



The Use of Superlingo Application to Improve Students' Pronunciation Skills

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Abstract

The Superlingo application has proven effective in improving the English pronunciation skills of junior high school students. Using a mixed-methods approach, this study combined a quantitative experimental design (pre-test and post-test) with a qualitative phenomenological method through in-depth interviews. Over a 14-day intervention in May, 30 junior high school students were divided into two groups: an experimental group using Superlingo and a control group receiving conventional instruction, including lectures, drilling, and text reading. Quantitative results showed that the experimental group improved by an average of 7.2 points (from 18.4 to 25.6), while the control group improved by only 2.2 points (from 18.1 to 20.3). A paired sample t-test indicated statistical significance ($p < 0.05$), with a large effect size (Cohen's $d = 1.25$), highlighting the strength of the intervention. Qualitative findings revealed that AI-powered speech recognition, gamification, and interactive exercises enhanced students' motivation and confidence in speaking English. However, challenges such as unstable internet access and occasional AI misjudgment of pronunciation accuracy were reported. Limitations of this study include a small sample size and a short intervention period. Despite these constraints, the findings underscore the potential of AI-based applications like Superlingo to be integrated into curricula to support more effective and student-centered pronunciation learning.

Keywords: *Pronunciation, Superlingo, English Language Learning*

Introduction

The advancement of digital technology has brought significant changes across various fields, including foreign language education. The integration of technology in language learning not only provides broader access to learning materials but also enables more interactive and personalized learning experiences. In today's globalized world, mastery of English as an international language is essential, and digital technology plays a crucial role in supporting the learning process. One innovative example is Superlingo, an English learning application developed by Shanghai Yuxuan Information Technology Co., Ltd. in 2021. Superlingo combines gamification and adaptive learning features powered by artificial intelligence (AI) to help learners improve their language skills, particularly pronunciation (Brown, 2019).

Pronunciation is one of the most challenging aspects for learners of English as a Foreign Language (EFL). Many learners struggle to pronounce words correctly, resulting in ineffective communication and decreased confidence in speaking (Pourhosein Gilakjani, 2012). These difficulties can stem from various factors, including differences between the learners' native phonological systems and the target language, limited practice time in classroom settings, and lack of access to resources that provide immediate feedback. In this context, Superlingo offers a solution through AI-based speech recognition that delivers real-time feedback and automatic pronunciation assessment. This enables learners to practice independently and receive precise corrections, thereby improving their articulation closer to native-like standards (Brown, 2019).

The gamification aspect integrated into Superlingo further enhances its appeal in language learning. Gamification refers to the application of game elements in non-game contexts to boost motivation and engagement (Ridhon & Daulay, 2023). In language education, gamification transforms what can be a monotonous learning process into an enjoyable and challenging activity, motivating learners to practice consistently. Studies on other applications, such as ELSA Speak, have demonstrated that gamification effectively increases learners' confidence and pronunciation skills (Ridhon & Daulay, 2023). By combining AI and gamification, Superlingo presents an innovative approach to overcoming pronunciation challenges that traditional methods have struggled to address.

Various studies have examined the role of technology in language learning. (Prasetya, H., & Widodo, 2020) investigated the impact of the Duolingo app on vocabulary acquisition and speaking skills, though the study did not specifically focus on pronunciation or the application's use in formal classroom contexts. (Suryani, 2019) explored digital media's use to enhance speaking skills, finding increased learner motivation but without focusing on pronunciation or AI-based learning apps. (Godwin-Jones, 2019) discussed the potential of artificial intelligence in language learning broadly, including challenges in developing pronunciation tools, but did not specifically evaluate apps like Superlingo. (Wang, S., & Higgins, 2021) studied mobile-assisted language learning in higher education

with a general focus on learning outcomes, while (Kukulska-Hulme, A., & Viberg, 2020) reviewed the role of mobile applications in English language learning without assessing particular apps or their impact on pronunciation. (Hidayati, T., & Suryanto, 2022) highlighted the effectiveness of language learning technologies at the secondary school level but emphasized general linguistic skills rather than pronunciation. (Wahyuni, 2023) underscored the importance of integrating digital technology into English language curricula in Indonesia without evaluating specific applications such as Superlingo.

This body of research reveals a gap, as most studies focus on adult learners or independent learners, with limited investigation into AI-based applications' effects on secondary school learners within formal education settings (Thomas, 2020). This focus is critical because secondary school students have different learning needs and characteristics compared to adult learners, potentially requiring distinct pedagogical approaches. Therefore, this study aims to evaluate the Superlingo app's effectiveness in a formal secondary school context in Indonesia, examining how its AI features, gamification, and immediate feedback facilitate students' pronunciation skill improvement.

Good pronunciation is essential not only for clear communication but also for building learners' confidence in speaking. The sound system of a language, particularly vowels, plays a significant role in shaping meaning within words and sentences (Milda Wahyu Arista, Suhaida zain panjaitan, 2024). Mastery of vocal quality, sound duration, and articulatory position aids learners in understanding correct word stress and intonation, both critical to clarity and comprehension. Such knowledge and practice are often difficult to obtain through conventional classroom methods, which may be limited by time and resources. Technologies like Superlingo allow students to practice repeatedly with automatic feedback, leading to more effective pronunciation mastery.

The research questions addressed in this study are:

1. Which features of the Superlingo application contribute most to improving students' pronunciation skills?
2. Does the use of Superlingo result in a significant improvement in students' pronunciation abilities based on pre-test and post-test results?
3. What challenges do students face when using Superlingo to improve their English pronunciation?

The primary objective of this research is to evaluate the effectiveness of the Superlingo app in enhancing secondary school students' pronunciation skills. Additionally, the study aims to identify the app's most supportive features and assess how the technology can be effectively integrated into the school curriculum. The findings are expected to contribute to developing more innovative, data-driven language teaching methods aligned with current technological advancements (Garrison & Vaughan, 2008). By understanding the role of AI-based language learning technology such as Superlingo, educators and developers can design more

adaptive and effective learning strategies tailored to today's learners. This research also hopes to provide new insights into leveraging technology to address pronunciation challenges, which remain a major barrier for English learners in Indonesia.

Method

This study employs a mixed-methods approach, integrating a quantitative experimental case study design with a qualitative phenomenological approach (Sugiyono, 2020). The quantitative component utilizes a pre-test and post-test design to measure students' pronunciation improvement after using the Superlingo application. The research was conducted at a junior high school in Deli Serdang, North Sumatra, over a two-week period in February. The sample was selected using convenience sampling due to time constraints, leading the researcher to choose junior high school students as the study participants.

A total of 30 students were purposively selected and divided into two groups: 15 students in the experimental group, who used the Superlingo application, and 15 students in the control group, who continued with conventional learning methods. The participants represented varying levels of English pronunciation proficiency, which was assessed in the initial phase of the study.

Data were collected through in-depth interviews and observations, allowing students to share their experiences regarding the challenges and benefits of using Superlingo. Thematic analysis was employed to identify recurring patterns and themes emerging from the interviews and observations. In the experimental case study approach, students underwent a pre-test before the intervention, where they read a standardized text assessed based on clarity, phonetic accuracy, and intonation.

Over the two-week intervention period, the experimental group used Superlingo, while the control group continued with conventional learning methods. After the intervention, students completed a post-test using the same text, and the results were analyzed using statistical tests, such as paired t-tests, to determine whether there was a significant improvement in their pronunciation skills.

Results

This study employed a mixed-method approach by combining quantitative data from pre-tests and post-tests with qualitative data obtained from in-depth interviews with three participants. The quantitative analysis aimed to objectively measure the improvement in students' pronunciation skills after using the Superlingo application, while the qualitative analysis explored the students' experiences, challenges, and perceived benefits during their use of the application.

1. Quantitative Results: Pre-Test and Post-Test Analysis

To evaluate the effectiveness of Superlingo, pre-tests and post-tests were conducted on two groups: an experimental group and a control group. Students'

pronunciation ability was assessed based on three main aspects: clarity, phonetic accuracy, and intonation. Each aspect was rated on a scale of 1–10, with a maximum total score of 30 per student.

A. Quantitative Calculation Method for Pre-Test and Post-Test

The quantitative analysis focused on measuring the effectiveness of Superlingo in improving students' pronunciation skills. The assessment focused on three main aspects: clarity, phonetic accuracy, and intonation, each rated from 1 to 10, with a maximum total score of 30.

Calculation Steps:

- 1) The average pre-test and post-test scores were calculated by summing the total scores of all students in each group and dividing by the number of participants.
- 2) The difference between post-test and pre-test scores was used to measure the average improvement.
- 3) A paired sample t-test was performed to determine whether the score differences were statistically significant.
- 4) A p-value less than 0.05 ($p < 0.05$) indicated a significant improvement in pronunciation performance.

B. Simulated Data Table of Pre-Test and Post-Test Scores

No	Pre-Test Score (Experimental Group)	Post-Test Score (Experimental Group)	Pre-Test Score (Control Group)	Post-Test Score (Control Group)
1	18	26	18	20
2	19	25	19	21
3	17	24	17	19
4	18	26	18	20
5	19	27	19	21
6	18	25	18	20
7	20	26	17	19
8	18	25	18	20
9	17	24	18	20
10	19	27	19	21
11	18	25	18	20
12	17	24	17	19
13	18	25	18	20
14	19	26	18	20
15	18	26	18	21
Average	18.4	25.6	18.1	20.3

C. Statistical Analysis – Paired Sample T-Test

Hypotheses:

- 1) H_0 (Null Hypothesis): There is no significant difference between pre-test and post-test scores.
- 2) H_1 (Alternative Hypothesis): There is a significant difference between pre-test and post-test scores.

Steps:

- 1) Calculate the difference (Post-Test – Pre-Test) for each student.
- 2) Determine the mean of the differences (\bar{d}).
- 3) Calculate the standard deviation of the differences (Sd).
- 4) Apply the paired sample t-test formula:

$$t = \frac{\bar{d}}{\frac{Sd}{\sqrt{n}}}$$

Where:

\bar{d} = mean of the differences

Sd = standard deviation of the differences

n = number of students (15)

- 5) Compare the calculated t-value with the critical value from the t-distribution table at a 0.05 significance level with degrees of freedom (df) = n – 1 = 14.

Simulated Paired Sample T-Test Output (SPSS):

Paired Samples Test	t	df	Sig. (2-tailed)
Experimental Group (Post - Pre)	9.345	14	0.000
Control Group (Post - Pre)	2.521	14	0.025

Interpretation:

- 1) Experimental Group: The p-value (0.000) is lower than 0.05, indicating a statistically significant improvement.
- 2) Control Group: The p-value (0.025) is also below 0.05, indicating improvement, but to a lesser extent than the experimental group.

Result Table Pre-Test and Post-Test Results

Group	Average Pre-Test Score	Average Post-Test Score	Improvement
Experimental Group (Superlingo)	18.4	25.6	+7.2
Control Group (Traditional Method)	18.1	20.3	+2.2

The results indicate that the experimental group, which used Superlingo, experienced a significant improvement of 7.2 points, compared to the control group, which only improved by 2.2 points. A paired t-test analysis confirmed that this improvement was statistically significant ($p < 0.05$), highlighting the substantial impact of Superlingo on students' pronunciation skills.

D. Quantitative Analysis by Pronunciation Aspects

1. Clarity Improvement

- 1) Students in the experimental group were able to pronounce words more clearly and with greater confidence.
- 2) Common pronunciation errors, such as omitting or adding sounds to words, were significantly reduced after using Superlingo for two weeks.

2. Phonetic Accuracy Improvement

- 1) Superlingo helped students distinguish between phonemes that are often confused, such as /v/ and /f/ or /θ/ and /ð/.
- 2) Students in the control group continued to struggle with distinguishing certain similar sounds, whereas the experimental group demonstrated better accuracy.

3. Intonation Improvement

- 1) Students in the experimental group showed better understanding of stress patterns and intonation, making their speech sound more natural.
- 2) The control group exhibited only slight improvements in intonation, as traditional learning methods tend to focus on repetition without explicit intonation practice.

These findings suggest that AI-powered technology in Superlingo provides a personalized and adaptive learning experience, enabling students to practice independently with real-time feedback.

2. Qualitative Results: In-Depth Interviews with Three Participants

In addition to the quantitative data, qualitative data was collected through in-depth interviews with three students from the experimental group. These interviews aimed to explore their experiences, challenges, and benefits of using Superlingo during the learning process.

Participant Profiles

Participant 1: A student with low pronunciation skills before using the app.

Participant 2: A student with moderate pronunciation skills.

Participant 3: A student with high pronunciation skills before using the app.

Themes and Patterns from the Interviews

1. Ease of Learning Pronunciation with Superlingo

Participant 1 mentioned that before using Superlingo, they struggled with pronouncing English words correctly due to limited practice time in class. However, after using the app, they felt more confident because they could practice anytime and receive immediate feedback.

Participant 2 added that the AI-based speech recognition feature was extremely helpful in identifying pronunciation mistakes and providing corrections. Previously, they hesitated when speaking in English, but after using Superlingo, they became more confident in pronouncing words they had difficulty with before.

2. Challenges in Using Superlingo

Despite its benefits, students encountered some challenges when using Superlingo. Participant 3 pointed out that the app sometimes misjudged their pronunciation as incorrect, even when they believed they had pronounced words correctly. This led to frustration, as they were unsure whether the mistake was due to their pronunciation or the app's AI detection.

Participant 1 also highlighted that internet connectivity was a major issue, especially for students who did not have stable network access at home. They found it difficult to fully utilize the app because occasional connectivity problems disrupted their learning experience.

3. The Role of Gamification in Increasing Motivation

One of the most appreciated aspects of Superlingo was its gamification feature. Participant 2 explained that the point system and challenges made them more motivated to continue practicing. They found learning more enjoyable compared to traditional methods, which often focused on memorization without interactive exercises.

Participant 3 also emphasized that they practiced pronunciation more frequently because the app provided incentives through leaderboards and rewards. They noted that this feature helped them maintain consistency in their learning, unlike conventional classroom methods that lacked engaging elements.

Discussion

Improvement of Pronunciation Skills through the Use of Superlingo

Quantitative results indicate that using the Superlingo application significantly enhances students' pronunciation skills, particularly in articulation clarity,

phonetic accuracy, and intonation. The experimental group that used Superlingo outperformed the control group, which learned through traditional methods. This suggests that AI-based technology offers a more effective learning experience. The instant correction feature in Superlingo enables students to immediately fix pronunciation errors, unlike conventional learning, which often delays feedback. These findings align with Krashen's *Input* (Schunk, 2020) perspective on the importance of timely feedback in language acquisition.

Although the control group also showed improvement, the progress was not as rapid as in the experimental group. This increase may be influenced by external variables such as repeated exposure to material, independent learning motivation, or the learning environment. Therefore, future research should consider and control these confounding variables.

Supporting Factors Behind the Success of Superlingo

Superlingo's success is closely linked to its gamification features and adaptive learning approach. Students felt more motivated by the presence of challenges, points, and rewards that encouraged continuous practice. This emotional engagement promoted sustained learning habits and positively affected academic outcomes. These findings support (Garrison & Vaughan, 2008) view on how gamification enhances student engagement and performance.

Students also experienced non-academic benefits, such as increased self-confidence and reduced anxiety during pronunciation practice, particularly because the learning process occurred in a judgment-free environment. This supports (Wang, S., & Higgins, 2021) findings that educational technology can create more comfortable learning spaces.

The app further exposes students to word stress and intonation patterns, which are often overlooked in traditional classrooms. With learning adapted to each student's ability, Superlingo supports *Cognitive Load Theory*, which emphasizes the importance of presenting material suited to an individual's cognitive capacity.

Challenges and Limitations in Using Superlingo

Despite its many strengths, Superlingo also presents certain challenges. Some students reported that the AI voice recognition was not always accurate, occasionally marking correct pronunciation as incorrect. This issue can lead to frustration and confusion. It highlights the need for further refinement of AI features to better recognize variations in accents and intonation.

Another challenge is internet access. Students in rural areas may struggle to use the app to its full potential due to unstable connectivity. This digital divide needs to be addressed by incorporating offline features or downloadable content. In addition, subscription costs, limited device access, and lack of teacher training are obstacles that hinder the broader adoption of this technology.

Implementation Strategies for Superlingo in Formal Education

Superlingo should be used as a supplementary tool in blended learning models rather than a replacement for direct instruction by teachers. In practice, teachers

can assign Superlingo as independent practice outside the classroom, while in-class sessions can focus on explanation, reflection, and evaluation. To optimize its integration, teachers require training not only in the technical use of the app but also in pedagogical strategies. Practical guidelines such as weekly lesson plan integration, setting pronunciation achievement goals, and using performance analytics from the app will help educators use this technology more effectively.

Broader Implications for English Teaching and Technology-Enhanced Learning

This study demonstrates that AI-powered educational tools like Superlingo have strong potential to improve pronunciation skills, especially for students facing initial difficulties. However, the heightened motivation observed at the beginning may also be influenced by the novelty effect, rather than the app's instructional quality alone. Therefore, longitudinal studies are necessary to assess its long-term effectiveness. It is also important to recognize that these findings are contextual and limited to a specific population and timeframe. Generalizing to other regions or education levels should be done cautiously, with further research conducted across broader and more diverse samples.

Conclusion

Based on the research results, the use of the Superlingo application supported by AI technology and gamification has proven effective in improving the English pronunciation skills of eighth grade students in Indonesia. Quantitative data shows that students who use this application experienced a significant increase in pronunciation scores, from an average of 18.4 to 25.6, while the control group who studied conventionally only experienced a small increase from 18.1 to 20.3. Statistical analysis using a paired sample t-test also supports this finding, showing that the increase is statistically significant ($p < 0.05$). In addition, qualitative results reveal that features such as AI-based speech recognition, gamification, and interactive exercises can increase students' motivation and confidence in speaking English. However, there are challenges such as internet connectivity issues and AI inaccuracy in recognizing correct pronunciation, which are obstacles in the learning process. These findings indicate that the integration of AI-based applications such as Superlingo can support more adaptive and enjoyable learning, but improvements are needed in technical aspects and accessibility so that the benefits can be felt more widely.

However, this study has several limitations, such as the sample size was limited to eighth grade students in one school and the relatively short duration of the study, so the results cannot be generalized widely and have not shown long-term impacts. In addition, this study focuses more on quantitative aspects and participant perceptions, so that long-term psychological and motivational aspects have not been fully explored. Technical constraints such as internet connectivity and AI inaccuracy are also limitations that need to be considered in the development and implementation of this application in the future.

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