



AI-Generated TikTok Microlearning Videos for Eight Grade EFL Learners' Pronunciation of English Silent Letters

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ABSTRACT

This study investigates the use of AI-generated TikTok microlearning videos for teaching English silent letters to eighth-grade EFL learners. Many students experience difficulties in pronouncing silent letters because the relationship between English spelling and pronunciation is often inconsistent. To address this issue, the study employed AI-generated TikTok microlearning videos incorporating Natural Reader as an AI-based text-to-speech tool to provide pronunciation models of words containing silent letters. The study employed a quantitative pre-experimental design using a one-group pre-test and post-test approach involving 31 eighth-grade students at SMP Negeri 5 Tuban, Indonesia, during the 2025/2026 academic year. Data were collected through pronunciation pre-tests and post-tests and analyzed using descriptive statistics, the Shapiro-Wilk normality test, and the Wilcoxon Signed-Rank Test. The results showed an increase in the mean pronunciation score from 41.93 in the pre-test to 64.50 in the post-test. The Shapiro-Wilk test indicated that the data were not normally distributed (pre-test = 0.008; post-test = 0.009), therefore, the Wilcoxon Signed-Rank Test was employed and yielded a significance value of 0.000 ($p < 0.05$). The effect size was $r = 0.865$, indicating a strong effect. These findings indicate a statistically significant difference between students' pronunciation performance before and after the use of the AI-generated TikTok microlearning videos. However, because the study employed a one-group pre-experimental design without a control group, the findings should be interpreted as evidence of improvement following the intervention rather than definitive evidence of causal effectiveness. The findings suggest that AI-generated TikTok microlearning videos may serve as a supplementary digital medium for teaching English silent letters to EFL learners

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INTRODUCTION

English pronunciation is an important component of EFL learning because it affects learners' intelligibility and ability to communicate effectively. However, without it, even a speaker with a vast vocabulary and perfect grammar may fail to convey their message effectively (Abdelhalim & Alsehibany, 2025). Consequently, pronunciation instruction has become a focal point in contemporary EFL pedagogy, with researchers emphasizing the need to help learners achieve comprehensible speech rather than native-like perfection (Tiwari, 2023). One particular difficulty involves silent letters, which are written in words but are not pronounced in spoken English. Words such as know, knife, write, walk, and comb illustrate

this difficulty because learners cannot always predict pronunciation directly from spelling. This mismatch between orthography and pronunciation may lead learners to pronounce letters that should remain silent.

In the Indonesian EFL context, this problem can be particularly challenging because students may rely on the written form of English words when producing their pronunciation. Preliminary observations at SMP Negeri 5 Tuban indicated that several eighth-grade students experienced difficulties pronouncing words containing silent letters and tended to pronounce letters that are silent in English. The students also had limited opportunities to practice pronunciation through engaging digital learning materials. These conditions indicate the need for learning media that provide clear pronunciation models while allowing students to focus on specific pronunciation features.

Microlearning offers one possible approach to addressing this issue. It presents learning content in short, focused, and manageable units, allowing learners to concentrate on specific learning objectives without being overloaded with information (Denojean-Mairet et al., 2024). For pronunciation learning, short instructional materials can provide repeated exposure to target words and pronunciation models. TikTok, as a short-form video platform, is compatible with this approach because its audiovisual format can combine written words, visual cues, and pronunciation audio in brief learning materials. Previous research has demonstrated the potential of TikTok as an educational medium (Escamilla-Fajardo et al., 2021), while recent studies have also examined its use for EFL language learning (Zeng & Yang, 2024).

The development of Artificial Intelligence (AI) provides an additional opportunity to create pronunciation learning materials. AI-based tools can generate audio and other digital learning content, allowing teachers to develop consistent pronunciation models for repeated practice (Kohnke et al., 2023). In the present study, Natural Reader was used to generate the AI-based pronunciation audio, which was incorporated into short TikTok microlearning videos focusing on English silent letters. The combination of AI-generated pronunciation audio and TikTok microlearning therefore provides a focused digital learning format for practicing specific pronunciation features.

Although previous studies have investigated TikTok as a language learning medium and AI as a tool for language education, these studies have generally focused on broader language skills or general applications of digital technology rather than the pronunciation of English silent letters through AI-generated short-form microlearning videos. In particular, previous research has not sufficiently examined how AI-generated pronunciation materials delivered through TikTok microlearning can be used to address the specific difficulty of silent-letter pronunciation among Indonesian junior high school EFL learners. Thus, the existing literature leaves a gap concerning the application of AI-generated TikTok microlearning to this specific pronunciation problem.

To address this gap, the present study investigates the use of AI-generated TikTok microlearning videos for eighth-grade EFL learners' pronunciation of English silent letters. The study examines students' pronunciation performance before and after the implementation of the learning media. Accordingly, the research question is: To what extent does the use of AI-generated TikTok microlearning videos relate to changes in eighth-grade students' pronunciation of English silent letters?

LITERATURE REVIEW

English Pronunciation Learning

Pronunciation is a crucial aspect of English language learning, influencing everyday spoken language. English has a variety of spelling-sound correlations that are not always predictable, making pronunciation difficult for EFL learners. As a result, learners may pronounce words according to their written forms even when the spelling and pronunciation are different. This is particularly evident in words containing silent letters, such as knife, write, walk, comb, and honest. Therefore, learners need clear pronunciation models and opportunities for repeated practice.

Previous studies have highlighted the potential of technology in pronunciation learning. According to Tiwari (2023) emphasized the challenges of pronunciation instruction, while Abdelhalim & Alsehibany (2025) found that AI-powered tools have potential to support pronunciation accuracy and motivation. However, these studies did not specifically address silent letter pronunciation through AI-generated short form videos.

Microlearning and TikTok in Language Learning

Microlearning presents learning content in short, focused, and manageable units (Denojean-Mairet et al., 2024). This approach can support pronunciation learning by allowing learners to focus on specific words and receive repeated exposure. TikTok, as a short-form audiovisual platform, can support this approach by combining written text, visual elements, and audio. Escamilla-Fajardo et al. (2021) demonstrated TikTok's potential as an educational medium, while Zeng & Yang (2024) and Fatimah et al. (2026) explored its potential in EFL learning. However, previous studies have mainly focused on general language learning or speaking skills rather than the specific pronunciation of English silent letters.

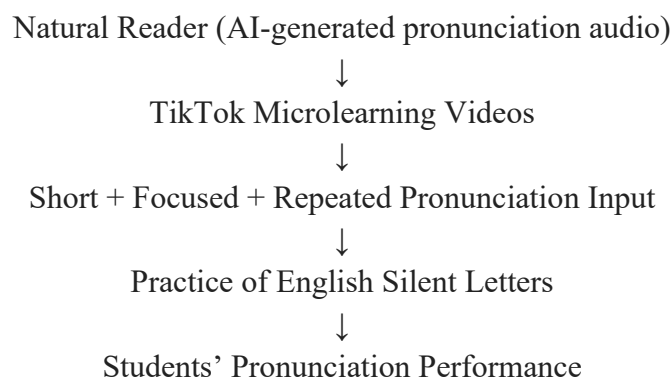
Artificial Intelligence in English Language Learning

AI-based technology can be used to generate or support language learning materials, including audio and other types of digital information. In pronunciation learning, AI-generated audio can give a consistent pronunciation model that learners can listen to frequently. The application of AI in language instruction has provided new opportunities for technology-supported learning. (Kohnke et al., 2023) examined the potential of generative AI technologies can promote the development of new language learning resources. In the present study. Natural Reader is used to generate pronunciation audio, which is integrated into short TikTok microlearning videos. Unlike previous studies, this study combines AI-generated pronunciation audio, TikTok, and microlearning to address silent-letter pronunciation.

Research Gap and Conceptual Framework

Previous studies have examined pronunciation technology, microlearning, TikTok, and AI assisted language learning, but these elements have generally been investigated separately. Limited attention has been given to their combination for teaching English silent letters, particularly among Indonesian junior high school EFL learners. Therefore, this study integrates AI-generated pronunciation audio, TikTok, and microlearning to provide focused and repeated pronunciation input for silent letters.

Conceptual Framework:



METHOD

This study employed a quantitative pre-experimental research design using a one-group pre-test–post-test design (Apuke, 2017). The study aimed to investigate the extent to which AI-generated TikTok microlearning videos enhanced eighth-grade students' pronunciation of English silent letters. The instruments consisted of pronunciation pre-test and post-test and an analytical pronunciation rubric assessing silent-letter correctness, clarity, and intelligibility. The treatment used AI-generated TikTok microlearning videos developed with Natural Reader to generate pronunciation audio. The audio was combined with written words and visual cues highlighting silent letters. The treatment was conducted over two days, with two instructional periods, followed by the post-test. Students' pronunciation performances were recorded and scored by one researcher using the predefined rubric criteria. The data were analyzed using descriptive statistics, the Shapiro-Wilk normality test, and the Wilcoxon Signed-Rank Test because the data were not normally distributed. Effect size was also calculated using the standardized Z value from the Wilcoxon test. The research was conducted at SMP Negeri 5 Tuban, Indonesia, during the 2025/2026 academic year. The participants were 31 eighth-grade students from Class VIII-A. The students were selected because they participated in the English pronunciation learning activities using AI-generated TikTok microlearning videos.

Instruments

Pronunciation Pre-test and Post-test: These were oral tests designed to measure the students' ability to pronounce English words containing silent letters. The tests consisted of a list of words and short sentences embedded with target silent letters (e.g., “knight, psychology, receipt, comb, write”). The pre-test was administered before the treatment to establish the students' baseline pronunciation ability, while the post-test, which used parallel items of equal difficulty, was administered after the treatment to measure the enhancement.

Pronunciation Scoring Rubric: An analytical scoring rubric was developed to ensure objective and consistent evaluation of the students' oral performances. The rubric assessed specific criteria, including the accurate omission of silent letters, overall intelligibility, and basic stress patterns. The rubric was validated by expert judges to ensure content validity.

Data Collection Procedure

The data collection was design of several stages. First, the pronunciation pre-test was administered to the 31 students of Class VIII-A. The students were directed to read the

vocabulary and sentences aloud, and their performances were recorded and scored using the rubric. Following the pre-test, the treatment phase commenced. The students were exposed to AI-generated TikTok microlearning videos over a series of learning sessions. These videos were specifically designed to highlight silent letters, using visual cues (such as crossing out the silent letter) and clear, AI-generated audio models to demonstrate the correct pronunciation. After the treatment was completed, the pronunciation post-test was administered using the same procedure as the pre-test.

Data Analysis

1. The Descriptive Statistics: The mean, percentage, and standard deviation were projected to provide an overview of the students' pre-test and post-test scores, as well as to summarize the questionnaire data.
2. Shapiro-Wilk Normality Test: Before conducting parametric hypothesis testing, the Shapiro-Wilk test was employed to check the normality. This test is particularly appropriate for sample sizes smaller than 50.
3. Wilcoxon Signed-Rank Test: Because the normality assumption was violated, the non-parametric Wilcoxon Signed-Rank Test was utilized to determine whether there was a statistically significant.
4. Effect Size (r): To form of measurement for the enhancement, the effect size was projected using the formula

$$r = \frac{Z}{\sqrt{N}}$$

where Z is the value from the Wilcoxon test and N is the number of participants. This provides a practical measure of the intervention's impact, independent of sample size.

FINDINGS AND DISCUSSION

The Descriptive Statistics of Pronunciation Scores

The descriptive statistics were calculated to summarize the students' performance on the pronunciation pre-test and post-test. The mean score of the pronunciation pre-test was 41.93, indicating that, prior to the intervention, the students' ability to pronounce words with silent letters was relatively low. Following the execution, the mean score of the pronunciation post-test increased to 64.50. This substantial increase in the mean score suggests a positive trend in the students' pronunciation accuracy. The standard deviation was also calculated as part of the descriptive analysis to understand the dispersion of the scores around the mean, though the primary focus of the inferential analysis was on the mean differences. Before the treatment, some students tended to pronounce the silent letters in words such as know, write, and comb. After the treatment, students showed better recognition of the silent letters and were more able to produce the target words without pronouncing the silent letters.

Normality Test

The normality construct on the Shapiro–Wilk test. This test is widely recommended for studies with relatively small sample sizes ($n < 50$) because of its high sensitivity in detecting deviations from normality. The output of the normality analysis are presented in Table 1.

Table 1. Shapiro-Wilk Normality Test Results

	Shapiro-Wilk		
	Statistic	df	Sig.
pre_test	.902	31	.008
post_test	.904	31	.009

a. Lilliefors Significance Correction

As presented in Table 1, the Shapiro–Wilk test produced p-values of 0.008 for the pre-test and 0.009 for the post-test. Both values were below the significance level of 0.05, indicating that the data did not meet the assumption of normality. Therefore, the null hypothesis of normality was rejected for both datasets. Such as the paired-sample t-test, was not satisfied, a non-parametric approach was considered more appropriate.

Hypothesis Testing

Due to the non-normal distribution of the data, the Wilcoxon Signed-Rank Test was come on to determine whether there were significant differences between the pre-test and post-test scores. This test is widely used as a non-parametric alternative to the paired-sample t-test when comparing two related measurements from the same participants. The results of the Wilcoxon Signed-Rank Test are presented in Table.

Table 2. Related-samples Wilcoxon Signed Rank Test Summary

Total N	31
Test Statistic	465.000
Standard Error	48.277
Standardized Test Statistic	4.816
Asymptotic Sig. (2-sided test)	.000

Table 2 presents the output of the Wilcoxon Signed-Rank Test, which was performed to examine whether the implementation of AI-generated TikTok microlearning videos led to a significant enhancement in students' pronunciation performance. The analysis included data from 31 students ($N = 31$). The test yielded a Wilcoxon statistic of 465.000, with a standardized Z value of 4.816 and a standard error of 48.277. The two-tailed significance value was .000, which is well below the accepted significance level of .05 ($p < .05$). Therefore, these findings demonstrate that students achieved significantly higher pronunciation scores after participating in the AI-generated TikTok microlearning activities, suggesting that This intermediary is said to be effective in enhancing students' pronunciation.

Effect Size

As a step to determine the percentage results, an effect size was projected based on the Wilcoxon Signed-Rank Test using the r (Z-based) formula:

$$r = \frac{Z}{\sqrt{N}}$$

Z represents the standardized test statistic, and N represents the total number of participants. Refers to the results presented in Table 2, the standardized test statistic was 4.816 and the total number of participants was 31. Therefore, the effect size was calculated as follows:

$$r = \frac{4.816}{\sqrt{31}}$$

$$r = \frac{4.816}{5.568} = 0.865$$

The effect size of $r=0.865$ indicates a strong effect. This finding suggests that the AI-generated TikTok microlearning videos had a strong practical impact on enhancing students' pronunciation of English silent letters.

DISCUSSION

The significant enhancement in students' pronunciation performance may be related to the focused and multimodal nature of the AI-generated TikTok microlearning videos. The videos presented pronunciation input in short segments, allowing students to focus on specific words containing silent letters without being exposed to excessive information at one time. The combination of written words, visual elements, and AI-generated pronunciation audio also provided students with repeated and consistent pronunciation models. These features may have helped students recognize the difference between the written form and the spoken form of English words containing silent letters.

This finding is consistent with previous studies on technology-supported language learning. Abdelhalim & Alsehibany (2025) reported the potential of AI-powered tools to support EFL pronunciation learning, while Denojean-Mairet et al. (2024) highlighted the value of microlearning and social media for providing focused learning content. Similarly, Escamilla-Fajardo et al. (2021) demonstrated the potential of TikTok as an educational medium. However, the present study extends these findings by combining AI-generated pronunciation audio, TikTok, and microlearning to address the specific difficulty of English silent letters.

The strong effect size ($r = 0.865$) further indicates that the enhancement was not only statistically significant but also interpreted briefly. This finding suggests that the use of AI-generated TikTok microlearning videos may provide a useful digital approach to pronunciation instruction, particularly for focused pronunciation targets such as English silent letters. The resolve is consistent with the view that microlearning can provide focused learning units and repeated exposure, while digital technology can offer accessible pronunciation input and opportunities for language practice.

CONCLUSION AND SUGGESTIONS

This study investigated the extent to which AI-generated TikTok microlearning videos enhanced eighth-grade students' pronunciation of English silent letters. The findings demonstrated a clear enhancement in students' pronunciation performance, with the mean score increasing from 41.93 in the pre-test to 64.50 in the post-test. The Shapiro-Wilk test indicated that the data were not normally distributed; therefore, the Wilcoxon Signed-Rank Test was employed. The test revealed a statistically significant difference between the pre-test

and post-test scores, with an Asymptotic Sig. (2-sided test) value of 0.000 ($p < 0.05$). In addition, the effect size of $r = 0.865$ indicated a strong effect, demonstrating that the enhancement was not only statistically significant but also practically useful. These findings suggest that students' pronunciation performance improved following the use of AI-generated TikTok microlearning videos. However, these findings should be interpreted cautiously because the study employed a one-group pre-experimental design without a control group, involved a relatively small sample of 31 students, and was conducted over a short two-day intervention period. Therefore, the observed improvement cannot be attributed solely to the intervention.

Based on the findings, English teachers may consider integrating AI-generated TikTok microlearning videos into pronunciation instruction, particularly when teaching specific pronunciation features such as English silent letters. The short, focused, and multimodal format of the videos can provide students with consistent pronunciation models and opportunities for repeated exposure. Students are also encouraged to use short digital pronunciation materials for additional practice beyond classroom activities. For future researchers, studies involving larger samples, control or comparison groups, and longer intervention periods are recommended to provide stronger evidence regarding the use of AI-generated TikTok microlearning videos in pronunciation learning. Future studies may also investigate other pronunciation features, such as word stress, intonation, connected speech, or other challenging sound patterns.

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