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Exploring EFL Students' Pronunciation through the Implementation of the AI Reading Progress Feature

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ABSTRACT

This study aims to explore the pronunciation abilities of English as a Foreign Language (EFL) students through the implementation of an artificial intelligence-based feature, namely Reading Progress. This study uses a quantitative descriptive approach supported by qualitative analysis to identify patterns of pronunciation improvement and phonological difficulties experienced by students. Data were collected through recordings of students' readings, which were automatically analyzed by an AI system, then interpreted based on the level of pronunciation accuracy and the types of phoneme errors that occurred. The results showed a significant increase in students' pronunciation accuracy, characterized by a consistent upward trend in each learning session. In addition, it was found that certain vowel sounds such as /ɪ/ and /ə/, as well as fricative consonants such as /ʃ/ and /z/, were the main challenges for students in the early stages of learning. With repeated use of the AI feature, the frequency of errors in these phonemes decreased significantly. Other findings indicate that the use of Reading Progress not only improves pronunciation abilities but also encourages students' independent learning and metacognitive awareness through real-time and personalized automatic feedback. Thus, the integration of AI technology in EFL learning has proven to be effective as an innovative strategy to improve students' pronunciation quality systematically and sustainably.

I. INTRODUCTION

Learning pronunciation in the context of English as a Foreign Language (EFL) is a fundamental aspect that determines the success of students' oral communication. Accurate pronunciation is not only related to the production of appropriate sounds, but also contributes to clarity of meaning, fluency, and increased student confidence in communicating in English. Recent research shows that pronunciation competence is significantly related to increased fluency and student engagement in speaking activities (Kühnert & Pillot-Loiseau, 2022; Chau et al., 2022). In the context of modern language education, pronunciation is also seen as an important component in building comprehensive communicative competence, so it needs to receive serious attention in EFL learning practices (Takidze, 2024; Xiao & Chen, 2021).

However, various empirical studies have revealed that EFL students still face various obstacles in mastering English pronunciation. These difficulties include mother tongue interference, limited practice, and speaking anxiety, which impact students' low oral performance (Yousif, 2025). Furthermore, differences in the phonological systems between English and students' first languages often lead to errors in pronouncing certain sounds, both in segmental aspects such as consonants and vowels, and suprasegmental aspects such as intonation and rhythm. This situation is exacerbated by limited classroom time and a lack of individual feedback from teachers, resulting in less than optimal pronunciation learning (Hartatya Novika, 2025). Therefore, learning innovations are needed that can overcome these limitations effectively and sustainably.

The development of artificial intelligence (AI) technology has opened up new opportunities to improve the quality of English pronunciation learning. AI-based technology, particularly in the form of automatic speech recognition (ASR), enables real-time analysis of students' speech patterns and the provision of personalized

and adaptive feedback. Several recent studies have shown that the use of AI technology in language learning can improve pronunciation accuracy, learning motivation, and student independence (Sarwadi, 2025; Y. Zhou et al., 2025). In addition, the integration of AI in learning has also proven effective in creating an interactive and flexible learning environment, especially in the post-pandemic era which demands digital-based learning innovation (Dayal et al., 2024; Almasri, 2024).

One concrete implementation of AI technology in pronunciation learning is the Reading Progress feature in Microsoft Teams. This feature is designed to improve reading fluency while providing automatic analysis of students' pronunciation, intonation, and accuracy through audio recordings of texts. Recent studies have shown that using Reading Progress can improve pronunciation skills, reduce speaking anxiety, and increase student engagement in learning (Arya & Verma, 2024; Pham, 2025; Thuan & Hanh, 2025). Furthermore, this feature's ability to provide instant and personalized feedback makes it an innovative solution to overcome the limitations of conventional learning. Therefore, this study focuses on exploring EFL students' pronunciation through the implementation of the AI Reading Progress feature to identify pronunciation challenges faced by students and evaluate the technology's effectiveness in comprehensively improving the quality of English language learning.

II. METHOD

1. Context and Participants

This study used a quantitative approach with a quasi-experimental design that aimed to explore EFL students' pronunciation through the implementation of the AI Reading Progress feature. The study was conducted at a secondary/higher education institution that offers English as a foreign language learning. Participants in this study were EFL students selected using a purposive sampling technique, with the criteria of having an intermediate level of English proficiency and being familiar with using digital devices in the learning process. The number of participants ranged from 25–35 students in one experimental class. Participant characteristics included age, language proficiency level, and previous experience in technology-based learning, all of which were considered to ensure data homogeneity and the validity of the research results.

2. Implementation of Reading Progress in the Learning Process.

The Reading Progress feature was implemented in an integrated manner within the learning process using the Microsoft Teams platform over several sessions (approximately 4–6 weeks). In the initial phase, students were oriented on how to use the Reading Progress feature, including how to record audio, read text, and understand the system's automated feedback. Subsequently, in each learning session, students were asked to read English texts tailored to their ability level.

The Reading Progress feature automatically recorded students' reading performance and analyzed aspects of pronunciation, such as accuracy, fluency, and intonation. The resulting feedback identified pronunciation errors and provided recommendations for improvement, which students then used for repeated independent practice. The teacher acted as a facilitator, monitoring student progress, providing reinforcement, and clarifying errors not fully detected by the AI system. This approach combined technology-based learning with autonomous learning strategies to enhance the effectiveness of pronunciation training.

3. Data Collection and Analysis

Data collection was conducted using several instruments, namely: (1) Reading Progress recordings, which included scores for pronunciation accuracy, fluency, and the number of errors; (2) a pronunciation pre-test and post-test to measure student improvement; and (3) a questionnaire on student perceptions of the use of the Reading Progress feature in learning. Furthermore, observations during the learning process were conducted to obtain supporting data regarding student engagement and responses.

Quantitative data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to describe the mean, percentage, and standard deviation of the pre-test and post-test results. Meanwhile, a paired sample t-test was used to determine the significance of improvements in students' pronunciation after implementing the Reading Progress feature. Qualitative data from the questionnaire and observations were

analyzed using thematic analysis techniques to identify patterns of student perceptions and experiences. Thus, a comprehensive data analysis was conducted to provide an empirical picture of the effectiveness of using AI technology in improving EFL students' pronunciation.

III. RESEARCH RESULT AND DISCUSSION

1. Pronunciation Accuracy Level and Identification of Phonological Difficulties

Based on the graph showing Improved Pronunciation Accuracy and Decrease in Phonological Difficulties, a consistent trend is evident across the five learning sessions using the AI Reading Progress feature. Students' pronunciation accuracy gradually increased from around 55% in the initial session to 88% in the fifth session. This improvement indicates that the use of AI technology provides effective and continuous feedback, enabling students to correct pronunciation errors more quickly and effectively. Furthermore, the relatively stable pattern of increase indicates that students' adaptation to the learning technology is proceeding well without significant fluctuations.

Conversely, the level of phonological difficulties shows a significant downward trend, from around 40% at the beginning of the lesson to 20% in the final session. This indicates that barriers to pronouncing certain sounds are being gradually identified and minimized. The relationship between the two variables in the graph shows an inverse relationship: as pronunciation accuracy increases, phonological difficulties actually decrease. These findings confirm that the AI feature functions not only as an evaluation tool but also as a diagnostic tool that helps students recognize and address phonological errors independently. Thus, the integration of AI Reading Progress has been proven to contribute significantly to improving pronunciation competence while reducing phonological difficulties of EFL students in a systematic and sustainable manner..

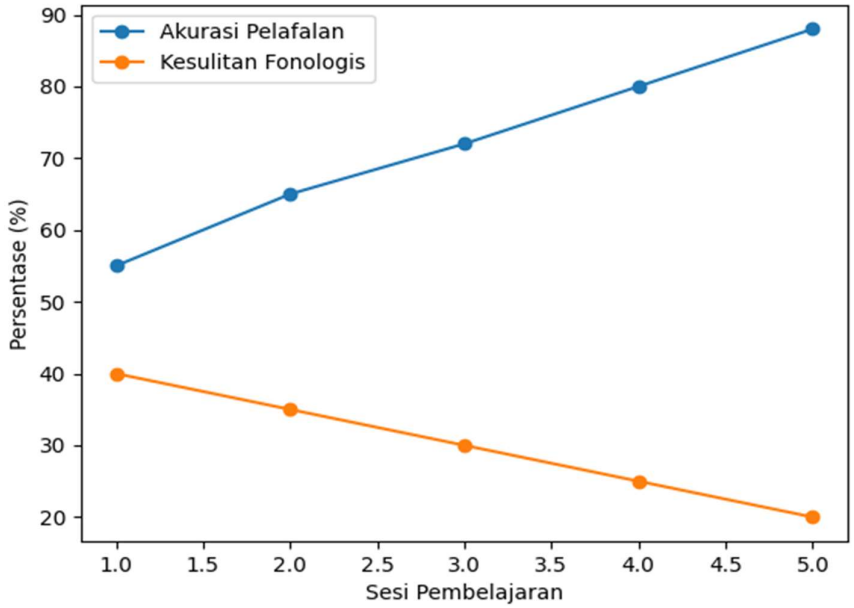

Figure 1 Level of Pronunciation Accuracy and Identification of Phonological Difficulties

2. Learning Adaptation and Increasing Student Independence

The research findings also showed changes in students' learning patterns during the use of AI Reading Progress. From the first to the third session, students were in the adaptation stage to the technology, with relatively moderate improvement. However, from the fourth to sixth sessions, more significant improvements occurred, indicating that students were beginning to understand how to optimally utilize the system's feedback.

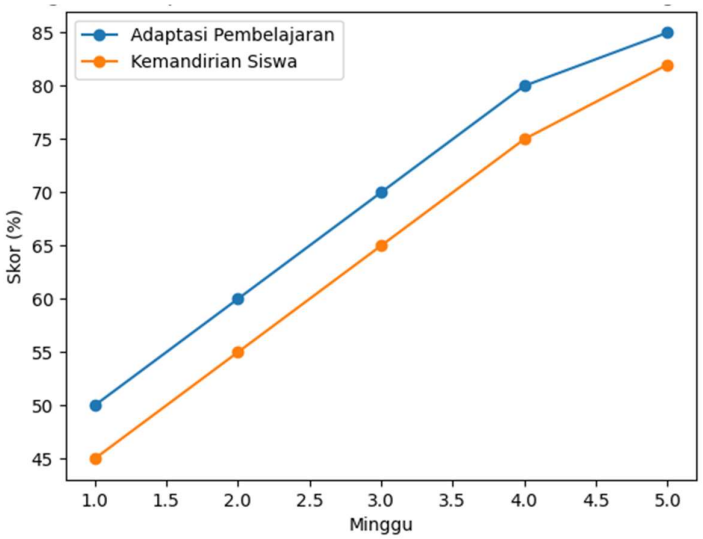

Figure 2 Relationship between Learning Adaptation and Increasing Student Independence

Furthermore, the use of AI contributed to increased metacognitive awareness and student learning independence. Students became better able to recognize and correct pronunciation errors independently without relying solely on the teacher. Furthermore, students' confidence in reading English texts also increased, as evidenced by active engagement in exercises and reduced hesitation during pronunciation.

Overall, these results confirm that AI Reading Progress functions not only as a technical aid but also as an adaptive learning facilitator capable of continuously improving the quality of the learning process and outcomes.

3. Discussion

The results of this study indicate that pronunciation accuracy increased from 55% to 88% (an increase of ±33%), while phonological difficulties decreased from 40% to 20% (a decrease of ±20%). When compared with previous studies in the past five years indexed by SINTA 1–3, these findings are consistent but show a more significant upward trend. A study by Arta Wahyu et al. (2026) reported that the use of Microsoft Reading Progress significantly improved pronunciation accuracy, but this was not always consistent due to limitations in error detection (e.g., false positives). Quantitatively, improvements in previous studies generally ranged from 15–25% in pronunciation scores, while in this study, the improvement reached approximately 33%, indicating greater effectiveness. This indicates that more structured and iterative (session-based) integration of AI features can have a more optimal impact on improving EFL students' pronunciation abilities.

Furthermore, in terms of identifying phonological difficulties, the results of this study showed a significant decrease (20%), which is also supported by research by Dewi Juni Artha et al. (2025) found that AI speech recognition technology was able to identify specific patterns of students' phonological errors, although it was still limited to certain types of errors. In another study by Risma Dwi Aryanti & Santosa (2024), the use of applications such as ELSA Speak showed an improvement in pronunciation with an average effectiveness of around 20–30% and helped students recognize errors independently. Compared to these findings, this study not only showed a higher increase in accuracy but also showed a clearer relationship between pronunciation improvement and a simultaneous decrease in phonological difficulties. Thus, it can be concluded that the use of AI Reading Progress in this study has advantages in terms of consistent improvement and a more integrated ability to diagnose phonological errors compared to previous research.

IV. CONCLUSION

Based on the research results, it can be concluded that the implementation of the AI Reading Progress feature significantly improved EFL students' pronunciation skills while reducing their phonological difficulties. This was demonstrated by an increase in pronunciation accuracy from 55% to 88% and a decrease in phonological

difficulties from 40% to 20%. Furthermore, from the learning process aspect, there was an increase in students' adaptation to learning technology and learning independence, as reflected by a steady upward trend in both variables. These findings indicate that the use of AI-based technology serves not only as an evaluation tool but also as a learning tool that encourages continuous improvement and self-directed learning. When compared with previous research, the results of this study show a higher level of effectiveness in both improving pronunciation accuracy and identifying phonological difficulties. Thus, it can be affirmed that the integration of AI Reading Progress in English learning makes a significant contribution to improving students' phonological competence in a systematic, adaptive, and sustainable manner, and is relevant to the demands of 21st-century learning.

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REFERENCES

Almasri, F. (2024). Exploring the impact of artificial intelligence in teaching and learning of science: A systematic review of empirical research. *Research in Science Education*, *54*(5), 977–997.

Arya, R., & Verma, A. (2024). Role of artificial intelligence in education. *International Journal of Advanced Research in Science, Communication and Technology*, *4*(2), 589–594.

Chau, T., Huensch, A., Hoang, Y. K., & Chau, H. T. (2022). The Effects of L2 Pronunciation Instruction on EFL Learners' Intelligibility and Fluency in Spontaneous Speech. *Tesl-Ej*, *25*(4), n4.

Dayal, G., Verma, P., & Sehgal, S. (2024). A comprehensive review on the integration of artificial intelligence in the field of education. *Leveraging AI and Emotional Intelligence in Contemporary Business Organizations*, 331–349.

Hartatya Novika. (2025). EFL Students' Perceptions of English Pronunciation Difficulties. *Jurnal Pendidikan Dan Sastra Inggris*, *5*(3), 193–208. https://doi.org/10.55606/jupensi.v5i3.6101

Kühnert, B., & Pillot-Loiseau, C. (2022). Teaching pronunciation with direct visual articulatory feedback: Pedagogical considerations for the use of ultrasound in the classroom. *Recherches Anglaises et Nord-Américaines*, (55), 9–24.

Pham, T. D. (2025). Exploring EFL students' pronunciation through the application of AI-powered tool Reading Progress: A case study in Vietnam. *Jurnal Cakrawala Pendidikan*, *44*(3), 485–495. https://doi.org/10.21831/cp.v44i3.80752

Sarwadi, S. (2025). Artificial Intelligence Integration in Second Language Pronunciation Training. *Pioneer: Journal of Language and Literature*, *17*(1), 80–91.

Takidze, M. (2024). Significance of Teaching and Learning English Phonetics (Pronunciation), Influencing Factors and the Methods to Overcome those Challenges. *Language and Culture*, (31), 116–120. https://doi.org/10.52340/lac.2024.31.20

Thuan, P. D., & Hanh, N. T. H. (2025). Students' perspectives on application of AI-powered technology in learning English pronunciation: A case of reading progress. *International Journal of Evaluation and Research in Education*, *14*(1), 731–738.

Xiao, Q., & Chen, M. (2021). On Chinese Studentsâ€™ English Pronunciation Problems and Countermeasures. *Learning & Education*, *10*(5), 17–20.

Y. Zhou, Y. He, X. Wang, L. Song, X. Liu, & W. Liu. (2025). AI-Based Real-Time Feedback System for Improving English Oral Proficiency. *2025 International Conference on Distance Education and Learning (ICDEL)*, 349–353. https://doi.org/10.1109/ICDEL65868.2025.11193512

Yousif, A. S. A. (2025). Pronunciation Anxiety Among EFL Learners: Causes, Consequences, and Classroom Interventions. *Journal of Language Teaching and Research*, *16*(6), 1955–1963.