

Dictionary Speech Assistant to Improve Students' Pronunciation

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Article History:

Submission
 October 25th, 2023

Accepted
 January 5th, 2024

Published
 January 30th, 2024

ABSTRACT

Non-native students often experience difficulty to learn pronunciation which then affects their speaking ability. On the other hand, proper communication requires proper pronunciation as well. However, today's technological advancement provides an alternative to aid pronunciation mastery, one of which is in the context of mobile-assisted language learning. This research investigated the effectiveness of Dictionary Speech Assistant in ELSA Speak Application to Improve Second Grade Students of SMP Negeri 6 Semarang Pronunciation Ability. The objective of this research was to find out the result of students' pronunciation ability before and after applying Dictionary Speech Assistant; as well as to find out whether there was any significant difference of students' achievement in their pronunciation mastery before and after taught using this mobile application. Dictionary Speech Assistant is one of the features or tools in ELSA Speak Application. It is a pronunciation dictionary that facilitated by Automatic Speech Recognition which provides direct feedback. This research employs pre-experimental design involving 34 students as the research sample. The data was gained from pre-test and post-test. The instrument of this research were tests consisting of single-word and phrase test. Subsequently, the data was analyzed by using t-test formula in Microsoft SPSS software to find out the significant difference on students' pronunciation ability before and after applying Dictionary Speech Assistant. The result showed that Dictionary Speech Assistant effectively improves the students' pronunciation ability. The main factor affecting this improvement was the students' interest in teaching learning process involving Dictionary Speech Assistant. The researchers concluded that Dictionary Speech Assistant is beneficial for students in learning pronunciation.

Keywords: EFL Learner; ELSA Speak; Mobile-Assisted Language Learning; Pronunciation.

INTRODUCTION

Language proficiency, especially in English, is an essential skill in our increasingly interconnected and globalized world. The capability to effectively communicate in English gives access to educational, professional, and social opportunities. As a lingua franca, English is spoken among speakers of different first languages for whom English is the language of choice, and mostly the only option available (Chen, 2020). In addition, it there is now an increased demand for professional linguists who can effectively deliver a message, whether in a written or spoken form, from one language to another (Simon et al., 2015). While traditional language learning methods, such as classroom instruction and textbooks, have long been the foundation of language acquisition, the emergence of technology, particularly mobile applications, has revolutionized the way individuals approach language learning. Despite the various impactful and interesting approaches of old-school, offline teaching and learning

methods, the current situation requires most learning activities to be done virtually (Talip et al, 2023). Nowadays, technology has been prevalent in people's lives for a variety of reasons, including virtual interaction, the transfer of products and services, business transactions, commercial occupations, and even education (Kholis, 2021). The increasing availability of mobile technologies has contributed to the growth in mobile-assisted language learning in which learners can independently study a second language anytime and anywhere (Loewen, 2019). Mobile learning serves three functions in the classroom learning process, there are supplements, complements, and substitutes (Naninggia, 2017). This research investigates the efficacy of Dictionary Speech Assistant of ELSA Speak mobile application as a tool for improving English pronunciation, focusing on the role they play in enhancing language learners' phonetic accuracy and fluency.

The past decade has witnessed an exponential growth in the use of mobile applications for the purpose of language learning, and English pronunciation is no exception. The opportunity for teachers and students to communicate their views, options, and attitudes through communication can reflect their personalities' value systems, while also creating a favorable environment, preserving the interlocutors' relationship, and organizing the discourse (Aenida et al, 2022). Advancement in artificial intelligence seems to revolutionize existing educational practices (Baido-Anuu, 2023). These applications offer learners the convenience of accessing language instruction anytime, anywhere, transforming the learning process into a more personalized and flexible experience. The widespread usage of smartphones and the diversity of language learning apps available have made it possible for learners of all ages and backgrounds to start their language journey, aiming on mastering pronunciation.

However, all of these language learning apps raises a critical question: How effective are they in helping learners improve their English pronunciation? While there is an array of studies on the general effectiveness of mobile language learning apps, namely DuoLingo (Shortt et al, 2023), Kahoot! (Reynolds, 2020), Google Classroom (Singh, 2020), very few research has been dedicated to the use of ELSA Speak. The few researches on ELSA Speak was conducted with research participants consisting of university students at South Sulawesi (Samad & Ismail, 2020), university students at West Sulawesi (Akhmad & Munawir, 2021), junior high school students in a tuition assistance institution (Pangastuti, 2021). No studies have been found regarding its feature of Dictionary Speech Assistant on specific field of pronunciation improvement. This study aims to fill this gap by investigating English pronunciation learning through mobile applications.

The importance of accurate pronunciation in language acquisition is essential. Pronunciation is a basis of effective communication, and poor pronunciation prevents comprehension and decrease self-confidence in language learners. English as a phonetically diverse language, has unique challenges for learners who are not exposed to native speakers or English usage. Consequently, mobile applications that claim to enhance English pronunciation serve as promising tools to help learners.

This research investigates the effectiveness of Dictionary Speech Assistant of ELSA Speak mobile application for learning English pronunciation. The results of this research will not only beneficial to the growing body of research on mobile language learning but also offer insights into the potential of mobile applications in addressing a crucial and often challenging aspect of language acquisition: pronunciation.

In accordance to the increasing importance of English proficiency worldwide and the potential of mobile applications to facilitate language learning, the results of this research will be of interest to educators, language learners, app developers, and policymakers alike. ELSA Speak is one among many clever AI technologies for language acquisition, useful for learning how to talk and enunciate like a native speaker (Anggraini, 2022). ELSA Speak has delivered over 1,200 lessons on over 60 different topics (Lesmana, 2022). By giving insights on the

effectiveness of Dictionary Speech Assistant of ELSA Speak mobile application in improving English pronunciation, the researchers hope to inspire learners with valuable information and recommendations for enhancing their language skills, thereby contributing to their overall success in today's globalized world.

METHODOLOGY

The research design of this study was quantitative. The researchers employed one-group that applied pretest and posttest strategy. This design of this research used was the Pre-experimental involves pre-testing, treatment, and post-testing. This design typically includes three steps namely: (1) conducting a pre-test to measure the dependent variable; (2) providing the experimental treatment X to the subjects; and (3) conducting a post-test to examine the dependent variable after the subjects have received treatment. The changes were associated to how the experimental treatment was applied. The final step of this strategy was comparing the results of the pretest and posttest.

The population of this study was 272 from the 8th grade junior high school students of SMP N 6 Semarang. The researchers discovered all these students has similar learning performance as informed by their teacher. The sampling procedure applied was purposive sampling since it is the most appropriate method of obtaining a representative sample from such population. Purposive sampling is the process of picking a sample that are considered as typical in characteristics (Edmonds & Kennedy, 2016). 34 students of the 8th grade of SMP N 6 Semarang were chosen as the research sample.

This study employed pronunciation test as an instrument to measure students' pronunciation ability. Research instrument is a tool for measuring, testing, observing, interviewing, and documenting data (Creswell, 2017). This test was conducted twice namely during the pretest and posttest. A closed questionnaire using Likert scale was given to the research participants, in order to find out students' experience upon using Dictionary Speech Assistant in ELSA Speak Application to complete the secondary data as to support the validation of this research.

The researchers processed the data sets using the assistance of Microsoft SPSS 27. Pretest and posttest mean of the experimental group acquired using this software. The acquired mean score classified based on criteria proposed by Tanujaya et al (2022)

TABLE 1. Grading Scale (Tanujaya et al, 2022)

No	Interval Level	Score's Categories	Integrity	Predicate
1.	86 – 100%	A	4	Excellent
2.	76 – 85%	B	3	Good
3.	60 – 75%	C	2	Average
4.	55 – 59%	D	1	Poor
5.	<54%	E	0	Bad

The data regarding the difference of research participants' performance before and after taught using Dictionary Speech Assistant of ELSA Speak application were also processed using Microsoft SPSS 27. The researchers also utilized the same software to analyze the data acquired from the previously published closed questionnaire.

RESULT AND DISCUSSION

The research results obtained in in this study includes students' mean, pretest and posttest result gap, and also the significant difference in pretest and posttest scores. The researchers also provided a closed questionnaire to support the main data.

The Pre-Test Result of Students' Pronunciation Test Before Using ELSA Speak Dictionary Speech Assistant

This research initiated two tests namely the pretest and the posttest to find out if there are any differences in regard to the results of the study. Before providing the students any materials or treatments, the researchers conducted the pretest. It was taken for the purpose of assessing the research participants' ability in mastering pronunciation before they were asked to use ELSA Speak Dictionary Speech Assistant. There are several components assessed in this test namely fluency, accuracy, intonation, and stressing as shown in table 2 below.

TABLE 2. Pretest score details

Assessed Components (in a scale of 0 to 5)				Total Obtained Score	Total Final Score (%)
Fluency	Accuracy	Intonation	Stressing		
3.2	3.0	2.8	2.2	11.2	56

The total final score in the pre-test was 56 which belonged to the poor category, referring to the Table 1. During the pre-test, students were taught without using Dictionary Speech Assistant and have not received any treatment before the test has been conducted. It was found that the highest pretest score was 95, while the lowest pretest score was 15. The pre-test result is determined by calculating the research participants' scores prior to using Dictionary Speech Assistant. It is derived from the overall score, the percentage of students' scores, and the mean of the pretest. The total of the students' pre-test scores is 1904 derived from 34 students. The percentage of students who took the pre-test is 56%, which indicates that the score category of students in the pretest is poor.

The Posttest Result of Students' Pronunciation Test Before Using ELSA Speak Dictionary Speech Assistant

The researchers gave two sessions of pronunciation practice to the students without using any technological assistance. As a benchmark for the classroom material, the first meeting introduced pronunciation material and followed by a pre-test on pronunciation comprehension performance. The second meeting involved the treatment using ELSA Speak Dictionary Speech Assistant to improve students' pronunciation. In this stage, the students received a helpful correction by the ELSA Speak Dictionary Speech Assistant AI regarding their mispronounced words and phrases. Afterwards, the researchers conducted posttest to measure the students' abilities after the treatment. Further, post-test was given to investigate students' pronunciation ability achievement. In addition, students were given a conventional pronunciation teaching assessment with paper-based pronunciation test that adjusted to the existing themes during teaching and learning. The table 3 below presents the post-test score of this control class.

TABLE 3. Post-test score details

Assessed Components (in a scale of 0 to 5)				Total Obtained Score	Total Final Score (%)
Fluency	Accuracy	Intonation	Stressing		
4.8	4.2	4.0	3.6	16.6	82.8

The mean score in the post-test was 82.8, belonging to the good category. Students utilized ELSA Speak Dictionary Speech Assistant upon learning pronunciation. According to Table 3, the highest post-test score was 98, and the lowest post-test score was 62. The post-test result was derived from the scores of students after using Dictionary Speech Assistant. It was calculated using the post-test total score, student score percentage, and post-test mean. The overall post-test score derived from 34 students was 2818. The students' score percentage is

82.8%, indicated that the category of students' post-test scores after using Dictionary Speech Assistant belonged to good category.

The Significant Differences of Students' Pronunciation Test
 Before and After Using ELSA Speak Dictionary Speech Assistant

Once the result of pretest and posttest was acquired, the researchers calculated the result of significant differences of students' pronunciation ability before and after applying ELSA Speak Dictionary Speech Assistant. The differences of students' pronunciation before and after applying Dictionary Speech Assistant is determined through determining t-table, calculating t-test, and reviewing students' questionnaire response.

The process of determining t-table was undertaken in 5% level of significances with degree of freedom (df=N-1). The result was the value of df 33 at degree of 5% significance or it is called t-table is 2.035.

TABLE 4. T-test result

	Mean	T-table 5% level	T-test	df
Pre-test	56.0000	2.035	9.117	33
Post-test	82.8824			33

As seen on the table 4, it is concluded that the t-test result is 9.117, while value of df (degree of freedom) was 33 on 5% degree of significance is 2.035. Comparing the t-test with value of significance degree on t-table, the result is $9.117 \geq 2.035$. Since t-test is higher than t-table, which is obtained from the results of calculation, it is interpreted that H_a is accepted while H_0 is rejected. It can be defined that there was a notable improvement on students who are taught before and after applying ELSA Speak Dictionary Speech Assistant.

Apart from pretest and posttest, students were given a closed questionnaire to answer regarding their perceptions about using ELSA Speak Dictionary Speech Assistant. The questionnaire is a question with a choice or answer possibilities that the question maker has purposefully prepared for the respondent to choose (Aini, et al., 2018). The researchers used a closed questionnaire which enabled participants to choose an answer on a five-point scale of agreement or disagreement with several statements concerning some perspective. The questionnaire used Likert scale, it allows respondents to give input of their agreement or disagreement with specific statements regarding a perspective, individual, or event (Taherdoost, 2019). In addition, data from the closed questionnaire was analyzed by looking at the percentage of the table that was effortless to understand. The questionnaire result is presented in figure 1.

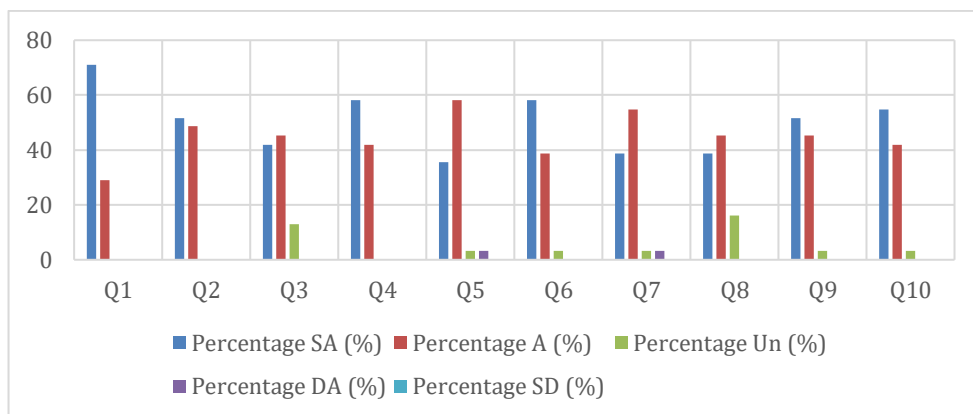


FIGURE 1. Questionnaire result

The obtained responses from the questionnaire showed that 71% students strongly agreed that Dictionary Speech Assistant is instructional and beneficial to improve pronunciation ability (Q1), while the other 29% agreed. As for whether Dictionary Speech Assistant is an excellent and interactive learning media (Q2), 51.6% students strongly agreed and 48.4% students agreed. 41.9% students strongly agreed, 45.2% agreed, and 12.9% undecided on whether Dictionary Speech Assistant's display is engaging educational tool (Q3). 58.1% students strongly agreed that Dictionary Speech Assistant makes the student easier to recognize different English sounds (Q4), while the other 41.9% agreed. 35.5% students strongly agreed, 58.1% agreed, 3.2% undecided, and 3.2% disagree on whether Dictionary Speech Assistant increases students' effectiveness on repairing mistakes (Q5).

Upon asked whether Dictionary Speech Assistant improves the students' involvement in the pronunciation learning process (Q6), 58.1% students strongly agreed, 38.7% students agreed and 3.2% student's undecided. The question of Dictionary Speech Assistant builds on students' performance especially pronunciation (Q7) resulted in 58.1% students strongly agreed, 38.7% students agreed 3.2% student's undecided, and 3.2% students disagreed. As for the question whether Dictionary Speech Assistant appearance is attractive (Q8), 38.7% students strongly agreed, 45.2% students agreed and 16.1% student's undecided. The question whether dictionary Speech Assistant is an application menu which understandable and easily accessible (Q9) resulted in 51.6% students strongly agreed, 45.2% students agreed, and 3.2% student's undecided. While the final question, whether Dictionary Speech Assistant creates a unique environment for students to develop their pronunciation ability (Q10) resulted in 54.8% students strongly agreed, 41.9% students agreed, and 3.2% student's undecided. It was shown that all those ten questions in the questionnaire were mostly strongly agreed by the students.

This study aimed to investigate the use of ELSA Speak Dictionary Speech Assistant in the second-grade classrooms of SMP Negeri 6 Semarang. To attain this objective, the researchers conducted the study in July 2023. The primary objective of this study was to assess the student's pronunciation performance before and after the implementation of ELSA Speak Dictionary Speech Assistant and determine whether there was a difference between these two sessions. The research population comprised 272 second-grade students at SMP Negeri 6 Semarang, with the researchers selected the 8th grade as the sample group. The data collection methods included documentation, such as teachers' lesson plans and lists of students' names, and tests, which were carefully analyzed. The research process consisted of four stages: a pre-test, the implementation of ELSA Speak Dictionary Speech Assistant, post-test, and closed questionnaire distribution. The ELSA Speak Dictionary Speech Assistant was introduced during the second and third sessions, aiding students in practicing pronunciation and improving their ability to correctly and confidently pronounce words and phrases. Ultimately, the data analysis revealed the results of the pretest, posttest, and any significant differences.

On July 25, 2023, the pre-test carried out with the purpose of evaluating the students' pronunciation skills before given any treatment. The results indicated that the research participants' pronunciation abilities were poor. This is evident in Table 2, where the highest pre-test score was 95, and the lowest was 15, resulting in a cumulative score of 1904. After determining the grade, it was determined that 56% of the students' pronunciation abilities in the pre-test fell into the poor category. The pre-test mean was computed by dividing the total score by the number of students, resulting in a mean pre-test score of 56.

The post-test, conducted on 28 July 2023, were conducted after the treatment given to the students. The aim was to assess whether these treatments impacted positively on the students' pronunciation skills. After the researchers collected and analyzed the post-test scores, it was revealed that students who used the Dictionary Speech Assistant performed well. Table 3 displays the range of post-test scores, with the highest at 98 and the lowest at 62. The average

post-test score was 82.8%, indicating a favorable outcome based on the previously provided criteria. The total post-test score amounted to 2818, and the mean post-test score, calculated by dividing the total score by the number of students, was 81.2. The t-test and t-table supported the overall data, indicated that there was notable improvement regarding students' pronunciation after they utilize ELSA Speak Dictionary Speech Assistant.

Furthermore, students' views regarding their utilization of the Dictionary Speech Assistant were also revealed. According to the responses from a closed questionnaire, over 70% of participants expressed that they found the Dictionary Speech Assistant to be educational and advantageous in enhancing their pronunciation skills. They also concurred that this tool had the potential to enhance their overall learning performance. The students appreciated the Dictionary Speech Assistant due to its exceptional and interactive feature, facilitated by artificial intelligence, which detected mispronunciations and provided automatic correction and feedback on their pronunciation.

Additionally, another finding revealed how students perceived the usage of the Dictionary Speech Assistant. According to the responses from a closed questionnaire, over 70% of participants expressed that they found the Dictionary Speech Assistant to be an instructive and advantageous tool for enhancing their pronunciation skills. This is in line with Samad & Ismail (2020), which stated that that ELSA Speak Application features were successful to encourage students' to involved effectively in pronunciation learning. Furthermore, they concurred that this tool had a positive impact on their overall learning performance, supporting Kholis's research (2021), which found that this was also beneficial. Regardless of the setbacks such as Wi-Fi or stable internet connection requirement, the students favored the ELSA Speak Dictionary Speech Assistant because it offered excellent interactivity in the learning process, aided by AI, which detected and provided automatic corrections and feedback for their pronunciation, making it a valuable learning resource.

CONCLUSION AND RECOMMENDATION

This research's findings and subsequent discussions lead to several key insights. Prior to the implementation of ELSA Speak Dictionary Speech Assistant, it was evident that the second-grade students at SMP Negeri 6 Semarang showed a wide range of performance, with pretest scores ranging between 15 to 95. The average pretest score stood at 56, equating to a mere 56% overall, categorizing students' grades as poor. However, after the implementation of ELSA Speak Dictionary Speech Assistant, students' post-test scores improved considerably, with the worst score was 62 and the best was 98. The post-test mean score was 82.8, with a corresponding percentage of 82.8%, classifying students' grades as good. Furthermore, a statistical analysis using t-tests revealed a notable improvement in students' pronunciation abilities before and after utilizing Dictionary Speech Assistant. The calculated t-test value (9.117) exceeded the critical t-table value (2.035), this further leads to the alternative hypothesis (H_a) acceptance and the null hypothesis (H_0) rejection. This suggests that teaching pronunciation using ELSA Speak Dictionary Speech Assistant is more effective.

With these conclusions in mind, the following suggestions are put forth. For teachers, it is advisable to employ creative teaching methods to enhance students' engagement in English lessons. Utilizing ELSA Speak Dictionary Speech Assistant as an alternative technique for teaching pronunciation is recommended. By integrating this tool, teachers can create a more enjoyable learning environment, reducing the chance of student boredom. Encouraging student involvement in the learning process is essential. As for students, there is an emphasis on increasing their interest in learning English through various methods. More opportunities to improve pronunciation should be available, and students are encouraged to train to speak up words and phrases clearly to facilitate recognition by AI. Reviewing pronunciation mistakes in

both oral and written forms is suggested. For readers, the hope is that this research can inspire further exploration of Dictionary Speech Assistant in the context of ELSA Speak Application. Readers should also read the references and cited literature to deepen their understanding. Finally, for future researchers, filling gaps in this research and developing references related to teaching media and vocabulary mastery are encouraged. Future researchers are also urged to evaluate and improve the present research, aiming at better advancements and innovations.

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