software, are increasingly evident (Sharadgah and Sa'di, 2022). Furthermore, not only has the introduction of AI helped change the way listening skills are taught but also has contributed to solving the time-old EFL classroom issues, including limited contextual knowledge, different accents, and the use of fast speech (Raza et al., 2024).



4.0 Discussion

The review has summarized the empirical evidence of 2022 to 2025 on the integration of Artificial Intelligence to improve listening skills in English as Second/Foreign Language (ESL/EFL) situations. The thematic analysis revealed the presence of a consistent pattern of positive effects in the variety of AI applications and provided useful information about their effectiveness in the pedagogical process and the factors that affect their success.

4.1 Summary of the Major Results

The synthesis of the empirical findings is a clear indication that AI technologies play an important role in enhancing listening skills in ESL/EFL environments. Some of the most important findings are that AI-powered tools provide the most personalized, adaptive, and interactive learning experiences that outperform most traditional teaching methods in many respects. With the help of AI chatbots and Intelligent Tutoring Systems, active listening is encouraged and the foreign-language anxiety is reduced as it gives real-time feedback and involves a complex dialogue that can generate visible results in listening skill enhancement (Zhou et al., 2025). Such systems intelligently adapt to the unique needs of learners by differentiating the difficulty of the content and providing specific support to learners to improve their pronunciation, vocabulary, and grammatical accuracy (Son et al., 2023).

Besides, AI-based assessment instruments, especially those that apply speech-recognition technology, have transformed the performance appraisal and training of listening skills. They are efficient, consistent in scoring and offer immediate and actionable feedback which facilitates cognitive and affective development in the learner such as self-competence and resiliency (Abdellatif et al., 2024). The larger language models also have an additional promise of more realistic and difficult interactive listening evaluation exercises (Runge et al., 2024). The autonomy, engagement, and intrinsic motivation of learners promoted by AI applications, in particular, by mobile-assisted learning, is made possible by the personalisation aspect of the given technologies, which are consistent with the principles of self-determination theory (Nguyen, 2023; Zhai and Nezakatgoo, 2025). The results of these developments include increased learning satisfaction and readiness to practice in a self-directed way, which would positively affect the learning profiles of various learners including those with lower achievement levels (Zhou et al., 2025). Finally, it is empirically proven that AI-aided instruction produces statistically significant gains in listening skills compared to traditional ones, principally because of its adaptive properties, individualised feedback, and the establishment of immersive learning conditions (Liu and Li, 2025; Wang and Li, 2025).



4.2 Implications of Pedagogy in ESL/EFL Teaching

The strong results of this review have a high pedagogical implication on ESL/EFL teaching. Teachers are advised to make use of AI tools in their curricula to make the learning experience on listening skills more active and more personalised and effective.

- Personalised Learning Pathways: AI is adaptive, which gives an instructor the ability to construct listening exercises according to the needs of a specific student, his/her level of proficiency, and the pace of learning. It is a break of a one-size-fits-all strategy in which learners can target particular issues, including accent comprehension or quick speech processing (Raza et al., 2024; Zhou et al., 2025).
- Improved Feedback Systems: AI devices provide feedback promptly and regularly, which is needed to learn a language. Teachers can use AI-driven speech-recognition and evaluation tools to offer instant feedback to their students on their understanding and pronunciation, and encourage them to engage in self-correction and lifelong learning (Abdellatif et al., 2024; Raza et al., 2024).
- Learner Autonomy Promotion: By introducing AI into informal online learning platforms, it is possible to give learners more control over the learning process. AI tools can help to increase motivation and engagement by providing access to a variety of content and convenient practice time, which will create a group of responsible and independent learners, capable of their own development (Nguyen, 2023; Zhou et al., 2025).
- Developing Real-World Learning Experiences: AI has the potential to recreate genuine instances of communication, which exposes learners to a wider variety of accents, speech patterns, and situational effects than could otherwise be found in a classroom environment. Such exposure can assist in the bridging of the classroom education and real-life communication (Raza et al., 2024).
- Pay More Attention to Higher-Order Listening Skills: With the help of repetitive practice and simple feedback, AI enables teachers to focus on the higher-order listening skills, including inference, critical analysis, and strategic listening.

4.3 Limitations of Existing Literature.

Although the empirical data demonstrate the effectiveness of AI as the means of improving the level of listening with high success, the following limitations of the research need to be taken into account:



- **Methodological Heterogeneity** The reviewed studies utilized diverse research designs, AI tools, and outcome measures, making direct comparisons and finding synthesis problematic. This diversity may limit particular findings.
- **Short-Term Interventions:** There were numerous studies that dealt with interventions of a comparatively short duration, usually a few weeks or months. The potential and possible long-term impacts of AI incorporation on the advantageous and continued enhancement of listening abilities and their maintenance have not been thoroughly studied.
- **Lack of Comprehensive Ecosystem Representation:** Even though there are studies that are more focused on a particular region like China (Zhou et al., 2025), a more inclusive geographical and cultural sample should be used to learn how AI tools are used in diverse educational systems and in students with different backgrounds.
- **Less Exploration of Affective Factors:** As motivation and autonomy were covered, the other affective variables, such as anxiety, confidence, and self-efficacy, in AI-supported listening conditions are to be studied further.
- **Technical Limitations of AI:** Although the latter was only recently achieved, even now, AI is not entirely able to process the specifics of human language, such as paralinguistic indicators, humor, irony, and sarcasm (Sharadgah and Sa'dii, 2022). Although it is an effective practice, automated Speech Recognition systems do not always offer enough feedback to L2 speakers, especially with regard to unintelligible parts (Geng et al., 2024). Moreover, certain automatic evaluation systems may demonstrate algorithmic inconsistency, which leads to the biased score (Chen & Sun, 2025).

4.4 Literature Gap and Future Research

Based on limitations described and the dynamism of artificial intelligence (AI), among the literature gaps that need to be filled with a structured study are:

- **Longitudinal Studies:** Future studies need to focus on longitudinal research to assess how AI intervention has a lasting effect on listening skills as well as to track how the use of AI systems by learners changes with time.
- **Comparative Studies:** Comparative studies that have been undertaken so far should be more stringent so as to determine the relative effectiveness of particular AI modalities i.e. conversational agent, intelligent



agent, and adaptive learning platform in different listening sub-skills as well as in different learner typologies.

- Teacher Training and Implementing AI: The study needs to be performed empirically to decide the most efficient ways of preparing teachers on how they can integrate AI tools; questions of interest ought to be how teachers feel about it, the difficulties they face, and the professional skills they need to embrace to successfully carry it out.
- Ethical Consequences and Fairness: The introduction of AI in language learning settings, research will also need to challenge ethical reasoning, data-privacy concerns, and equity issues, and assess how the introduction of AI may provide fair opportunities without worsening the digital divide.
- The Significance of AI in some of Listening Sub-Skills: Although there has been general research on listening comprehension, some of its more specific sub-skills, such as identification of main ideas, discernment of meaning, use of discourse markers and accents processing, are still under-researched and thus require more in-depth studies to demonstrate how AI influences these specific sub-skills.
- Human-AI Cooperation in Review: Future studies are required to achieve the beneficial synergies of human raters and AI-driven assessment systems and produce comprehensive and objective scores of listening proficiency and reduce the influence of algorithmic biases.
- Neurocognitive Correlates of AI-Improved Listening: Future studies will be able to examine the neurocognitive mechanisms behind improved listening in AI-enriched situations, which may include neuroimaging analyses to explain the effect of AI on auditory cognition.

These gaps will distribute new knowledge on the transformative potential of AI in ESL/EFL listening instruction and thus promote evidence-based practice and inform new principles of pedagogy.

5.0 Conclusion

5.1 Summary of Key Insights

This is an empirically based review that includes current evidence (2022-2025) that has confirmed the transformative nature of artificial intelligence in the development of English as a Second Language (ESL) and English as a Foreign Language (EFL) listening skills. The main goal was to review the recent studies, which prove the role of AI technologies in enhancing listening comprehension, and the outcomes of the research regularly revealed the potential of AI to provide personalized, adaptive, and highly



interactive learning experiences (Son et al., 2023; Zhou et al., 2025). Thematic synthesis can inform the topic of interest on several important areas of impact: -

Individualised and Adaptive Learning: Chatbots and Intelligent Tutoring Systems are vital in improving listening competence because they provide individualised content, instant feedback, and dynamic reconfigured learning routes. Such a strategy would meet the unique requirements of individual learners, reduce anxiety related to the acquisition of foreign language, and foster listening (Raza et al., 2024; Son et al., 2023; Zhou et al., 2025).

Assessment and Feedback that is High-tech: AI-based assessment platforms, especially the use of speech-recognition technology, have completely changed the assessment of listening skills. These systems offer precise and dependable scoring as well as fast and practical feedback, which encourages self-correction, self-confidence, and strength in learners (Abdellatif et al., 2024; Gong, 2023; Runge et al., 2024).

Better Autonomy and Motivation of Learners: AI-mediated instructional conditions also significantly have a positive impact on learner self-direction and self-motivation. The implementation of AI tools fits the self-determination theory, which provides the learners with more control over their learning process and increases the general satisfaction because of the individualisation in acquiring knowledge through the personalised learning courses, opportunities to practice flexibly, and through the engagement (Nguyen, 2023; Wang and Xue, 2024; Zhai and Nezakatgoo, 2025).

Strength compared to Traditional Strategies: The empirical evidence that continually shows is that AI-based instruction is statistically significantly more effective in listening skills than a traditional pedagogical strategy. The adaptability of AI, the ability to react to personal feedback, and the ability to create learning conditions presents the solution to the intrinsic issues of the acquisition of the second language in terms of listening (Liu and Li, 2025; Sharadgah and Sa'di, 2022; Wang and Li, 2025).

All in all, AI technologies cannot be considered as the tools that should be used as the auxiliary ones; instead, they are the parts of the pieces that can absolutely change the pattern of ESL/EFL listening teaching, which will open unequal opportunities to the effective and interesting process of language acquisition.

Future Research Recommendations: In spite of the fact that the evidence on the use of AI to enhance listening skills is strong, the review reveals that there are still several significant gaps that should be addressed in terms of knowledge advancement and ways of maximising the use:



- Longitudinal Impact Studies: The future studies need to be on longitudinal design to determine the lasting effects of AI interventions on listening proficiency during long periods of time, instead of looking at only the short term.
- Comparative Effectiveness of AI Tools: To clarify relative efficacy of various AI tools (e.g. chatbots vs. ITS vs. adaptive platforms) in particular listening sub-skills and in diverse learner groups, rigorous comparative studies are required.
- Teacher Training and Integration Strategies: Research is needed to find out effective approaches to train teachers on how to effectively and pedagogically integrate AI tools into their practice with regard to teacher perceptions, challenges, and professional development requirements.
- Ethics and Fairness: As AI continues to spread, there is an urgent need to conduct research on the ethical aspects and the issue of data privacy surrounding AI-empowered language-learning, which is necessary to avoid exclusive and unfair use.
- AI and Niche Listening Sub-skills: To offer a more detailed picture of how AI affects specific listening sub-skills (main idea identification, discourse meaning, discourse marker recognition, and accent differentiation) would require detailed studies to determine how AI affects them.
- Human-AI Cooperation in Evaluations: The scientific studies must investigate ideal models of human evaluators and AI systems working together in the listening assessment where their strengths are utilized in providing holistic, objective assessments and reduce the occurrence of algorithmic errors (Chen and Sun, 2025).
- Neurocognitive Correlates: Future research can adopt neuroimaging methods to study the neurocognitive mechanisms that contribute to improved listening in AI-enhanced environments, which can lead to an understanding of the effect of AI on auditory cognition (Liu and Li, 2025).

By responding to the recommendations, scholars will be in a position to make contributions towards a more comprehensive, advanced, and ethically informed discourse of the emerging role of AI in defining the future of ESL/EFL listening instructions.



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