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The Use of Mobile Assisted Language Learning on Students' Pronunciation

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Abstract

Pronunciation is a crucial aspect of English proficiency, enabling students to engage in effective conversations. However, many learners struggle with proper stress and intonation. To address this challenge, an appropriate learning technique is necessary. This study investigates the effect of Mobile-Assisted Language Learning (MALL) on students' pronunciation skills. The research was conducted on second-grade students of vocational high school in Bogor, with a sample of 24 students from Office Administration major, selected through random sampling from a population of 62. The study employed a quasi-experimental design with experimental and control group pre-test and post-test approach. Participants underwent a pre-test, three instructional treatments, and a post-test, with oral assessments used to evaluate their pronunciation skills. Data analysis was conducted using the t-test formula, revealing a t-test value of 14.11 compared to a t-table value of 2.069 at a 0.5 significance level with 23 degrees of freedom (df). Since the t-calculated value exceeded the t-table value (14.11 > 2.069), the alternative hypothesis (Ha) was accepted, while the null hypothesis (Ho) was rejected. These findings confirm that Mobile-Assisted Language Learning positively impacts students' pronunciation skills.

INTRODUCTION

Pronunciation is a fundamental aspect of communication and a key component of speaking proficiency. According to Suwartono (2006: 41), as cited by (Astuti, 2016) pronunciation plays a crucial role in language acquisition. It involves producing the correct sounds of words and sentences with appropriate stress, rhythm, and intonation. (Mulatsih, 2015)explains that pronunciation encompasses the development and interpretation of speech sounds to convey meaning effectively. Kristina, Diah et al. (2006:1), as cited by Pratiwi, (2019) highlights that mastering pronunciation is one of the most challenging aspects of learning English for Indonesian learners.

While pronunciation plays a crucial role in communication, errors in pronunciation can significantly hinder effective interaction in English. This challenge is particularly frustrating for learners who possess strong grammar and vocabulary skills but struggle with pronunciation. Improving pronunciation goes beyond merely avoiding errors—it also involves mastering correct stress and intonation, which are essential components of supra-segmental features (Handayani, 2017). (Tolibovna, 2023) emphasizes that supra-segmental features do not merely complete

meaning but actively shape it, making them vital for clear and accurate communication. Given the importance of pronunciation in overall language proficiency, implementing effective learning techniques, such as Mobile-Assisted Language Learning (MALL), can help students refine their pronunciation by addressing both segmental and supra-segmental aspects, thereby enhancing their ability to communicate effectively.

In the 21st century, technology has become an integral part of daily life, revolutionizing various fields, including education. Among the many advancements, mobile technology stands out as one of the most widely used tools, significantly contributing to learning processes. As a result, this shift has led to the development of Mobile-Assisted Language Learning (MALL), a method that leverages mobile devices to facilitate language acquisition. To enhance students' pronunciation skills, English teachers can integrate MALL strategies into their instruction by utilizing various mobile applications designed for pronunciation training. According to Khubyari & Narafshan, (2016), MALL involves teaching and learning through mobile handheld devices with internet connectivity, offering a flexible and accessible approach to language education.

Building upon this idea, mobile technology has transformed language instruction in the digital age, giving rise to MALL, which utilizes smartphones, tablets, and other portable devices to support language acquisition. Among the different language skills, pronunciation remains one of the most challenging yet essential components for effective communication (Tiwari, 2024). However, traditional classroom instruction often falls short in providing personalized pronunciation practice due to time limitations and large class sizes. To address this gap, MALL enables learners to engage in self-paced, interactive, and individualized pronunciation training anytime and anywhere (Alisoy & Sadiqzade, 2024). Furthermore, with advancements in artificial intelligence (AI) and speech recognition technologies, MALL presents a promising solution for improving pronunciation accuracy and fluency, offering learners an innovative and effective approach to language learning.

According to (Wagner et al., 2016), Mobile Assisted Language Learning (MALL) is the use of mobile devices supported by the technology in teaching and learning in foreign languages. Mobile devices can be a modern tool in this era and also it will help the activities between teachers and students. (Prayudi et al., 2021) state that mobile devices created new forms of knowledge with new ways of accessing all kinds of features inside such as music, video etc. There are so many kinds of mobile application services for MALL such as Mobile Social Networking/ Mobile Social Software (MoSoSo). The majority of Social Network Service (SNS) Apps create platforms like Facebook, Twitter, YouTube, or Flicker. The second type of MALL is Automatic Speech Recognition (ASR) Voice –Recognition applications which allow automated translation or voice dialing. Microblogging and text messaging by voice are also available via Dragon dictation and Nuance. Bing, Google Voice, Vlingo, or Siri Assistant are ASR-based applications that also have a function as automatic hands-free task processing engines. However, in this research the focus of MALL is mobile social networking or mobile social software (MoSoSo) and Automatic Speech Recognition (ASR) in which the writer chooses YouTube and Google Assistant to become media in teaching and learning process.

Existing research highlights the growing significance of Mobile-Assisted Language Learning (MALL) in language instruction, particularly in pronunciation training. According to (De Vega et al., 2024), mobile learning offers flexibility, accessibility, and immediate feedback, all of which are especially beneficial for improving pronunciation accuracy. Building on this idea, various mobile applications such as Elsa Speak, Duolingo, and Google Speech-to-Text utilize AI-powered speech recognition to assess learners' pronunciation and provide real-time corrections (Liakina & Liakin, 2023). These tools enable students to refine their pronunciation independently, supporting the development of precise vowel and consonant sounds. Indeed, (Iftikhar, 2025) found that learners using MALL-based tools achieved greater pronunciation accuracy compared to those relying solely on traditional methods.

Despite these advantages, some researchers argue that MALL should complement rather than replace teacher-led instruction. While mobile applications are valuable for repetitive practice, (Couper, 2021) emphasize that human instructors play a crucial role in contextualizing pronunciation within natural speech patterns. Furthermore, Pérez, (2021) caution that MALL's tendency to focus on isolated word or phrase activities may not sufficiently prepare students for authentic conversational interactions. These perspectives suggest that while MALL is an effective tool for pronunciation improvement, it should be integrated alongside traditional instruction to ensure a more comprehensive approach to language learning.

Advancements in Mobile-Assisted Language Learning (MALL) continue to reshape pronunciation training, incorporating innovative techniques such as gamification, augmented reality (AR), and adaptive learning algorithms. Building on existing AI-powered applications, tools like Speakly and Pronunciation Power personalize exercises based on learners' error patterns and proficiency levels (Vančová, 2023). Furthermore, voice comparison features allow students to

analyze their pronunciation against native speakers, enabling self-correction and refinement (Lara et al., 2024). Despite these technological improvements, challenges remain. Issues such as limited contextual learning, technical barriers, and an overreliance on automated feedback still hinder the effectiveness of MALL-based pronunciation training (Metruk, 2024). Thus, while MALL presents a promising approach, integrating it with teacher-led instruction and communicative practice remains crucial for achieving comprehensive pronunciation mastery.

While MALL has shown promising results in language acquisition, particularly in vocabulary and grammar learning, its effectiveness for pronunciation training remains an area with limited research. Despite advancements in AI-driven pronunciation tools, key gaps persist in existing studies. One major limitation is long-term retention, as most research focuses on short-term improvements without sufficient evidence on whether MALL sustains pronunciation accuracy over time. Additionally, there is a lack of cross-linguistic applicability, with most studies emphasizing English as a Second Language (ESL), leaving uncertainties about how MALL supports pronunciation learning in other languages. Furthermore, integration with classroom instruction remains underexplored, as few studies examine how MALL can be effectively combined with traditional teaching methods to maximize pronunciation outcomes. Addressing these gaps is essential for developing a well-rounded approach to pronunciation instruction, ensuring that technology complements rather than replaces conventional learning strategies. By filling in these gaps, this study aims to analyze the difference influence of implementing conventional teaching media and useful technology-based tools on students' pronunciation ability.

RESEARCH METHODOLOGY

To examine the effect of Mobile-Assisted Language Learning (MALL) on students' pronunciation proficiency, this study employed a quantitative research approach using a quasi-experimental design. Specifically, the experimental and control group pre-test and post-test design was implemented to measure how the independent variable (MALL-based instruction) influenced the dependent variable (students' pronunciation ability). This research was conducted at SMK PGRI 3 Bogor, involving 24 students from the 11th grade, selected through random sampling from a total population of 62 students to ensure a representative sample. The research procedure followed a systematic sequence: First, students were divided into two groups: an experimental group that received MALL-based pronunciation training and a control group that followed conventional pronunciation instruction without mobile-assisted support. Before the intervention, both groups underwent a pre-test to assess their baseline pronunciation proficiency. This test measured their accuracy in pronouncing words and sentences, identifying common difficulties in stress, rhythm, and intonation.

Following the pre-test, the experimental group engaged in structured pronunciation exercises through MALL applications over the course of three treatment sessions. Each session incorporated 30 words and 20 sentences, specifically designed to address pronunciation errors and improve segmental and supra-segmental features. The activities leveraged AI-powered speech recognition technology to provide instant feedback, enabling students to correct their pronunciation errors interactively. The control group, on the other hand, continued traditional instruction without the use of mobile-based tools. After completing the treatment phase, a post-test was administered to both groups to evaluate the students' pronunciation progress. The post-test mirrored the format of the pre-test, allowing for a comparative analysis of improvements between the two groups. To analyze the results statistically, a t-test formula was applied to determine whether the differences in pronunciation performance between pre-test and post-test scores were statistically significant.

By employing this quasi-experimental design, the study aimed to provide empirical evidence on MALL's effectiveness in pronunciation learning. The findings contribute valuable insights into whether mobile-assisted tools enhance pronunciation accuracy, offering educators practical strategies for integrating technology into language instruction.

FINDING AND DISCUSSION

The first data obtained is to identify the pre-test scores. Based on the data which is calculates, it finds that the highest score is 83 and the lowest score is 60. The table of frequency distribution shows in the following table.

Table 4.1
Frequency Distribution of Pre-test

Class Interval	Class Boundary	Midpoint	f-absolute	f-relative

60-63	59.5 - 63.5	61	4	17%
64-67	63.5 - 67.5	65	4	17%
68-71	67.5 - 71.5	69	2	8%
72-75	71.5 - 75.5	73	7	29%
76-79	75.5 - 79.5	77	1	4%
80-83	79.5 - 83.5	81	6	25%
TOTAL			24	100%

From the table above it can be seen that there were four students who got the score at the range of 60 - 63 and 64 – 67 with the percentage of 17%. While there were two students at the range of 68-71 with 8% percentage, however 29% of them in the range 72 – 75 with the number of students are seven students. Moreover, at the range 76-79 there is one student with the percentage 4%. The last, there were six students at the range of 80-83 with 26% as its F-relative.

Table 4.2
Frequency Distribution of Post-Test

Class Interval	Class Boundary	Midpoint	f-absolute	f-relative
70-73	69.5 - 73.5	71	2	8%
74-77	73.5 - 77.5	75	3	12%
78-81	77.5 - 81.5	79	9	38%
82-85	81.5 - 85.5	83	4	17%
86-89	85.5 - 89.5	87	2	8%
90-93	89.5 - 93.5	91	4	17%
TOTAL			24	100%

The table above describes about the percentage's frequency of post-test score. In the range of 70-73 it reaches 8% with two students, while 12% were reached by three students in range of 74-77. Moreover, there are nine students who reaches score in range 78-81 with percentage of 38%. Then, there are four students who reach the score at the range 82-85 or 17%, and two students who reach the score in range 86-89 with percentage 8%. The last, at range 90-93 there are four students or 17% who reach score in this range.

From the results of these two scores, the researcher calculates the total gain (d) by subtracting the X with the Y and the results is 231. Furthermore, the researcher calculates the mean of gain (Md) by dividing the (d) with the total samples (n), the result is 9. Next, the deviation of difference (Xd) is calculated by subtracting the d from each sample with Md. The function of this calculation is to find out the average result of the total sample. After receiving the results of the mean gain and deviation of gain. The researcher starts to calculate the T-test, this formula is applied in order to discover the t-test value The result of the t-test is 11.61. The last, the researcher calculates the hypothesis to find out whether the hypothesis it is accepted or rejected.

Based on the result, the degree of freedom is 23. Based on the t- table, degree of freedom of 23 has significant level of 0,05 is 2.069. Meanwhile, the t-test-value is 14.11. it shows that t-test value is higher than the value of t-table (14.11>2.069). Thus, it can be assumed that the alternative hypothesis (*Ha*) there is an effect of Mobile Assisted Language Learning on students' Pronunciation is accepted.

Pronunciation plays a crucial role in effective communication, making it an essential skill in English language learning. Given its importance, teachers continually seek innovative techniques to enhance pronunciation instruction. One such approach is Mobile-Assisted Language Learning (MALL), which integrates mobile technology to provide learners with interactive and accessible tools for pronunciation practice. This study investigated the effectiveness of MALL in improving students' pronunciation, particularly in mastering stress and intonation through video-based learning from YouTube and speech recognition tools like Google Assistant.

The data analysis of the pre-test and post-test results reveals a notable improvement in students' pronunciation skills after utilizing MALL. The lowest pre-test score was 60, while the highest was 82, indicating varying levels of pronunciation proficiency prior to the intervention. Following the treatment, which involved the use of video-based learning and AI-assisted feedback, students demonstrated substantial progress, with the lowest post-test score rising to 70 and the highest reaching 92. This improvement suggests that MALL enhances students' ability to pronounce words more accurately, apply correct stress patterns, and maintain appropriate intonation.

The findings align with existing research that highlights the effectiveness of MALL in pronunciation training. According to (Alimuddin et al., 2024), MALL enables self-paced and interactive learning, allowing students to refine their pronunciation in a structured yet flexible manner. Similarly, Dennis, (2024) found that AI-powered speech recognition tools provide real-time feedback, which is instrumental in helping learners identify and correct pronunciation errors. The use of YouTube videos in pronunciation training complements this approach by exposing learners to authentic speech patterns, as Saadia (2023) suggests that voice comparison tools enhance pronunciation accuracy by enabling learners to model native-like pronunciation.

CONCLUSION AND SUGGESTION

The findings of this study confirm the effectiveness of MALL in enhancing students' pronunciation proficiency, particularly in stress and intonation mastery. The increase in post-test scores demonstrates that utilizing YouTube videos and Google Assistant as pronunciation training tools provides valuable interactive and accessible resources for language learners. By integrating MALL into pronunciation instruction, educators can enhance students' speech clarity and communication confidence.

Despite its benefits, MALL should be complemented with teacher-led instruction to ensure students develop a comprehensive understanding of pronunciation within real-world conversational contexts. Future research should focus on long-term retention, determining whether MALL sustains pronunciation accuracy over extended periods. Additionally, studies should explore cross-linguistic applications, assessing whether MALL supports pronunciation learning in various languages beyond English. Refining feedback mechanisms in AI-powered applications and encouraging learner autonomy by promoting self-paced pronunciation training can further optimize Mobile-Assisted Language Learning as a transformative tool in language education.

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