The Effectiveness of Loora AI Toward Student Pronunciation at Fourth Grade Elementary School SCN 088 Sungai Mengkuang

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Abstract – This study aims to determine the effectiveness of Loora AI in improving the pronunciation skills of fourth-grade students at SDN 088 Sungai Mengkuang. The background of this study was the students' low ability to pronounce English words correctly, which was influenced by limited learning time, lack of exposure to English, and low motivation. To address these challenges, Loora AI, an artificial intelligence-based learning platform, was applied as a medium for teaching pronunciation. This research employed a quantitative approach with a pre-experimental design using a one-group pre-test and post-test model. The population consisted of 20 students, and 18 students participated as the research sample. Data were collected through pronunciation tests conducted before and after the treatment, focusing on vowels, consonants, and the effort to imitate. The data were analyzed using descriptive statistics, normality tests, and hypothesis testing with the

increase in the students' mean scores from pre-test to post-test. Hypothesis testing showed a significance value of 0.000 ($p < 0.05$), indicating that Loora AI significantly improved students' pronunciation skills. Thus, Loora AI proved to be an effective and engaging learning tool for enhancing English pronunciation among elementary school students.

Keywords – Loora AI, Artifical Intelligence. English Learning, Elementary School

Wilcoxon Signed Rank Test in SPSS. The findings revealed an

I.   Introduction

In the current era of globalization, the mastery of English has become an essential skill for learners across all levels of education. English is widely recognized as the global language of communication, playing a crucial role in education, science, business, and technology (Aedi & Amaliyah, 2017). For Indonesian learners, early exposure to English is particularly important because it provides a foundation for developing core communication skills such as listening, speaking, reading, and writing. Among these skills, speaking competence is regarded as the most immediate indicator of language proficiency, and accurate pronunciation forms the backbone of effective communication (Kustanti, 2017). Without proper pronunciation, even a learner with a rich vocabulary and grammar knowledge may struggle to be understood.

The Indonesian Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) has emphasized the importance of communication skills in the curriculum by including English as an elective or enrichment subject at the elementary level through the

Independent Curriculum (Kurikulum Merdeka). According to Decision Number 033/H/KR/2022, elementary school students in Phases A–C are expected to develop basic competence in understanding simple spoken, written, and visual texts in English. However, in practice, English learning in many elementary schools still faces challenges such as limited instructional time, inadequate learning facilities, and insufficient teacher training (Dewi et al., 2021). These challenges result in students' low mastery of English pronunciation, which hinders their confidence and ability to communicate effectively.

Pre-observations conducted at SDN 088 Sungai Mengkuang revealed that many students experienced difficulties in pronouncing English words, which is consistent with findings from other rural schools where English exposure is minimal. The majority of students rely primarily on their local language at home and in their social environment, which limits opportunities to practice English sounds. Furthermore, the allocated time for English instruction is very limited, reducing the teacher's ability to provide sufficient practice and corrective feedback (Muhammad, 2017). This lack of exposure and feedback leads to persistent mispronunciation, fossilization of errors, and declining motivation to participate in speaking activities.

Motivation is a significant factor that affects language acquisition, including pronunciation learning. According to Agung et al. (2022), motivation functions as the internal drive that encourages learners to engage in and sustain the language learning process. When students perceive English as a difficult or irrelevant subject, their lack of motivation leads to lower participation rates and slower improvement in their speaking skills. Teachers must therefore design engaging and interactive learning experiences to help students overcome their anxiety and develop a positive attitude toward English.

The importance of pronunciation instruction in the early stages of learning cannot be overstated. Pronunciation is not only about producing individual sounds (segmental features) but also involves suprasegmental aspects such as stress, rhythm, and intonation (Gilakjani, 2016). Learners who acquire good pronunciation habits early are more likely to develop intelligible speech, leading to higher comprehensibility and confidence when speaking. Conversely, poor pronunciation can impede communication, cause misunderstandings, and discourage students from participating in classroom discussions.

Technological innovations have provided new opportunities for addressing the limitations of traditional classroom teaching. One such innovation is the integration of Artificial Intelligence (AI) into education, which has shown potential for improving language learning outcomes. AI-powered tools can offer instant feedback, model correct pronunciation, and provide interactive exercises that are accessible anytime and anywhere (Aggarwal et al., 2023). Tereschuk and Slobodianuk (2024) emphasize that AI in education can deliver personalized learning experiences by adapting to individual learners' pace and progress.

Recent studies have demonstrated the effectiveness of AI-based applications in improving English pronunciation. For example, Nur Aeni (2022) found that the use of Elsa Speak, an AI-powered mobile application, significantly improved the pronunciation skills of English education students. Similarly, Dennis and Rajabhat (2023) reported that AI Speech Recognition Technology (AI-SRT) enhanced both pronunciation and speaking skills among EFL students in Thailand. These findings suggest that AI tools can be effective supplements to classroom instruction, particularly in contexts with limited teacher availability and exposure to native-like pronunciation models.

Building on this growing body of evidence, Loora AI has emerged as a promising educational platform that utilizes AI technology to help learners practice and refine their pronunciation. Loora AI provides real-time feedback, models accurate sounds, and motivates students through interactive and gamified features. Its ability to support repetitive practice without the constraints of classroom time makes it an ideal solution for rural schools with limited resources.

The present study seeks to examine the effectiveness of Loora AI in improving the pronunciation skills of fourth-grade students at SDN 088 Sungai Mengkuang. This research focuses on three key pronunciation components: vowels, consonants, and effort to imitate, as these elements form the basis for producing intelligible speech. By measuring students' performance before and after exposure to Loora AI, the study aims to determine whether this technology can significantly improve their pronunciation accuracy.

Methodologically, this research adopts a quantitative approach using a pre-experimental one-group pre-test and post-test design (Sugiyono, 2017). This design allows the researcher to measure students' baseline performance, administer the treatment, and then reassess their performance to evaluate improvement. Although this design lacks a control group, it is considered appropriate for small-scale classroom research where the primary goal is to determine whether a specific intervention can bring measurable improvement (Sugiyono, 2018).

During the treatment phase, Loora AI was integrated into six classroom sessions, where students practiced vocabulary and phrases related to transportation. Each session included teacher guidance, AI-assisted pronunciation drills, and opportunities for students to receive immediate feedback. This structured approach was designed to help students gradually build their confidence and accuracy in pronouncing English sounds.

The results of the study indicated a significant improvement in students' mean scores from pre-test (45.1) to post-test (71.3), with a Wilcoxon Signed Rank Test yielding a significance value of 0.000 ($p < 0.05$), thereby confirming the effectiveness of Loora AI as a pronunciation teaching tool. These findings are consistent with previous research, reinforcing the claim that AI technology can enhance language learning outcomes by providing consistent, individualized practice opportunities (Nur Aeni, 2022; Dennis & Rajabhat, 2023).

However, it is important to acknowledge that not all students achieved equally high gains. Variations in improvement levels may be attributed to individual differences such as prior knowledge, motivation, and learning styles. As Gilakjani (2016) points out, internal factors such as self-confidence and external factors such as teacher support continue to play an important role in pronunciation development. Thus, while AI can serve as an effective learning aid, it should complement rather than replace teacher-led instruction.

The introduction of AI-powered tools like Loora AI offers a promising avenue for addressing persistent challenges in pronunciation learning, particularly in resource-limited schools. This research contributes to the growing literature on technology-enhanced language learning by providing empirical evidence of Loora AI's effectiveness in improving young learners' pronunciation skills. The findings are expected to inform teachers, curriculum developers, and policymakers about the potential of AI in supporting early English language education and encourage the adoption of innovative strategies that foster communicative competence among elementary school students.

II.   Methodology Section

This study employed a quantitative approach with a pre-experimental research design, specifically using a one-group pre-test and post-test model. According to Sugiyono (2017), a pre-experimental design is used when the research aims to measure the effect of a treatment without involving a control group. This design was considered appropriate for this study because it allowed the researcher to observe the difference in students' pronunciation performance before and after the implementation of Loora AI.

The study was conducted at SDN 088 Sungai Mengkuang, a public elementary school located in Muara Bungo, Jambi, Indonesia. The research was carried out over a three-week period from July 17 to August 2, 2025. The treatment sessions were held four times, each lasting approximately 60 minutes, and focused on practicing English pronunciation using Loora AI.

The population of this research consisted of all fourth-grade students at SDN 088 Sungai Mengkuang during the

2025/2026 academic year, totaling 20 students. The sample was selected using a total sampling technique, meaning that all available students were invited to participate. However, 18 students actively participated and completed both the pre-test and post-test, thus serving as the research sample. According to Sugiyono (2013), a sample is considered representative if it accurately reflects the characteristics of the population, and in this study, the sample size represented 90% of the total population.

Data were collected through pronunciation tests administered twice: once before the treatment (pre-test) and once after the treatment (post-test). The tests consisted of words and short sentences related to transportation vocabulary. Students were asked to read the words aloud one by one, and their pronunciation was assessed based on three key aspects: vowels, consonants, and effort to imitate.

The scoring rubric was adapted from British Pronunciation assessment criteria (M. Walada J. R., 2019), with scores ranging from 1 (poor pronunciation) to 4 (excellent pronunciation) for each aspect. The purpose of the pre-test was to determine the students' baseline pronunciation ability, while the post-test was used to measure the improvement after the treatment using Loora AI.

The collected data were analyzed using descriptive statistics to calculate the mean, minimum, and maximum scores for both pre-test and post-test results. Normality of the data was tested using the Shapiro-Wilk test, which is appropriate for small sample sizes (<50) (Razali & Wah, 2011).

Since the data were not normally distributed, the Wilcoxon Signed Rank Test, a non-parametric test, was applied to determine whether there was a statistically significant difference between pre-test and post-test scores. This analysis was conducted using SPSS software.

III.   Results

3.1   Validity & Reliability
The research instrument used in this study was a pronunciation test adapted from standardized children's reading materials. Because the test items were taken directly from authentic learning resources and aligned with the curriculum objectives, the instrument was considered valid in terms of content. The test adequately represented the skills being measured, namely pronunciation of vowels, consonants, and effort to imitate.

Regarding reliability, the same set of test items was used in both pre-test and post-test, ensuring consistency in measurement. Since the reading text was fixed and identical for all participants, the instrument was assumed to have high reliability in producing consistent results across all students.

3.2   Pretest
The pre-test, administered to 18 fourth-grade students before the treatment, revealed that the students' pronunciation skills were still relatively low. The lowest score recorded in the pre-test was 25, while the highest was 66, with an average score of 45.1. These results indicate that most students had not yet achieved the expected level of pronunciation competence, often struggling with vowel articulation, consonant clarity, and the ability to imitate the model pronunciation. Several students appeared hesitant and lacked confidence when pronouncing words, which reflected their limited exposure to English in daily activities.

3.3   Posttest
After several sessions using Loora AI as the learning medium, the post-test results showed a clear improvement. The students' lowest score in the post-test increased to 33, while the highest score reached 91, and the average rose significantly to 71.3. This increase in mean scores demonstrates a substantial improvement in pronunciation ability. Students were able to pronounce vowels and consonants more accurately, their articulation was clearer, and they demonstrated greater fluency and confidence when reading aloud. The overall results suggest that the AI-assisted practice sessions provided meaningful opportunities for improvement and helped students become more engaged in the learning process.

3.4   Normality Test

A normality test was conducted to determine whether the data followed a normal distribution before performing further analysis. The Shapiro-Wilk test was used, as the sample size was fewer than 50 students.

The results indicated that the pre-test scores and post-test scores were not normally distributed because the significance values were lower than 0.05. Since the assumption of normality was not met, the researcher proceeded with a non-parametric statistical test for hypothesis testing.

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	.216	18	.026	.937	18	.253
Post-test	.224	18	.017	.866	18	.015
a. Lilliefors Significance Correction						

Table 1 Normality Test

3.5 Hypothesis Test

The Wilcoxon Signed Rank Test was conducted to compare the students' pre-test and post-test scores. Mean Rank shows a value of .00 and the Sum of Rank also shows a value of .00, indicating no decrease in the pre-test and post-test scores. Then, in the Positive Ranks, which aim to determine whether there is an increase from the pre-test to the post-test, the Mean Rank shows an increase of 8.50 with the Sum of Ranks increasing by 136.00. Then, in the Ties section, there are 2 students with the same score, which means that 18 students have the same score.

Ranks		N	Mean Rank	Sum of Ranks
Post-test - Pre-test	Negative Ranks	0[a]	.00	.00
	Positive Ranks	16[b]	8.50	136.00
	Ties	2[c]		
	Total	18		

a. Post-test < Pre-test
b. Post-test > Pre-test
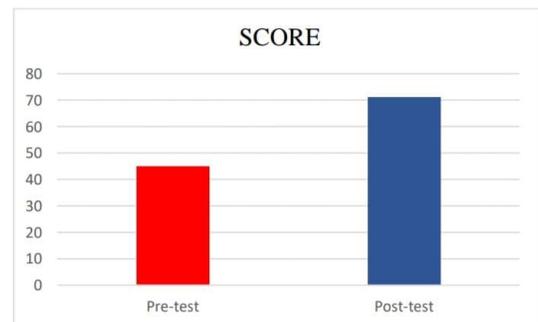c. Post-test = Pre-test

Table 2 Hypothesis Test

Based on the test statistic hypothesis explained below, this study aims to determine the effectiveness of Loora AI in teaching pronunciation to fourth-grade students at SDN 088 Sungai Mengkuang. Based on the data table above, Asymp. Sig. (2-tailed) or the significance value shows a number of 0.000, which is less than 0.05, meaning that the alternative hypothesis (H1) is accepted.

Test Statistics[a]	
	Post-test - Pre-test
Z	-3.542[b]
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Table 3 Statistics Hypothesis Test

The conclusion that can be drawn from the above description is that fourth-grade students at SDN 088 Sungai Mengkuang experienced an increase in pre-test and post-test scores after being given treatment using Loora AI.

Graphics 1 Bar Chart Pretest and Posttest

IV. Discussion

The findings of this study confirm that the use of Loora AI significantly improved students' pronunciation skills, which addresses the primary research question regarding the effectiveness of AI-based learning media in pronunciation instruction. This result aligns with theories of language acquisition that emphasize the importance of

repeated exposure, immediate feedback, and active engagement in learning pronunciation (Gilakjani, 2016). Loora AI provided a supportive environment where students could practice pronunciation independently and receive instant corrective feedback, which helped them refine their articulation of English sounds.

One of the key aspects highlighted in this research is the importance of providing individualized learning opportunities in pronunciation practice. Traditional classroom teaching often limits students' chances to practice speaking due to large class sizes and limited instructional time (Kustanti, 2017). By integrating Loora AI, each student had more opportunities for repetition and self-paced practice, which contributed to the observed improvement. This supports Tereschuk and Slobodianuk's (2024) argument that AI-powered tools create adaptive learning environments that cater to learners' individual needs.

The improvement in students' confidence during the post-test also indicates that technology can reduce students' anxiety about making mistakes when speaking. According to Agung et al. (2022), motivation and affective factors play an essential role in language learning outcomes. Loora AI's gamified interface and private practice setting allowed students to focus on their pronunciation without the fear of peer judgment, thereby lowering their affective filter and enabling more effective learning.

This study also demonstrates that integrating AI technology into language learning is feasible and effective even in rural school contexts where access to qualified pronunciation models may be limited. Muhammad (2017) emphasizes that students in rural areas often have lower exposure to English, which negatively impacts their language acquisition. Loora AI bridges this gap by providing a consistent and accurate pronunciation model, thereby compensating for the lack of native or near-native input from teachers or the surrounding environment.

The significant improvement in pronunciation supports previous research that highlighted the effectiveness of AI-based applications. Nur Aeni (2022)

reported that Elsa Speak significantly enhanced university students' pronunciation accuracy, and Dennis and Rajabhat (2023) found similar outcomes with AI-Speech Recognition Technology. This study expands these findings by demonstrating that similar results can be achieved with younger learners at the elementary school level, thereby providing new insights into early language education supported by AI tools.

Another noteworthy contribution of this study lies in its focus on three specific aspects of pronunciation—vowels, consonants, and effort to imitate. Segmental features such as vowels and consonants form the foundation of intelligible speech (Gilakjani, 2016). The clear improvement across these components suggests that Loora AI provided effective phonetic modeling, allowing students to distinguish and reproduce sounds more accurately, which is critical for improving their overall speaking competence.

From a pedagogical perspective, the integration of Loora AI aligns with the principles of communicative language teaching, which advocate for meaningful interaction and active student participation (Richards & Rodgers, 2014). Although the focus of this intervention was pronunciation practice, the interactive nature of the platform likely enhanced students' willingness to speak and engage with English more broadly. This indicates that pronunciation practice can serve as a gateway to greater oral participation and communicative competence.

An important aspect to highlight is the motivational effect of technology-mediated learning. Dewi et al. (2021) point out that students often lack interest in English because of monotonous learning activities. By using Loora AI, students experienced learning as more interactive and game-like, which made them more enthusiastic. This suggests that the adoption of innovative media is crucial not only for skill development but also for increasing learner motivation and participation.

The results of this study have implications for teacher professional development. Teachers in many elementary schools may not have extensive training in teaching

pronunciation (Kustanti, 2017). Loora AI can serve as a valuable supplementary tool that supports teachers in providing accurate pronunciation models and individualized practice without requiring advanced phonetic expertise. This can help equalize learning opportunities between students in urban and rural areas.

While the findings are promising, it is important to consider that technology is not a replacement for teacher guidance. As Beege et al. (2023) observed, students may become disengaged if technology use is not well-facilitated. In this study, teacher supervision remained essential in guiding students on how to use Loora AI effectively and in providing encouragement and reinforcement during the learning process.

V. Conclusion

This study set out to determine whether the use of Loora AI could effectively improve the pronunciation skills of fourth-grade students at SDN 088 Sungai Mengkuang. Based on the analysis and discussion, it can be concluded that the integration of Loora AI as a learning medium successfully enhanced students' ability to pronounce English words more accurately and with greater confidence. The students demonstrated clearer articulation of vowel and consonant sounds and showed noticeable progress in their ability to imitate pronunciation models.

The findings also reveal that the use of artificial intelligence-based tools provides students with more opportunities to practice pronunciation independently and receive immediate feedback, which traditional classroom instruction alone often cannot offer. This interactive and engaging learning experience increased students' motivation, reduced their anxiety about making mistakes, and encouraged them to participate more actively in speaking activities.

Overall, this research confirms that Loora AI is an effective and practical solution for addressing the persistent challenges of teaching pronunciation in elementary schools, especially in contexts where exposure to English is limited. The results suggest that incorporating technology-assisted pronunciation practice into the curriculum can support teachers in creating more innovative and student-centered learning environments, ultimately fostering students' communicative competence and preparing them for more advanced stages of English learning.

VI. References

Aedi, N., & Amaliyah, N. (2017). Manajemen kurikulum sekolah. Gosyen Publishing.

Agung, M., et al. (2022). Motivation as a factor influencing English learning outcomes.

Beege, M., et al. (2023). Students' engagement with AI-generated instructional videos.

Demirezena, M., & Kotb, M. (2016). Psycholinguistic perspectives on foreign language learning. Journal of Language Research, 12(3), 45–53.

Dennis, N. K., & Rajabhat, U. (2023). Using AI-powered speech recognition technology to improve English pronunciation and speaking skills. Journal of EFL Studies.

Dewi, R., et al. (2021). Implementation of English subject in the independent curriculum.

Fitria, N., et al. (2023). The role of AI chatbots in enhancing student engagement. Educational Technology Journal.

Gilakjani, A. P. (2016). English pronunciation instruction: A literature review. International Journal of Research in English Education, 1(1), 1–6.

Kemendikbudristek. (2022). Keputusan Nomor 033/H/KR/2022 tentang Capaian Pembelajaran.

Kustanti, E. (2017). Pronunciation as the foundation of communication competence.

Labadze, L., et al. (2023). AI chatbots for personalized learning: Opportunities and challenges. Computers & Education, 192, 104630.

Mayer, R. E. (2021). Multimedia Learning (3rd ed.). Cambridge University Press.

Muhammad, A. (2017). Motivation as a driving factor in English learning.

Nur Aeni. (2022). Efektivitas penggunaan aplikasi kecerdasan buatan Elsa Speak terhadap kemampuan pronunciation mahasiswa. Universitas Muhammadiyah Makassar.

Richards, J. C., & Rodgers, T. S. (2014). Approaches and Methods in Language Teaching (3rd ed.). Cambridge University Press.

Russel, S., & Norvig, P. (2016). Artificial Intelligence: A Modern Approach (3rd ed.). Pearson.

Tereschuk, R., & Slobodianuk, Y. (2024). AI integration in education: Challenges and opportunities. Education and Technology Review, 8(2), 34–48.

Wiresti, R. (2020). Parent's role in early language education.