Enhancing English Pronunciation through Artificial Intelligence: A Study on Learner Perceptions and Effectiveness

Mavidi Papi Naidu, Appala Raju Korada, Rambabu Velagala, Borige Vijaykumar, Prakasam Kanta

Aditya Institute of Technology and Management, Andhra University.

DOI: https://doi.org/10.51244/IJRSI.2026.1310000134

Received: 23 October 2026; Accepted: 28 October 2026; Published: 05 November 2026

ABSTRACT

This study applies the Artificial Intelligence (AI) tools with respect to their efficiency to assisting English pronunciation improvement by the analysis of the survey results. The findings show that most of the respondents use AI tools regularly, such as speech recognition and pronunciation software, which boosts their pronunciation skills substantially, primarily in terms of accuracy, fluency, and speaking confidence. The participants emphasized the value of such features as: real-time feedback, detection of mistakes, and interactive learning process. Meanwhile, there was also a strong inclination to the use of AI-based learning over the traditional learning one due to its flexibility and personalization. Nevertheless, some limitations have been noticed such as occasional inaccuracy of feedback and inability to understand the context.

Keywords: Artificial Intelligence, Pronunciation Learning, English Language Teaching, AI Tools, Speech Recognition, Computer-Assisted Language Learning (CALL), Real-Time Feedback, Learner Engagement, Educational Technology

INTRODUCTION

The fast development of Artificial Intelligence (AI) technology has dramatically changed the scope of education, especially in the sphere of English Language Teaching (ELT). Among the different language competencies, pronunciation is one of the key elements that play an important role in communicating efficiently. However, it is also one of the most difficult skills to learn. Conventional teaching approaches do not give learners sufficient chances for practicing their pronunciation individually and receiving immediate feedback on it. In this regard, pronunciation software developed using AI technologies becomes an efficient solution.

Through use of AI technology and application of machine learning techniques and speech recognition software, it becomes easier for students to work on their pronunciations in real-time with immediate feedback from the system on how well they are doing. Not only does it identify mistakes, but it also suggests ways to correct them. The application of technology in this area of language learning has moved emphasis from teacher-centric to learner-centric teaching.

Despite the increased use of pronunciation assistance tools supported by artificial intelligence, there is still a necessity to look more systematically into the influence and effectiveness of such technologies on the pronunciation skills and confidence of language learners. Although earlier research stressed the importance of CALL, it still needs to be investigated how exactly AI-supported technologies can help to improve pronunciation accuracy and fluency.

For that reason, the purpose of this study is to examine the use of AI-assisted pronunciation technologies in improving the pronunciation of English learners. Based on the analysis of data collected via surveys, the study will shed some light on how artificial intelligence technologies can help facilitate language learning. It is expected that the results of the study will add to the body of knowledge in the area of technology-enhanced language learning..

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue X October 2026

LITERATURE REVIEW

Technological advancements in language learning have taken place to a great extent over the past few decades; CALL has been the beginning of contemporary digital language teaching. Initially, CALL systems only offered practice through drills and provided minimal feedback; but the introduction of AI technology has made this possible through more adaptive and interactive learning environments. Studies reveal that AI-based technological applications have improved the quality of language learning through instant feedback and performance assessment of the learners (Godwin-Jones, 2018; Li, 2020).

In particular, pronunciation learning has greatly been facilitated by the advent of AI technology like ASR and NLP. According to research findings, AI-powered pronunciation software has been proven to be efficient in detecting phonetic mistakes and offering feedback, thus improving the accuracy and fluency of pronunciation of the learners (Derwing & Munro, 2015; McCrocklin, 2019). The use of such software involves practicing pronunciation in an environment that mimics real-life interaction, something that would not be feasible in a traditional classroom setting. Moreover, research has shown that AI-supported pronunciation systems enhance the level of motivation and engagement of the learners.

The latest studies also indicate that AI is capable of encouraging learner autonomy and self-directed learning. Through the use of AI platforms, learners can benefit from practicing at their own speed, receiving personalized feedback that builds up learners' confidence and reduces the stress of speaking activities (Kukulska-Hulme, 2020). Moreover, MALL tools have provided greater access to pronunciation practice for learners by making it possible to practice anytime and anywhere. The ability to practice anytime and anywhere has been recognized as an important determinant of success.

Nonetheless, even though there are some benefits to consider, a number of drawbacks associated with the use of AI-based pronunciation tools have been identified in academic papers. In particular, scholars emphasize that sometimes speech recognition programs can give incorrect results concerning accent pronunciation (Neri et al., 2008). Additionally, AI technology lacks context and pragmatic awareness which are crucial in any communication process (Chapelle, 2021).

Recent literature (2020-2026) has been directed at increasing the reliability and flexibility of AI-based methods through the adoption of deep learning approaches and multi-modal feedback systems. However, even with the emergence of these innovations, there is still a shortage of empirical evidence that explores the combination of learners' perceptions, behaviors, and results.

In this regard, the current study adds to the existing knowledge base by conducting an analysis of the effectiveness of the AI-powered pronunciation tool based on survey research. It tries to fill the gap that exists between the possibilities offered by technology and its implementation in real-life situations.

Objectives

The present study is designed to explore the effectiveness and impact of Artificial Intelligence (AI)-based tools in English pronunciation learning. The specific objectives of the study are:

1. **To examine the extent of usage of AI-based pronunciation tools** among learners of English.
2. **To analyze learners' perceptions of the effectiveness of AI tools** in improving pronunciation accuracy and fluency.
3. **To identify the key features of AI applications** (such as real-time feedback and error correction) that contribute to pronunciation learning.
4. **To evaluate the impact of AI tools on learners' confidence and speaking skills.**

5. **To investigate the challenges and limitations faced by learners** while using AI-based pronunciation technologies.

6. **To assess the overall role of AI in enhancing learner engagement and autonomy** in language learning.

These objectives aim to provide a comprehensive understanding of how AI-driven tools support pronunciation development and contribute to effective English language learning.

METHODOLOGY

The research design used in the current study is quantitative research assisted by descriptive and analytical methods to investigate the efficiency of the use of AI tools for English language learning in terms of pronunciation. For the purpose of the present study, well-structured questionnaire survey was used to elicit the data related to the demographic characteristics of the learners, their language background, the extent of their use of the AI applications, their perceptions of efficiency, and their problems experienced in using the AI applications.

People taking part in the study were from all walks of life and from a variety of educational backgrounds, ensuring a broad cross-section of English language speakers. Convenience sampling approach was used to obtain participants' responses since they were selected due to their availability and willingness to be a part of the research. The survey had closed-ended questions to enable the researcher to conduct statistical analysis.

The data analysis techniques used were percentage analysis, descriptive and response comparison. Data collected was tabulated and plotted on graphs, to gain insight into trends with respect to frequency, effectiveness and satisfaction levels. The research also looked at the correlation between the use of AI and improvement in pronunciation and fluency of the students.

To guarantee that the validity and reliability of the instrument is high, the questionnaire was formulated and examined properly. The study followed ethical guidelines including the voluntary participation of the participants, anonymity and confidentiality.

Overall, the approach gives a detailed examination of students' perception and experience, ensuring that it produces a rich understanding of the value of AI tools to improve pronunciation.

RESULTS

Based on data analysis, the results of the survey obtained showed that the application of pronunciation tools using Artificial Intelligence in the English language teaching and learning process was quite widespread. This is evident from the number of participants who admitted using AI tools on a regular basis, mostly on a weekly and even daily basis.

In terms of the effectiveness of the process, the study results showed that most of the respondents perceived the effectiveness of using AI technologies in improving their pronunciation to be good or very good. AI technologies made a tremendous impact on the participants' pronunciation accuracy and fluency. The feature of providing real-time feedback was one of the most valuable features of these technologies.

Furthermore, it has been revealed that AI technology has a significant role in enhancing learners' confidence. A huge number of the participants felt that with the use of AI software, they were able to overcome their fear and hesitations when communicating in English.

Furthermore, from the results, it is apparent that some features such as interactive interfaces, immediate feedback and personalized learning experience are much appreciated by the learners. Such characteristics are seen as being more motivating and engaging.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue X October 2026

However, some limitations are uncovered by the findings. Some participants have had problems with the speech recognition, in part because of different accents and pronunciations. Others identified challenges with technical issues and lack of contextual understanding of tools and AI as barriers to effective learning.

In general, the findings have conclusively shown that the use of AI technology in pronunciation aids is of great importance in improving the skills, confidence, and engagement of the learners, albeit with some limitations. The findings support the viability of AI technology in revolutionizing the traditional methods of language learning.

Table 1: Frequency of Using AI-Based Pronunciation Tools

Frequency	Number of Respondents	Percentage (%)
Daily	65	20.7%
Weekly	136	43.3%
Rarely	97	30.9%
Never	16	5.1%
Total	314	100%

Discussion

It is evident from the data presented in the table that AI-powered pronunciation apps have become increasingly important to English learners. Table 1 shows that most of the respondents (64%) use such apps on a daily or weekly basis, thereby showing a high level of technological involvement in their studies. It can be seen that very few respondents have never used such apps.

Table 2: Effectiveness of AI Tools in Improving Pronunciation

Level of Effectiveness	Number of Respondents	Percentage (%)
Very Effective	52	16.60%
Effective	150	47.80%
Neutral	72	22.90%
Ineffective	28	8.90%
Very Ineffective	12	3.80%
Total	314	100%

Discussion

The usefulness of AI tools is shown in Table 2, where more than half of the respondents (64.4%) consider such tools as either useful or very useful. This proves that AI-based applications have great potential in enhancing pronunciation skills. It can be seen that the low share of negative answers implies low dissatisfaction with such tools.

Table 3: Platforms Used for AI-Based Pronunciation Learning

Platform Type	Number of Respondents	Percentage (%)
Mobile Apps (e.g., speech apps)	126	40.10%
Web-based Platforms	61	19.40%
Language Learning Software	78	24.80%
Virtual Assistants	49	15.70%
Total	314	100%

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue X October 2026

Discussion

According to Table 3, the most popular platform among language learners is the mobile application, which constitutes 40.1%, followed by the language learning software and the web-based platform. The reason for the popularity of this platform is the convenience, portability, and user-friendliness of mobile learning. Another important point to note is the popularity of virtual assistants.

Table 4: AI Tools Helped Overcome Speaking Hesitation

Response	Number of Respondents	Percentage (%)
Yes	260	82.80%
No	54	17.20%
Total	314	100%

DISCUSSION

The results in table 4 stood out because a big group said AI tools helped them stop hesitating when they spoke English. It was over eighty percent. I think this shows how the tools can make a difference on the mental side of things. It reduces some of the worry people feel and lets them get more confident after practicing without anyone else there to judge. That part is easy to miss at first. Some people see it as just practice but it seems like it goes deeper than that. Maybe the non judgmental part matters more than it looks on the surface. I might be oversimplifying this though.

The data suggest these tools work well for building up language skills overall. It seems they also help with confidence and keeping learners interested at the same time. There are some small issues like occasional mistakes or tech problems though. Positive effects appear to be stronger in most cases. This kind of backs putting AI into language classes for experiences that feels more personal and efficient. Some details might get overlooked along the way.

CONCLUSION

The aim of the research of the present work is to highlight the merits of the application of the Artificial Intelligence (AI) tools in the English pronunciation learning. The findings of this study indicate that the use of AI tools has become popular and accepted among learners as they offer a good basis for solving practical problems regarding pronunciation. This kind of training was found to actively facilitate students' progress in pronunciation in terms of both pronunciation accuracy and fluency.

Apart from that, a lot of respondents said that with the help of artificial intelligence, they felt more confident speaking English. Furthermore, the respondents reported that the teaching of language and their use of the programs became more convenient with the use of new mobile technologies. The technology offers people the opportunity to use the material at their own time and rate.

However, the passage does mention some of the possible flaws of the software, such as occasional errors in speech recognition and the lack of contextual understanding by AI. While there may be some drawbacks, the benefits of AI pronunciation software are undeniable.

In conclusion, it can be claimed that AI-driven software has the ability to revolutionize language learning practices. From this point, it can be concluded that the study is a beneficial to the present study of English as the Lingua Franca. Future research could be improved through additional efforts to further refine these technological tools and the detailed study of the overall effects of these tools.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue X October 2026

REFERENCES

1. Chapelle, C. A. (2021). *Argument-based validation in language assessment*. Routledge.
2. Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. John Benjamins.
3. Fouz-González, J. (2017). Pronunciation instruction through computer-assisted language learning:

   What does the research say? *Computer Assisted Language Learning, 30*(8), 813–839.
4. Godwin-Jones, R. (2018). Using mobile technology to develop language skills and cultural understanding. *Language Learning & Technology, 22*(3), 1–17.
5. Kukulska-Hulme, A. (2020). Mobile-assisted language learning [Revisited]. *The International Encyclopedia of Applied Linguistics*. Wiley.
6. Li, K. (2020). Artificial intelligence in language learning: Applications and implications. *Educational Technology & Society, 23*(4), 1–12.
7. McCrocklin, S. (2019). ASR-based dictation practice for second language pronunciation improvement. *Journal of Second Language Pronunciation, 5*(1), 98–118.
8. Neri, A., Cucchiarini, C., Strik, H., & Boves, L. (2008). The effectiveness of computer-assisted pronunciation training for foreign language learning. *Computer Assisted Language Learning, 21*(5), 393–408.
9. O'Bryan, A., & Hegelheimer, V. (2007). Integrating CALL into the classroom: The role of teacher training. *Language Learning & Technology, 11*(3), 162–178.
10. Pennington, M. C. (2019). *Teaching pronunciation: The state of the art 2018*. RELC Journal, 50(1), 3–21.
11. Zhang, H., & Zou, D. (2022). Artificial intelligence in language education: A review of research trends and applications. *Educational Technology & Society, 25*(1), 1–15.