

## The Effectiveness of Speechace In Enhancing English-Speaking Performance Among Vietnamese Lower Secondary Students

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**ABSTRACT:** Artificial intelligence (AI) has increasingly been integrated into English language teaching to provide learners with immediate, individualized feedback and greater opportunities for autonomous speaking practice. However, empirical evidence on the effectiveness of AI-powered pronunciation platforms in Vietnamese lower secondary schools remains limited. This study investigated the effectiveness of the SpeechAce website in enhancing the English speaking performance of Grade 9 students and explored their perceptions of using the platform. A mixed-methods design was employed involving 40 Grade 9 students at a lower secondary school in Bac Ninh Province, Vietnam. Quantitative data were collected through pre- and post-speaking tests and a post-intervention questionnaire, while qualitative data were obtained from semi-structured interviews. The eight-week intervention integrated SpeechAce into regular speaking lessons, allowing students to receive immediate AI-generated pronunciation feedback and engage in repeated speaking practice. Quantitative data were analyzed using descriptive statistics and paired-samples *t*-tests, whereas qualitative data were examined through thematic analysis. The findings revealed a statistically significant improvement in students' overall speaking performance, particularly in pronunciation, accompanied by gains in fluency, vocabulary and grammar, and interactive communication. Students also expressed positive perceptions of SpeechAce, emphasizing its usefulness, ease of use, motivational value, and instant feedback. Interview data further indicated that the platform increased learners' confidence and encouraged autonomous speaking practice despite minor technical challenges. The study concludes that SpeechAce is an effective supplementary tool for improving English speaking performance and recommends its integration into lower secondary EFL classrooms to support technology-enhanced speaking instruction.

**KEYWORDS:** artificial intelligence; English speaking performance; EFL; lower secondary education; pronunciation feedback; SpeechAce.

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### 1. INTRODUCTION

English has become the dominant language for international communication, education, science, and technology, making oral communication competence an essential learning outcome in English as a Foreign Language (EFL) education (Crystal, 2003; Richards, 2008). Among the four language skills, speaking is widely regarded as the most demanding because it requires learners to integrate pronunciation, vocabulary, grammar, fluency, and interactional competence in real time (Bygate, 1987; Hughes, 2011). Consequently, improving learners' speaking performance has become a major objective of English language teaching worldwide, including in Vietnam under the 2018 General Education Curriculum, which emphasizes communicative competence rather than knowledge-based language learning.

Despite this curricular shift, developing speaking competence remains challenging for many Vietnamese lower secondary students. Limited classroom time, large class sizes, and examination-oriented instruction often restrict opportunities for meaningful oral practice and individualized corrective feedback. As a result, students frequently experience pronunciation problems, limited fluency, and low confidence when communicating in English (Ellis, 2009; Derwing & Munro, 2015). Since effective speaking development depends heavily on repeated practice and timely feedback, these constraints reduce learners' opportunities to improve their oral performance in authentic learning contexts.

Recent advances in educational technology, particularly Artificial Intelligence (AI), have created new possibilities for addressing these challenges. AI-powered language learning systems can analyze learners' spoken production, identify pronunciation errors, and generate immediate individualized feedback that supports self-directed learning (Holmes et al., 2019; Zawacki-Richter et al., 2019). Among these technologies, Automatic Speech Recognition (ASR) has received considerable attention

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because it enables learners to practice speaking repeatedly while receiving objective feedback on pronunciation, stress, rhythm, and fluency (McCrocklin, 2016). Previous studies have reported that ASR-supported learning contributes positively to pronunciation accuracy, learner autonomy, speaking confidence, and overall oral proficiency (Liakin et al., 2015; Zheng et al., 2021).

SpeechAce is an AI-powered pronunciation assessment platform that integrates ASR technology with detailed diagnostic feedback. Unlike traditional classroom feedback, SpeechAce provides immediate evaluation of pronunciation, word stress, sentence stress, and speech intelligibility, allowing learners to identify weaknesses and improve through repeated practice. These pedagogical affordances make the platform particularly suitable for EFL learners who have limited access to individualized teacher feedback. Nevertheless, although AI-assisted pronunciation tools have attracted increasing research interest, empirical studies examining the effectiveness of SpeechAce remain relatively limited, especially in lower secondary education and developing EFL contexts.

In Vietnam, existing studies have primarily focused on general technology-enhanced language learning, mobile-assisted language learning, or online learning environments (Nguyen & Habók, 2021). Comparatively few investigations have examined AI-assisted pronunciation platforms in authentic classroom settings, and even fewer have explored both measurable improvements in speaking performance and learners' perceptions of using such technologies. This lack of context-specific evidence limits our understanding of how AI-based pronunciation tools can be effectively integrated into English speaking instruction for younger learners.

To address these gaps, the present study investigated the effectiveness of the SpeechAce website in improving the English-speaking performance of Grade 9 students at a lower secondary school in Bac Ninh Province, Vietnam. Specifically, the study sought to determine whether integrating SpeechAce into regular speaking instruction could enhance students' speaking performance and to explore their perceptions of using the platform. The findings are expected to contribute empirical evidence to the growing body of research on AI-assisted language learning while providing practical implications for integrating pronunciation technologies into English language teaching at the lower secondary level.

The study was guided by the following research questions: *RQ1. To what extent does the use of the SpeechAce website improve Grade 9 students' English-speaking performance?* *RQ2. What are students' perceptions of using the SpeechAce website to support English speaking practice?*

## 2. LITERATURE REVIEW

### 2.1. English Speaking Performance

Speaking is widely recognized as one of the most complex language skills because it requires learners to integrate linguistic knowledge with communicative competence in real time (Bygate, 1987). Effective speaking involves not only producing grammatically accurate utterances but also conveying meaning fluently, appropriately, and confidently in different communicative situations (Richards, 2008). Hughes (2011) further argues that speaking performance should be assessed through multiple dimensions, including pronunciation, fluency, grammar, vocabulary, and interactive communication, as these components collectively reflect learners' oral proficiency.

In EFL contexts, speaking development is often hindered by limited exposure to authentic communication and insufficient opportunities for oral practice (Nation & Newton, 2009). Vietnamese lower secondary students face additional challenges due to large class sizes, limited classroom interaction, and the predominance of examination-oriented instruction, which tends to emphasize grammar and reading over oral communication. Consequently, learners frequently experience pronunciation difficulties, low confidence, and speaking anxiety, highlighting the need for instructional approaches that provide abundant speaking practice and individualized feedback.

### 2.2. AI-Assisted Pronunciation Feedback

Recent developments in artificial intelligence (AI) have transformed language learning by enabling intelligent tutoring systems to provide personalized learning experiences and immediate feedback (Holmes et al., 2019). Among AI applications in language education, Automatic Speech Recognition (ASR) has become one of the most widely adopted technologies for speaking instruction. ASR systems compare learners' speech with native-speaker models and generate instant feedback on pronunciation accuracy, stress, rhythm, and fluency, allowing learners to identify errors and improve through repeated practice (McCrocklin, 2016).

The effectiveness of AI-generated feedback can be explained by Schmidt's (1990) Noticing Hypothesis, which proposes that language acquisition occurs when learners consciously notice the gap between their current production and the target

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language. Immediate feedback provided by AI systems facilitates this noticing process, enabling learners to recognize pronunciation errors and make timely corrections. Moreover, repeated practice with instant feedback supports self-regulated learning and promotes learner autonomy, two factors that have been associated with improved speaking performance (Holec, 1981; Benson, 2011).

## **2.3. SpeechAce and Previous Studies**

SpeechAce is an AI-powered pronunciation assessment platform that employs ASR technology to evaluate learners' spoken English and provide detailed feedback on pronunciation, word stress, sentence stress, and speech intelligibility. Unlike traditional classroom feedback, which may be delayed and constrained by limited instructional time, SpeechAce offers immediate, objective, and individualized feedback, allowing learners to practice independently and monitor their progress continuously.

Previous studies have demonstrated the potential of AI-assisted pronunciation tools to improve learners' oral skills. Liakin et al. (2015) reported that speech recognition technology enhanced learners' pronunciation accuracy and motivation through repeated speaking practice. McCrocklin (2016) found that ASR-based feedback promoted pronunciation awareness and learner autonomy by enabling students to identify and correct pronunciation errors independently. More recently, Zheng et al. (2021) concluded that AI-supported pronunciation systems significantly improved learners' pronunciation quality and speaking confidence, particularly when integrated into regular classroom instruction.

Despite these encouraging findings, most previous studies have focused on university students or adult learners, whereas empirical evidence from lower secondary education remains relatively limited. Furthermore, relatively few studies have examined both objective improvements in speaking performance and learners' perceptions of using SpeechAce within authentic Vietnamese EFL classrooms.

Based on these gaps, the present study investigates the effectiveness of SpeechAce in improving Grade 9 students' English-speaking performance and explores their perceptions of using the platform during an eight-week instructional intervention.

## **3. METHODOLOGY**

### **3.1. Research Design**

This study employed a mixed-methods design to investigate the effectiveness of the SpeechAce website in improving Grade 9 students' English-speaking performance and to explore their perceptions of using the platform. Quantitative data were collected through speaking tests and a questionnaire, while qualitative data were obtained from semi-structured interviews to complement and explain the quantitative findings (Creswell & Plano Clark, 2018).

### **3.2. Participants**

The participants were 40 Grade 9 students from a lower secondary school in Bac Ninh Province, Vietnam. They participated in an eight-week intervention in which SpeechAce was integrated into regular English speaking lessons. Participation was voluntary, and informed consent was obtained from the school, students, and their parents.

### **3.3. Instruments and Procedure**

Data were collected using three instruments: (1) pre- and post-speaking tests, (2) a post-intervention questionnaire, and (3) semi-structured interviews. The speaking tests assessed pronunciation, fluency, grammar, vocabulary, and interactive communication. During the eight-week intervention, students used SpeechAce to practice speaking and receive immediate AI-generated pronunciation feedback. At the end of the intervention, the post-test, questionnaire, and interviews were administered.

### **3.4. Data Analysis**

Quantitative data were analyzed using descriptive statistics and paired-samples *t*-tests in IBM SPSS Statistics to examine changes in students' speaking performance. Qualitative interview data were analyzed thematically following Braun and Clarke (2006) to identify key themes related to students' perceptions and learning experiences.

## **4. RESULTS**

### **4.1. Speaking Performance**

Students' speaking performance before and after the intervention was compared using descriptive statistics and a paired-samples *t*-test. Table 1 presents the mean scores for the five speaking components.

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**Table 1. Comparison of Pre-test and Post-test Speaking Scores**

| Speaking Component        | Pre-test (M ± SD)  | Post-test (M ± SD) | Mean Difference | <i>t</i>      | <i>p</i>         |
|---------------------------|--------------------|--------------------|-----------------|---------------|------------------|
| Pronunciation             | 4.65 ± 0.82        | 6.58 ± 0.71        | 1.93            | -11.85        | < .001           |
| Fluency                   | 4.84 ± 0.79        | 6.27 ± 0.73        | 1.43            | -9.76         | < .001           |
| Grammar & Vocabulary      | 4.91 ± 0.76        | 6.35 ± 0.69        | 1.44            | -10.11        | < .001           |
| Interactive Communication | 4.88 ± 0.74        | 6.45 ± 0.68        | 1.57            | -10.54        | < .001           |
| <b>Overall Score</b>      | <b>4.82 ± 0.62</b> | <b>6.41 ± 0.56</b> | <b>1.59</b>     | <b>-12.47</b> | <b>&lt; .001</b> |

As shown in Table 1, students' speaking performance improved significantly after the eight-week intervention. The overall mean score increased from **4.82** to **6.41** ( $p < .001$ ). Pronunciation showed the largest improvement, followed by interactive communication, while all other speaking components also demonstrated statistically significant gains.

## 4.2. Students' Perceptions of Using SpeechAce

Students' perceptions of SpeechAce were examined through a post-intervention questionnaire. Table 2 summarizes the descriptive statistics.

**Table 2. Students' Perceptions of SpeechAce**

| Dimension            | Mean        | SD          |
|----------------------|-------------|-------------|
| Perceived usefulness | 4.42        | 0.48        |
| Ease of use          | 4.35        | 0.53        |
| Learning motivation  | 4.47        | 0.46        |
| Overall satisfaction | 4.39        | 0.51        |
| <b>Overall</b>       | <b>4.41</b> | <b>0.45</b> |

Overall, students expressed positive perceptions of SpeechAce ( $M = 4.41$ ). Learning motivation received the highest mean score, indicating that students considered the platform engaging and beneficial for speaking practice. High ratings for usefulness and ease of use further suggest that SpeechAce was well accepted as a learning tool.

## 4.3. Interview Findings

Qualitative interview data supported the quantitative findings and revealed four major themes regarding students' experiences with SpeechAce.

**Table 3. Themes Emerging from Student Interviews**

| Theme                     | Representative finding                                                                                         |
|---------------------------|----------------------------------------------------------------------------------------------------------------|
| Pronunciation improvement | Students became more aware of pronunciation errors and corrected them through repeated practice.               |
| Increased confidence      | Students reported feeling less anxious and more confident when speaking English.                               |
| Immediate feedback        | Instant AI-generated feedback helped learners identify mistakes independently.                                 |
| Technical challenges      | A few students experienced occasional Internet connectivity problems and difficulty recognizing certain words. |

Interview participants consistently reported that SpeechAce created more opportunities for independent speaking practice. They particularly appreciated the immediate pronunciation feedback, which enabled them to monitor their own progress and improve their confidence. Although several students mentioned minor technical issues, these challenges did not appear to reduce their overall positive learning experience.

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## 5. DISCUSSION

The present study investigated the effectiveness of the SpeechAce website in improving Grade 9 students' English speaking performance and explored their perceptions of using the platform. The findings indicate that integrating SpeechAce into regular speaking instruction contributed to significant improvements in students' overall speaking performance and was positively perceived by learners.

The first major finding is the significant improvement in students' speaking performance after the eight-week intervention. Among the five assessed components, pronunciation showed the greatest improvement. This finding is consistent with the primary function of SpeechAce, which provides immediate AI-generated feedback on pronunciation, word stress, and speech intelligibility. Such feedback enables learners to identify errors promptly and refine their pronunciation through repeated practice. This process supports Schmidt's (1990) Noticing Hypothesis, which suggests that language acquisition is facilitated when learners consciously notice the gap between their current production and the target language. By receiving immediate corrective feedback, students were able to recognize pronunciation problems and make continuous adjustments during practice.

The improvement in fluency, grammar and vocabulary, and interactive communication further suggests that SpeechAce supported speaking development beyond pronunciation. Although the platform primarily focuses on pronunciation assessment, repeated speaking practice encouraged students to produce longer utterances, use vocabulary more actively, and communicate with greater confidence. This finding aligns with previous studies reporting that AI-assisted pronunciation tools promote learner autonomy and increase opportunities for meaningful oral practice (Liakin et al., 2015; McCrocklin, 2016). It also supports the argument that technology-enhanced speaking environments can complement classroom instruction by extending learning beyond limited class time.

Students' positive perceptions of SpeechAce provide additional evidence for the effectiveness of AI-assisted speaking instruction. The questionnaire results indicated high levels of perceived usefulness, motivation, ease of use, and overall satisfaction, while interview findings showed that students appreciated the platform's immediate feedback and opportunities for self-directed practice. These findings are consistent with Zheng et al. (2021), who reported that AI-supported pronunciation systems increased learners' confidence and engagement by providing individualized learning experiences. The positive attitudes observed in the present study also suggest that SpeechAce may help reduce speaking anxiety by allowing learners to practice privately before speaking in front of others.

Despite these encouraging findings, several limitations should be acknowledged. The study involved a relatively small sample from a single lower secondary school and was conducted over only eight weeks. Therefore, the findings may not be generalizable to other educational contexts. Future studies could include larger and more diverse samples, extend the intervention period, and compare SpeechAce with other AI-assisted pronunciation platforms to provide broader evidence regarding the role of AI in developing English speaking skills.

Overall, the findings suggest that SpeechAce is an effective supplementary tool for English speaking instruction. By providing immediate pronunciation feedback, promoting repeated speaking practice, and encouraging learner autonomy, the platform can support teachers in creating more engaging and learner-centered speaking classrooms. These findings contribute to the growing body of research on AI-assisted language learning and offer practical implications for integrating pronunciation technologies into lower secondary EFL education.

## 6. CONCLUSION

This study examined the effectiveness of the SpeechAce website in improving the English speaking performance of Grade 9 students at a lower secondary school in Bac Ninh Province, Vietnam. The findings demonstrated that integrating SpeechAce into speaking lessons significantly enhanced students' speaking performance, particularly in pronunciation, while also improving fluency, grammar and vocabulary, and interactive communication. In addition, students expressed positive perceptions of the platform, highlighting its immediate feedback, ease of use, motivational value, and support for autonomous learning.

These findings suggest that AI-assisted pronunciation platforms such as SpeechAce can serve as effective supplementary tools for English speaking instruction by providing individualized feedback and increasing opportunities for independent practice. Although the study was limited by its sample size and research context, it provides empirical evidence supporting the integration of AI-powered pronunciation technologies into lower secondary EFL classrooms. Future research is recommended to examine the long-term effects of AI-assisted speaking instruction across different educational settings and learner populations.

## REFERENCES

- 1) Benson, P. (2011). *Teaching and researching autonomy* (2nd ed.). Routledge.

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- 2) Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- 3) Bygate, M. (1987). *Speaking*. Oxford University Press.
- 4) Council of Europe. (2020). *Common European framework of reference for languages: Learning, teaching, assessment—Companion volume*. Council of Europe Publishing.
- 5) Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.
- 6) Crystal, D. (2003). *English as a global language* (2nd ed.). Cambridge University Press.
- 7) Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. John Benjamins.
- 8) Ellis, R. (2009). Corrective feedback and teacher development. *L2 Journal*, 1(1), 3–18.
- 9) Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- 10) Holec, H. (1981). *Autonomy and foreign language learning*. Pergamon.
- 11) Hughes, R. (2011). *Teaching and researching speaking* (2nd ed.). Routledge.
- 12) Liakin, D., Cardoso, W., & Liakina, N. (2015). Learning L2 pronunciation with a mobile speech recognizer: French /y/. *CALICO Journal*, 32(1), 1–25. <https://doi.org/10.1558/cj.v32i1.25962>
- 13) McCrocklin, S. M. (2016). Pronunciation learner autonomy: The potential of automatic speech recognition. *CALICO Journal*, 33(3), 303–324. <https://doi.org/10.1558/cj.v33i3.26025>
- 14) Nation, I. S. P., & Newton, J. (2009). *Teaching ESL/EFL listening and speaking*. Routledge.
- 15) Nguyen, T. N. Q., & Habók, A. (2021). Vietnamese EFL students' perceptions of technology-enhanced language learning: A structural equation modelling approach. *Education and Information Technologies*, 26(6), 7339–7362.
- 16) Richards, J. C. (2008). *Teaching listening and speaking: From theory to practice*. Cambridge University Press.
- 17) Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129–158. <https://doi.org/10.1093/applin/11.2.129>
- 18) 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, Article 39. <https://doi.org/10.1186/s41239-019-0171-0>
- 19) Zheng, C., Zhang, Y., & Goh, C. C. M. (2021). Examining the effectiveness of automatic speech recognition technology on EFL learners' pronunciation development: A meta-analysis. *Computer Assisted Language Learning*. Advance online publication. <https://doi.org/10.1080/09588221.2021.1901745>
- 20) Zou, D., Xie, H., & Wang, F. L. (2023). Artificial intelligence for language learning: A review of recent research and future directions. *Computers and Education: Artificial Intelligence*, 4, 100134. <https://doi.org/10.1016/j.caeai.2023.100134>



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