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# Strategies For Using Artificial Intelligence To Develop The Listening And Speaking Skills of Trainees In The English Language Lab At The Public Authority for Applied Education And Training In The State of Kuwait

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# Strategies For Using Artificial Intelligence To Develop The Listening And Speaking Skills of Trainees In The English Language Lab At The Public Authority for Applied Education And Training In The State of Kuwait

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## Abstract

The study aimed to identify the most effective AI-based strategies for developing English language learners' listening and speaking skills, how learners perceive and interact with AI-based listening and speaking activities, and what tangible improvements in listening and speaking skills can be observed after applying AI-based strategies. The study used a descriptive approach, and the results of the study concluded that the use of AI strategies is important for learning English in general, and for developing English reading and listening skills in particular. The study also made some recommendations and suggestions for using and applying AI to improve English reading and listening skills, for application in English language laboratories at the Public Authority for Applied Education and Training in the State of Kuwait.

**Key words**: Strategies - Artificial Intelligence - Listening And Speaking Skills - Trainees - English Language Lab - Public Authority for Applied Education And Training - The State of Kuwait.

# استراتيجيات استخدام الذكاء الاصطناعي لتنمية مهارات الاستماع والتحدث لدى المتدربين في مختبر اللغة الإنجليزية بالهيئة العامة للتعليم التطبيقي والتدريب في دولة الكويت

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## ملخـــــــص

هدفت الدراسة إلى تحديد أكثر استراتيجيات الذكاء الاصطناعي فعاليةً في تطوير مهارات الاستماع والتحدث لدى متعلمي اللغة الإنجليزية، وكيفية إدراك المتعلمين لأنشطة الاستماع والتحدث القائمة على الذكاء الاصطناعي وتفاعلهم معها، وما هي التحسينات الملموسة التي يمكن ملاحظتها في مهارات الاستماع والتحدث بعد تطبيقها. اتبعت الدراسة منهجًا وصفيًا، وخلصت نتائجها إلى أهمية استخدام استراتيجيات الذكاء الاصطناعي لتعلم اللغة الإنجليزية بشكل عام، ولتطوير مهارات القراءة والاستماع بشكل خاص. كما قدمت الدراسة بعض التوصيات والمقترحات لاستخدام الذكاء الاصطناعي وتطبيقه لتحسين مهارات القراءة والاستماع باللغة الإنجليزية، لتطبيقها في مختبرات اللغة الإنجليزية بالهيئة العامة للتعليم التطبيقي والتدريب في دولة الكويت. هدفت الدراسة إلى تحديد أكثر استراتيجيات الذكاء الاصطناعي فعاليةً في تطوير مهارات الاستماع والتحدث لدى متعلمي اللغة الإنجليزية، وكيفية إدراك المتعلمين لأنشطة الاستماع والتحدث القائمة على الذكاء الاصطناعي وتفاعلهم معها، وما هي التحسينات الملموسة التي يمكن ملاحظتها في مهارات الاستماع والتحدث بعد تطبيقها. اتبعت الدراسة منهجًا وصفيًا، وخلصت نتائجها إلى أهمية استخدام استراتيجيات الذكاء الاصطناعي لتعلم اللغة الإنجليزية بشكل عام، ولتطوير مهارات القراءة والاستماع بشكل خاص. كما قدمت الدراسة بعض التوصيات والمقترحات لاستخدام الذكاء الاصطناعي وتطبيقه لتحسين مهارات القراءة والاستماع باللغة الإنجليزية، لتطبيقها في مختبرات اللغة الإنجليزية بالهيئة العامة للتعليم التطبيقي والتدريب في دولة الكويت.


**الكلمات المفتاحية:** الاستراتيجيات – الذكاء الاصطناعي – مهارات الاستماع والتحدث – المتدربون – مختبر اللغة الإنجليزية – الهيئة العامة للتعليم التطبيقي والتدريب – دولة الكويت.

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## Introduction:

The integration of artificial intelligence (AI) into English language education has opened new avenues for enhancing listening and speaking skills among learners. AI-driven tools and platforms offer interactive, personalized, and engaging experiences that can address individual learner needs and foster communication abilities. This research plan explores strategies for utilizing AI to develop listening and speaking skills among trainees in the English language laboratory at the Public Authority for Applied Education and Training in Kuwait, drawing on recent empirical findings and best practices.

Artificial intelligence (AI) is increasingly recognized as a transformative tool in English language education, offering personalized, interactive, and engaging learning experiences that can significantly enhance listening and speaking skills. Empirical studies have demonstrated notable improvements in learners' oral fluency, pronunciation, grammatical accuracy, and overall communication abilities when AI-based tools and intelligent learning systems are integrated into language instruction (Núñez-Naranjo et al., 2024; Macías et al., 2024; Hu, 2024; Fathi et al., 2024; Rusmiyanto et al., 2023; Minh & Khanh, 2024; Suryana et al., 2020; Zou et al., 2023; Yin & Wang, 2023; Zou et al., 2023).

## Study Problem

The researcher felt the problem of the study as he works as a certified trainer at the Public Authority for Applied Education and Training in the State of Kuwait. During training in the English language laboratories, he noticed some shortcomings among the trainees in using artificial intelligence to improve reading and listening skills, despite the global boom in relying on artificial intelligence in learning and training.

This prompted the researcher to review many literatures and studies that addressed this topic. In addition, there is a research gap in the studies, as the researcher did not find a single study - to the best of the researcher's knowledge - that addressed the study variables in the State of Kuwait, which was not a justification for starting this study.

Despite the growing adoption of AI in language education, there is limited research on effective strategies for leveraging AI to specifically improve listening and speaking skills in the context of English language laboratories in Kuwait. Challenges include identifying suitable AI tools, understanding their impact on learner engagement and outcomes, and integrating them effectively into existing curricula (Fathi et al., 2024; Hu, 2024; Rusmiyanto et al., 2023).

## Study Questions

1- What AI-based strategies are most effective in developing listening and speaking skills among English language trainees?
2- How do trainees perceive and engage with AI-mediated listening and speaking activities?
3- What measurable improvements in listening and speaking skills can be observed following the implementation of AI-based strategies?

## Study Objectives

1- To identify and implement AI-driven strategies for enhancing listening and speaking skills in English language laboratories.
2- To evaluate the effectiveness of these strategies in improving trainees' language proficiency.
3- To assess trainees' attitudes and engagement with AI-mediated learning activities.

## Study Importance

This study is significant as it addresses the gap in research on AI integration in English language laboratories in Kuwait, providing evidence-based strategies for educators. The findings can inform curriculum development, promote learner autonomy, and contribute to the broader discourse on technology-enhanced language learning (Fathi et al., 2024; Hu, 2024; Rusmiyanto et al., 2023).

## Study Methodology

The study will use the descriptive approach, which describes and explains what exists. It is concerned with identifying the circumstances and relationships that exist between facts. It is also concerned with identifying common or prevailing practices and identifying the beliefs and trends of individuals and groups and their methods of growth and development. This is done by reviewing previous studies and literature that dealt with the use of artificial intelligence strategies in improving the reading and listening skills of students in the English Language Laboratory at the Public Authority for Applied Education and Training in the State of Kuwait.

## Study Terminology

- Artificial Intelligence (AI): Computer systems capable of performing tasks that typically require human intelligence, such as speech recognition and natural language processing (Rusmiyanto et al., 2023).
- AI-mediated Activities: Learning tasks facilitated by AI tools, including chatbots, speech evaluation programs, and intelligent learning systems (Fathi et al., 2024; Hu, 2024; Zou et al., 2023).

- Listening and Speaking Skills: Core components of language proficiency, encompassing comprehension, pronunciation, fluency, and interactive communication (Fathi et al., 2024; Hu, 2024; Al-Shallakh, 2024).
- Language Laboratory: A specialized educational environment equipped with technology to support language learning.

This research plan aims to provide actionable insights and practical strategies for leveraging AI to enhance English listening and speaking skills in higher education settings in Kuwait.

## 1- Theoretical framework and previous studies

AI-based strategies have become highly effective in developing listening and speaking skills among English language trainees. The most effective approaches combine interactive AI tools, personalized feedback, speech recognition, and adaptive learning systems, leading to significant improvements in both listening and speaking abilities.

AI-Powered Intelligent Learning Systems: Deploy systems that provide automated assessment, real-time feedback, and personalized learning recommendations to target listening and speaking skills (Hu, 2024; Yin & Wang, 2023).

AI-powered smart learning systems are increasingly used to improve English listening and speaking skills. These systems provide interactive, personalized, and adaptive learning experiences that significantly enhance learners' abilities in both listening and speaking compared to traditional methods.

### [1/1] Key Features and Benefits

- Interactive Practice: AI tools such as chatbots and speech recognition programs offer real-time, interactive speaking and

listening practice, simulating natural conversations and providing immediate feedback on pronunciation, fluency, and accuracy (Dennis, 2024; Fathi et al., 2024; Qiao & Zhao, 2023; Zou et al., 2023; Hu, 2024; Du & Daniel, 2024).

- Personalized Feedback: AI systems analyze learners' responses and deliver tailored feedback, helping users identify and correct specific weaknesses in pronunciation, grammar, and vocabulary use (Dennis, 2024; Qiao & Zhao, 2023; Zou et al., 2023).
- Increased Motivation and Confidence: Learners report higher engagement, motivation, and willingness to communicate when using AI-mediated activities, as these tools often reduce speaking anxiety and create a supportive environment for practice (Fathi et al., 2024; Hu, 2024; Du & Daniel, 2024).
- Flexible and Accessible Learning: AI-powered platforms allow learners to access resources anytime and anywhere, breaking the constraints of traditional classroom settings and enabling more frequent and convenient practice (Azzahra et al., 2024; Hu, 2024).

**[1-2] Effective Strategies for Use**

- Regular Use of AI Chatbots: Engaging in daily conversations with AI chatbots helps improve speaking fluency, coherence, and confidence, while also expanding vocabulary and grammatical range (Fathi et al., 2024; Du & Daniel, 2024).
- Speech Recognition and Evaluation Tools: Utilizing AI-powered speech recognition applications (e.g., Duolingo, ELSA Speak) enables learners to practice pronunciation and receive instant, actionable feedback (Dennis, 2024; Azzahra et al., 2024; Qiao & Zhao, 2023; Zou et al., 2023).

- Listening Practice with Intelligent Systems: AI-based listening modules adapt to learners' proficiency levels, offering targeted listening exercises and tracking progress over time (Azzahra et al., 2024; Hu, 2024).
- Self-Regulation and Autonomy: AI systems encourage learners to set goals, monitor their progress, and self-correct, fostering greater independence in language learning (Qiao & Zhao, 2023).

### [1-3] Learner Perceptions and Challenges

- Most learners view AI-powered systems positively, noting clear improvements in their listening and speaking skills (Fathi et al., 2024; Azzahra et al., 2024; Cahyono & Rosita, 2023; Qiao & Zhao, 2023; Hu, 2024; Du & Daniel, 2024).
- Some challenges include the need for stable internet connections and sufficient device storage, but these are generally outweighed by the benefits (Azzahra et al., 2024).

AI-powered smart learning systems offer effective, engaging, and flexible ways to improve English listening and speaking skills. By providing interactive practice, personalized feedback, and increased learner motivation, these tools can significantly accelerate language development and build communication confidence.

### [2] Key AI-Based Strategies

Interactive AI Platforms and Chatbots: AI-mediated speaking activities using chatbots (e.g., Andy English Chatbot) and conversational agents provide real-time, interactive practice, resulting in greater improvements in speaking fluency, coherence, vocabulary, grammar, and pronunciation compared to traditional peer interaction. These tools also

increase learners' willingness to communicate and foster positive attitudes toward language learning (Fathi et al., 2024; Rusmiyanto et al., 2023; Madhavi et al., 2023).

Speech Recognition and Automated Feedback: AI-powered speech evaluation programs and applications (such as Duolingo and ELSA Speak) use speech recognition and natural language processing to deliver immediate, personalized feedback on pronunciation, grammar, and overall speaking performance. Learners report significant gains in speaking skills and self-regulation when using these tools (Azzahra et al., 2024; Zou et al., 2023; Qiao & Zhao, 2023; Dang, 2024).

Adaptive and Personalized Learning Systems: AI-driven systems analyze individual learner needs and adapt content, exercises, and feedback accordingly. This personalization enhances both listening comprehension and speaking proficiency, making learning more effective and engaging (Sivaji et al., 2024; 丁, 2025; Hu, 2024; Dang, 2024).

Task-Driven and Intelligent Evaluation Frameworks: Large language models (e.g., ChatGPT) are used to simulate real-life communication scenarios, provide intelligent evaluation, and support task-based learning, further improving listening and speaking skills in a scalable way (丁, 2025; Hu, 2024).

## [2-1] Effectiveness and Learner Perceptions

Studies consistently show that students using AI and ICT tools outperform those using traditional methods in all aspects of speaking and listening tests (Madhavi et al., 2023; Sivaji et al., 2024; Qiao & Zhao, 2023; Hu, 2024).

Learners express high satisfaction with AI-based tools, citing increased motivation, autonomy, and access to learning resources anytime and anywhere, despite some technical limitations (e.g., internet connectivity) (Azzahra et al., 2024; Qiao & Zhao, 2023; Hu, 2024).

AI-based strategies—especially those involving interactive chatbots, speech recognition, personalized feedback, and adaptive learning—are highly effective for developing English listening and speaking skills. These approaches not only improve language proficiency but also boost learner motivation and engagement.

### [3] Answer to the second question

AI-mediated listening and speaking activities are increasingly used in language learning, and research shows that trainees generally perceive these activities positively and engage with them in meaningful ways. Trainees report enhanced speaking skills, increased willingness to communicate, and positive attitudes toward AI-mediated practice.

### [3-1] Perceptions of AI-Mediated Activities

Learners consistently express positive attitudes toward AI-mediated speaking and listening activities, appreciating the opportunities for practice and feedback that AI tools provide (Fathi et al., 2024; Yang et al., 2022; Zou et al., 2023; Huang & Zou, 2024; Darmawansah et al., 2025).

Enjoyment and perceived usefulness of AI tools are significant factors influencing learners' willingness to continue using them for language practice (Zou et al., 2023; Huang & Zou, 2024).

Some studies note that while learners value the human-like qualities of AI (such as natural speech), trust can be affected if the AI's listening or comprehension abilities are perceived as lacking (Hu et al., 2021).

### [3-2] Engagement and Interaction

AI-mediated activities encourage active engagement, with students taking more conversational turns and participating in more interactive tasks than in traditional classroom settings (Yang et al., 2022; Zou et al., 2023; Darmawansah et al., 2025).

Emotional, behavioral, and especially cognitive engagement are key predictors of improved speaking performance in AI-assisted environments (Huang, 2024).

Social network-based and role-play activities supported by AI further enhance interaction, motivation, and speaking proficiency (Zou et al., 2023; Darmawansah et al., 2025).

Learners benefit from immediate corrective feedback and the opportunity to practice in a low-pressure environment, which fosters a positive and motivating learning experience (Fathi et al., 2024; Darmawansah et al., 2025).

### [3-3] Impact on Speaking and Listening Skills

AI-mediated activities are effective in improving various aspects of speaking skills, including fluency, coherence, vocabulary, grammar, and pronunciation (Fathi et al., 2024; Yang et al., 2022; Darmawansah et al., 2025; Kim et al., 2021).

Both voice and text-based AI chatbots can enhance speaking performance, with voice-based interactions sometimes leading to better outcomes in expressing opinions (Kim et al., 2021).

Learners adapt their speech and listening strategies to communicate more effectively with AI, which can improve overall communication skills (Zellou & Cohn, 2023).

Trainees generally perceive AI-mediated listening and speaking activities as beneficial, engaging, and enjoyable. These activities promote active participation, improve speaking skills, and foster a willingness to communicate, making them a valuable addition to language learning environments.

## [4] Answer to the third question

AI-based strategies in language education have led to significant, measurable improvements in both listening and speaking skills among learners. These improvements are observed across various aspects of language proficiency, including fluency, pronunciation, grammar, and overall communicative ability.

### [4-1] Improvements in Speaking Skills

Fluency, Pronunciation, and Grammar: Learners using AI-mediated platforms and chatbots show greater gains in speaking fluency, coherence, pronunciation, grammatical range, and accuracy compared to those using traditional methods (Fathi et al., 2024; Qiao & Zhao, 2023; Riaz & Kausar, 2024; Kim et al., 2021; Zou et al., 2023; Yang, 2024; Dennis, 2024).

Speaking Proficiency Scores: Experimental groups using AI tools consistently achieve higher post-test speaking scores than control groups, with some studies reporting increases more than three times greater than traditional instruction (Tao, 2023; Riaz & Kausar, 2024; Zou et al., 2023).

Task-Specific Gains: AI voice-chatting, in particular, enhances performance in tasks requiring opinion expression, sometimes outperforming both face-to-face and text-based interactions (Kim et al., 2021).

Self-Regulation and Awareness: AI-based instruction also fosters learners' self-regulation, metacognitive strategies, and speaking awareness, enabling them to set goals and monitor their progress more effectively (Qiao & Zhao, 2023; Yang, 2024).

### [4-2] Improvements in Listening Skills

Listening Ability Scores: AI-driven intelligent learning systems and adaptive platforms lead to significant improvements in listening ability, with experimental groups showing higher average post-test scores than before the intervention (Hu, 2024; Tao, 2023; Sivaji et al., 2024).

Personalized Feedback: AI-powered systems provide real-time, individualized feedback and interactive exercises, which help learners better understand and remember spoken English (Hu, 2024; Dennis, 2024; Sivaji et al., 2024).

Increased Engagement: The use of AI tools increases learners' interest and motivation in practicing listening skills, contributing to more effective learning outcomes (Hu, 2024; Sivaji et al., 2024).

### [4-3] Learner Perceptions

Positive Attitudes: Learners report high satisfaction and positive attitudes toward AI-mediated activities, appreciating the practical feedback and increased opportunities for practice (Fathi et al., 2024; Zou et al., 2023; Dennis, 2024).

Recognition of Effectiveness: Students recognize the value of AI tools in enhancing both their listening and speaking abilities, often preferring these methods over traditional instruction (Hu, 2024; Riaz & Kausar, 2024; Zou et al., 2023; Dennis, 2024).

AI-based strategies in language learning result in clear, measurable improvements in listening and speaking skills, outperforming traditional methods in multiple studies. These gains are supported by enhanced learner engagement, personalized feedback, and increased self-regulation, making AI a valuable tool for language education.

## [5] Study procedures :

This research will provide evidence-based strategies for leveraging AI in English language laboratories, supporting educators in optimizing language instruction and addressing the diverse needs of trainees in Kuwait's applied education context (Núñez-Naranjo et al., 2024; Macías et al., 2024; Rusmiyanto et al., 2023).

### [5-1] Using Artificial Intelligence to Train English Speaking Skills:

Artificial intelligence (AI) offers effective, interactive, and personalized tools for developing English speaking skills, including fluency, pronunciation, grammar, and vocabulary. AI-based platforms, chatbots, and speech evaluation systems provide immediate feedback, engaging activities, and opportunities for practice, leading to significant improvements in learners' speaking abilities and motivation (Macías et al., 2024; Núñez-Naranjo et al., 2024; Shi et al., 2022; Fathi et al., 2024; Zou et al., 2023; Zou et al., 2023; Hakim & Rima, 2022).

### [5-2] Key Components of the Study Plan

#### [5-2-1] Diagnostic Assessment

Begin with a pre-test to assess students' baseline speaking skills in fluency, pronunciation, grammar, and vocabulary using AI-powered evaluation tools (Núñez-Naranjo et al., 2024; Zou et al., 2023).

### [5-2-2] AI-Mediated Speaking Practice

Integrate AI chatbots (e.g., Andy English Chatbot, Call Annie) for daily conversational practice, allowing students to interact in real-life scenarios and receive instant feedback on pronunciation, grammar, and vocabulary usage (Fathi et al., 2024; Zou et al., 2023; Wan & Moorhouse, 2024; Hakim & Rima, 2022).

Use AI-powered speech evaluation programs to provide targeted, automated feedback and practical suggestions for improvement (Shi et al., 2022; Zou et al., 2023).

### [5-2-3] Interactive and Social Activities

Encourage participation in AI-assisted group discussions or social network-based interactions (e.g., via WeChat, Facebook, WhatsApp) to enhance fluency and communication skills in a collaborative environment (Zou et al., 2023).

Assign role-plays and debates using AI avatars or chatbots to simulate authentic speaking situations (Wan & Moorhouse, 2024; Mei et al., 2022).

### [5-2-4] Focused Skill Development

- Design weekly modules targeting specific skills:Fluency: Timed conversations with AI chatbots, storytelling, and summarization tasks (Macías et al., 2024; Fathi et al., 2024; Zou et al., 2023).
- Pronunciation: Use AI tools with speech recognition to practice and correct pronunciation errors (Shi et al., 2022; Zou et al., 2023; Wan & Moorhouse, 2024).
- Grammar: Engage in grammar-focused dialogues and receive corrective feedback from AI systems (Shi et al., 2022; Fathi et al., 2024; Zou et al., 2023).

- Vocabulary: Incorporate vocabulary games and context-based exercises within AI platforms (Núñez-Naranjo et al., 2024; Fathi et al., 2024; Hakim & Rima, 2022).

### [5-2-4] Continuous Feedback and Motivation

- Provide regular, varied feedback through AI systems, including textual and audio suggestions, to guide learners' progress (Shi et al., 2022; Zou et al., 2023).
- Use gamification and progress tracking features in AI apps to motivate and stimulate students (Núñez-Naranjo et al., 2024; Zou et al., 2023).

### [5-2-6] Post-Assessment and Reflection

- Conduct a post-test using the same AI evaluation tools to measure improvement in speaking skills (Núñez-Naranjo et al., 2024; Zou et al., 2023).
- Facilitate reflection sessions where students discuss their experiences and set future learning goals (Fathi et al., 2024; Zou et al., 2023).

### [5-2-7] Benefits and Considerations

- AI tools significantly improve speaking skills, motivation, and willingness to communicate compared to traditional methods (Núñez-Naranjo et al., 2024; Fathi et al., 2024; Zou et al., 2023).
- Personalized, interactive, and immediate feedback enhances learning efficiency and student satisfaction (Shi et al., 2022; Zou et al., 2023; Zou et al., 2023).
- Ethical considerations, data protection, and equitable access should be addressed when implementing AI in language education (Macías et al., 2024; Rusmiyanto et al., 2023).

- This AI-driven study plan provides a structured, engaging, and effective approach to developing English speaking skills, leveraging the strengths of modern technology to support learners' diverse needs (Macías et al., 2024; Núñez-Naranjo et al., 2024; Shi et al., 2022; Fathi et al., 2024; Rusmiyanto et al., 2023; Zou et al., 2023; Zou et al., 2023; Wan & Moorhouse, 2024; Mei et al., 2022; Hakim & Rima, 2022).

## [6] AI-Driven Study Plan for Training English Listening Skills :

Artificial intelligence (AI) offers powerful tools and strategies to enhance English listening skills, including listening for specific details, inferential listening, critical listening, and comprehensive listening. AI-based applications and intelligent learning systems provide personalized, interactive, and adaptive learning experiences that significantly improve students' listening abilities and motivation(Wang, 2024; Sivaji et al., 2024; Hu, 2024; Núñez-Naranjo et al., 2024; López-Minotta et al., 2025).

### [6-1] Study Plan Structure

#### [6-1-1] 1. Listening for Specific Details

- AI Tools & Activities: Use AI-powered platforms (e.g., Netflix, VOA Learning English, AI listening apps) to access diverse audio materials. Incorporate exercises where students identify key facts, numbers, or names from short audio clips.
- AI Support: Speech recognition and synthesis models (e.g., Wave Net, Seq2Seq with attention) can generate clear, targeted listening tasks and provide instant feedback on accuracy(Wang, 2024; Núñez-Naranjo et al., 2024; Qian et al., 2022).
- Expected Outcome: Improved ability to extract precise information from spoken English(Wang, 2024; Núñez-Naranjo et al., 2024).

### [6-1-2] Inferential Listening

- AI Tools & Activities: Employ adaptive AI systems that present audio scenarios requiring students to infer meaning, intent, or context beyond explicit statements.
- AI Support: Natural language processing and adaptive learning algorithms adjust task difficulty and provide hints or explanations based on student responses(Sivaji et al., 2024; Liao et al., 2023).
- Expected Outcome: Enhanced skills in drawing logical conclusions and understanding implied meanings(Sivaji et al., 2024; Liao et al., 2023).

### [6-1-3] Critical Listening

- AI Tools & Activities: Integrate AI-driven discussion platforms or virtual conversation assistants (e.g., Call Annie, Praktika) to analyze and critique spoken arguments or opinions.
- AI Support: Real-time feedback and interactive exercises encourage students to evaluate credibility, detect bias, and form reasoned judgments(Sivaji et al., 2024; Minh & Khanh, 2024).
- Expected Outcome: Strengthened critical analysis and evaluative listening abilities(Sivaji et al., 2024; Minh & Khanh, 2024).

### [6-1-4] Comprehensive Listening

- AI Tools & Activities: Use AI applications to deliver longer, authentic listening passages (e.g., news, podcasts, lectures) followed by comprehension questions and summary tasks.
- AI Support: AI systems track progress, adapt content to individual proficiency, and provide personalized feedback to ensure holistic understanding (Wang, 2024; Sivaji et al., 2024; Hu, 2024; Núñez-Naranjo et al., 2024).

- Expected Outcome: Improved overall comprehension and retention of spoken English(Wang, 2024; Sivaji et al., 2024; Hu, 2024; Núñez-Naranjo et al., 2024).

### [6-1-5] Implementation Guidelines

- Personalization: AI systems adapt to individual learning styles and paces, ensuring each student receives appropriate challenges and support(Sivaji et al., 2024; López-Minotta et al., 2025).
- Motivation & Engagement: Interactive, multimedia-rich AI tools (e.g., video, music, conversation bots) increase student motivation and participation(Suryana et al., 2020; Núñez-Naranjo et al., 2024; López-Minotta et al., 2025).
- Assessment & Feedback: Continuous assessment through AI analytics and instant feedback help track progress and address weaknesses(Wang, 2024; Sivaji et al., 2024; Hu, 2024; Núñez-Naranjo et al., 2024; López-Minotta et al., 2025).
- Integration: Combine AI tools with teacher guidance for optimal results, leveraging both technology and human expertise(Minh & Khanh, 2024; López-Minotta et al., 2025).

### [6-1-6] Evidence of Effectiveness

- Students using AI-based listening training systems show significant improvements in listening scores and reduced disinterest in English listening(Wang, 2024; Hu, 2024; Núñez-Naranjo et al., 2024).
- AI-driven approaches foster better understanding, memory, and critical engagement with spoken English compared to traditional methods(Sivaji et al., 2024; Núñez-Naranjo et al., 2024; López-Minotta et al., 2025).

- AI applications are recognized as effective and efficient for improving English listening skills, especially when tailored to student needs(Suryana et al., 2020; Wang, 2024; Sivaji et al., 2024; Hu, 2024; Núñez-Naranjo et al., 2024; López-Minotta et al., 2025).

This AI-driven study plan provides a structured, evidence-based approach to developing all facets of English listening skills, leveraging the adaptability, interactivity, and feedback mechanisms of modern AI technologies.

## [7] Discussion of study results :

Effectiveness of AI Strategies in Developing Listening and Speaking Skills Artificial intelligence (AI) strategies have demonstrated significant effectiveness in enhancing the listening and speaking skills of English language learners, including those in laboratory settings similar to the Public Authority for Applied Education and Training in Kuwait. Studies consistently report notable improvements in learners' performance after the integration of AI-based tools and systems.

### [7-1] Improvement in Listening Skills

AI-driven pedagogical strategies, such as intelligent learning systems and adaptive literacy platforms, have been shown to substantially improve students' listening abilities. For example, students using AI-supported repositories and interactive exercises experienced considerable gains in listening test scores, with average post-test ratings rising notably compared to pre-test results(Núñez-Naranjo et al., 2024; Hu, 2024; Sivaji et al., 2024). These systems provide individualized feedback, real-time adaptation to learners' needs, and engaging content, all of which contribute to better comprehension and retention of spoken English(Hassani et al., 2016; Sivaji et al., 2024).

### [7-2] Enhancement of Speaking Skills

AI technologies, including speech recognition, natural language processing, and virtual conversation assistants, have been effective in developing speaking proficiency. Empirical studies highlight improvements in speaking fluency, coherence, grammatical accuracy, pronunciation, and conversational engagement among learners who participated in AI-mediated activities(Dang, 2024; Minh & Khanh, 2024; Rusmiyanto et al., 2023; Fathi et al., 2024; Zou et al., 2023). For instance, the use of AI chatbots and speech evaluation programs led to significant gains in speaking test scores and increased willingness to communicate(Fathi et al., 2024; Zou et al., 2023). Additionally, AI tools provided personalized, semantically oriented learning experiences, further supporting the development of expressive and adaptive speaking skills (Dang, 2024; Minh & Khanh, 2024).

### [7-3] Learner Motivation and Attitudes

AI-based activities have been found to motivate and stimulate students, leading to higher engagement and positive attitudes toward language learning (Núñez-Naranjo et al., 2024; Hu, 2024; Fathi et al., 2024). Learners reported a high degree of recognition and satisfaction with AI-supported systems, appreciating the interactive and practical nature of the feedback and activities provided(Hu, 2024; Fathi et al., 2024; Zou et al., 2023).

### [7-4] Adaptive and Personalized Learning

A key advantage of AI strategies is their ability to adapt to individual learners' proficiency levels and learning curves. Intelligent virtual environments and adaptive feedback mechanisms ensure that the complexity of tasks matches the learner's progress, resulting in measurable improvements in both listening and speaking skills(Hassani et al., 2016; Sivaji et al., 2024).

Significant improvement in trainees' listening and speaking abilities, including fluency, pronunciation, and grammatical accuracy (Núñez-Naranjo et al., 2024; Hu, 2024; Fathi et al., 2024; Minh & Khanh, 2024; Zou et al., 2023; Yin & Wang, 2023; Zou et al., 2023).

Increased motivation, engagement, and willingness to communicate in English (Núñez-Naranjo et al., 2024; Fathi et al., 2024; Zou et al., 2023).

Positive perceptions of AI-mediated learning experiences and recognition of their value in language development (Fathi et al., 2024; Suryana et al., 2020; Zou et al., 2023).

## [8] Conclusion

The integration of AI strategies in English language laboratories, such as those at the Public Authority for Applied Education and Training in Kuwait, can lead to significant improvements in trainees' listening and speaking skills. These strategies offer personalized, interactive, and adaptive learning experiences that not only enhance language proficiency but also increase learner motivation and engagement (Núñez-Naranjo et al., 2024; Hu, 2024; Dang, 2024; Minh & Khanh, 2024; Hassani et al., 2016; Sivaji et al., 2024; Rusmiyanto et al., 2023; Fathi et al., 2024; Zou et al., 2023).

Artificial intelligence (AI) offers effective strategies for developing English listening and speaking skills in language labs. Research consistently shows that integrating AI tools and systems into English language education leads to significant improvements in learners' abilities, motivation, and engagement.

### [8-1] Effective AI Strategies for Listening and Speaking

- Intelligent Learning Systems: AI-powered platforms, especially those using wireless networks, provide interactive and adaptive learning experiences. These systems can significantly improve both listening and speaking skills, as well as increase students' interest and motivation in English learning.

- AI-Mediated Speaking Activities: Using AI chatbots and speech recognition tools for interactive speaking practice enhances fluency, coherence, vocabulary, grammar, and pronunciation. Learners engaging with AI-mediated activities show greater improvement than those using traditional methods.
- Automated Feedback: AI speech evaluation programs offer immediate, personalized feedback on pronunciation, grammar, and overall speaking performance. This feedback helps learners identify and address specific weaknesses, leading to measurable gains in speaking proficiency.
- Virtual Environments: Intelligent virtual environments with embedded pedagogical agents simulate real-life communication scenarios, adapt to learners' proficiency levels, and provide multimodal feedback (visual, auditory, haptic). These environments foster practical listening and speaking skills in context.

## [8-2] Implementation Recommendations

- Personalization and Adaptivity: Use AI systems that assess individual learner needs and adjust content difficulty and feedback accordingly, ensuring optimal progress for each trainee.
- Interactive and Engaging Content: Incorporate AI-driven activities that simulate real-world conversations and provide opportunities for repeated, meaningful practice.
- Integration with Traditional Methods: Combine AI tools with face-to-face instruction to maximize benefits and address diverse learning preferences.
- Continuous Assessment: Employ AI-based assessment tools to monitor progress and provide ongoing, actionable feedback.

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