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Effectiveness of the ELSA Speak Application as a Medium for Improving Pronunciation Skill in Speaking English in Vocational High Schools

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A B S T R A C T

Pronunciation is an essential component in developing students' speaking skills in learning English, especially for vocational high school students who are prepared to enter future workplaces that require effective oral communication with colleagues, clients, and industry partners. However, many vocational high school students still experience difficulties in pronouncing English words accurately. This study aims to determine the effectiveness of the ELSA Speak application in improving students' pronunciation skills. This research used a quantitative approach with a quasi-experimental design. The participants of this study were 39 students of class XI MP1 at SMK Muhammadiyah 1 Taman. Data were collected through pre-test and post-test in the form of oral pronunciation tests. The data were analyzed using SPSS through normality test, correlation test, and paired sample t-test. The results showed that the mean score increased from 73.08 in the pre-test to 81.56 in the post-test. The paired sample t-test showed a significance value of 0.000 ($p < 0.05$), indicating a significant improvement. This suggests that AI-based applications such as ELSA Speak can serve as a viable supplementary tool in the EFL classroom, particularly for enhancing students' pronunciation through autonomous and technology-assisted practice.

Keywords: *ELSA Speak, Pronunciation, Speaking Skills, Mobile Learning, English Learning.*
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INTRODUCTION

English is a means of communication all over the world. It has become a global language. English is considered an international language because most people in the world use it in their daily lives for a variety of purposes: work, education, job search, transactions, and business. Of course, to ensure the message is conveyed to the listener, one must have an ability in English such as speaking, which is a skill in generating words (Tambunsaribu & Galingging, 2021). Speaking is one of the most vital skills in the English language. In the field of work, the ability to speak is needed. People use English to get jobs such as taking the TOEFL, TOEIC, and IELTS exams to further their studies and work in many places. Many industries require employees to be active in communication and interaction (Yasa & Numertayasa, 2023). People must be able to convince others with good oral English (Farhana et al., 2021).

In speaking, the most important thing that people should know is how to pronounce words well. Pronunciation is one of the English skills related to the mastery of phonetics and phonology, which is the way words are pronounced and produced into sound systems (Fitriani et al., 2022). This is important to make the message clear and understandable to the listener. There are two main accents, namely the British and American styles. One can use both styles or either of them in practice. Both have differences in every word, even in pronunciation and articulation (Haryadi, 2020). This makes it difficult for people to pronounce English

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words. For everyday communication such as greetings and others, the American style is usually more useful because people want to immediately create clear interactions without thinking about grammatical usage. Sometimes, sentence structure is often overlooked by the speaker because it hinders the smooth flow of speech itself (Megawati et al., 2021).

To develop effective communicative pronunciation, students need to understand the ways in which sound is produced, including the role of accent and intonation. Teachers play an important role in guiding this process by explaining concepts, providing examples, and providing opportunities to practice and listen. According to (Srakaew, n.d.) Pronunciation is a crucial aspect of language learning because it affects the meaning of speech, and mispronunciation can lead to misunderstandings or communication disorders. Therefore, accurate pronunciation helps ensure clear and effective communication between the speaker and the listener (Tambunsaribu & Galingging, 2021).

Pronunciation includes important elements such as sound production, rhythm, emphasis, and intonation, which form the meaning and tone of speech. Learners often face difficulties due to differences between their native language and English, such as unfamiliar sounds or the transfer of emphasis and intonation patterns from the native language, which can lead to misunderstandings (Untari et al., 2024). Therefore, focused practice and awareness of this are indispensable to improve pronunciation. Mastering pronunciation not only improves communication clarity but also increases learners' confidence and supports more effective social interactions, making it an important part of language learning (Milawaty et al., 2023).

In the current era of modernization, technology is an aspect that can help humans. Maybe now we are familiar with technology. Because technology has become a necessity for humans (Anđić et al., 2024). As it says (Alshehri, 2024), educational technology became a very interesting topic of conversation in the 90s. Because at that time educational technology was used as a solution to overcome problems in education. Before technology existed, people started by sending letters, doing work, and doing things that were still completely manual. According to (Balalle, 2024), with the technology of learning methods, students will have a wider range of knowledge, for example the Google search engine which has thousands of articles and knowledge in it that can be accessed for free.

ELSA Speak is an artificial intelligence (AI)-based English pronunciation app launched by Vu Van in 2015 to help users speak English with confidence (Samad & Ismail, 2020). Using speech recognition technology, the app detects pronunciation errors with high accuracy and provides lessons on words, phrases, and sentences through more than 1,200 lessons and 60+ projects (Akhmad & Munawir, 2022). The app comes with features such as an interactive dictionary, customized study plans, instant pronunciation feedback, and exercises for daily communication and exam preparation (TOEFL, IELTS, TOEIC). Easy to download and use, ELSA Speak helps learners improve pronunciation, reduce the influence of accents, and build confidence (Pham & Pham, 2025). Unlike conventional language learning applications that mainly offer passive listening or repetition exercises, ELSA Speak actively detects pronunciation errors at the phoneme level and delivers personalized feedback tailored to each learner's needs. This feature distinguishes it from other applications, as it allows learners to receive precise, real-time guidance similar to one-on-one instruction. Additionally, its adaptive learning system and interactive exercises enable students to practice independently, making it a more engaging and efficient tool for improving pronunciation skills. Based on the common difficulties students face in learning English, this study aims to investigate the effectiveness of the ELSA Speak app as a mobile learning tool to improve students' pronunciation skills.

This research aims to improve students' pronunciation skills by using the English Pronunciation Assistance Application (ELSA) English Speak. English Pronunciation Assistance (ELSA) App which is one of the important factors in mastering speaking skills. ELSA Speak can help us practice and hone our speaking skills in English by correcting mispronunciation and explaining how to pronounce correctly in English. We can practice

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English skills anytime and anywhere. Practicing regularly with ELSA Speak can help improve our speaking skills in English (Kholis, 2021).

The problem formulation in this study focuses on the extent of the effectiveness of using the ELSA Speak application as a learning medium in improving the pronunciation skills of Vocational High School (SMK) students in speaking English. This study examines whether the use of the ELSA Speak application can provide a significant improvement in aspects of pronunciation such as sound accuracy, word stress placement, intonation, and clarity of student pronunciation. In addition, this study also examines how students' responses and involvement during the learning process using the ELSA Speak application, as well as whether there are differences in students' pronunciation skills before and after using the application. Thus, the formulation of this problem is directed to determine the level of effectiveness of the ELSA Speak application as a technology-based learning medium in supporting the improvement of English-speaking skills of vocational school students.

Although pronunciation has been taught through conventional classroom methods such as teacher explanation, repetition drills, and direct correction, these approaches have not fully addressed the learning needs of the 39 students in class XI MP1. Limited classroom time for individual speaking practice, insufficient opportunities for repeated pronunciation drills in the language laboratory, and delayed feedback from teachers often prevent students from identifying and correcting their pronunciation errors immediately. As a result, students still experience difficulties in sound accuracy, stress placement, and intonation. Therefore, the integration of the ELSA Speak application was considered necessary to provide intensive practice and instant feedback.

METHOD

This study uses a quasi-experimental design with a quantitative approach. Experimental research is a type of research conducted to test hypotheses using samples that received different treatments or interventions. This study aims to investigate the effectiveness of the Elsa Speak application in improving students' pronunciation skills. Based on these objectives, the research hypothesis is formulated as follows: H0: There is no effect of the use of the Elsa Speak application as a learning medium on the improvement of speaking skills among additional grade students at SMK Muhammadiyah 1 Taman.

Respondents

The population of this study consisted of students in grade XI MP1 English at SMK Muhammadiyah 1 Taman, which is located in Taman District, Sidoarjo Regency. Using purposive sampling, the researcher selected one class as the experimental group to meet the quasi-experimental design requirements, ensure the feasibility of the treatment implementation, and strengthen the validity of the findings. The experimental group received treatment through the integration of the ELSA Speak application as a learning medium. Data was collected through pre-test and post-test oral assessments. The topic of the test centers on "school," where students answer a series of guiding questions.

Instruments

The instrument used in this study was a pronunciation ability test which was carried out in the form of an oral test. This test is given in two stages, namely pre-test and post-test to find out the initial and final abilities of students after being treated using the ELSA Speak application. In the test, students are asked to answer several guiding questions with school topics as well as say some words, phrases, and sentences in English. The assessment of student pronunciation is carried out based on several aspects, namely sound accuracy, word emphasis, intonation, and pronunciation clarity. The assessment results are then classified into several categories, namely excellent, good, and sufficient to describe the level of students' pronunciation ability. The same instrument is used in the pre-test and post-test so that the results obtained can be compared consistently.

Their performance assessment is conducted based on five components: pronunciation, grammar, vocabulary, fluency, and comprehension. This treatment emphasizes the use of

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ELSA Speak to improve pronunciation, grammar, vocabulary, and fluency. Data analysis was conducted using IBM SPSS Statistics 22, using descriptive statistics to summarize results and t-test paired samples to compare pre-test and post-test scores in the experimental group.

Table 1 Scoring Criteria and Ability Classification

No.	Score	The Ability Scale	Classification
1	81-100	4	Excellent
2	61-80	3	Good
3	41-60	2	Average
4	< 40	1	Poor

Procedures

This intervention was conducted over four weeks, consisting of four sessions, with one session held each week. Each session lasted 60 minutes and was conducted in person in a classroom. The research procedure is carried out through several stages. The first stage is to give a pre-test to students to find out the initial pronunciation ability before being given treatment. At this stage, students are asked to take an oral test by answering several questions involving words, phrases, and short sentences related to the topic under discussion. After the pre-test was carried out, the researcher provided treatment in the form of using the ELSA Speak application as a pronunciation learning medium. During the learning process, students practice pronouncing English words and sentences using the app that provides direct feedback on pronunciation errors. This treatment is done during several meetings so that students have the opportunity to practice and improve their pronunciation skills. After the treatment process is completed, the researcher provides a post-test with the same format as the pre-test to determine the improvement of students' pronunciation skills after using the ELSA Speak application. The results of both tests were then collected for further analysis.

Data Analysis

The data analysis in this study was carried out using the help of SPSS (Statistical Package for the Social Sciences) software. The data analyzed are the results of pre-test and post-test scores of students' pronunciation ability. The first stage of the analysis was to conduct a normality test using Kolmogorov–Smirnov and Shapiro–Wilk to find out if the research data were normally distributed. After the data is declared to be normally distributed, a correlation test is then carried out to find out the relationship between students' pre-test and post-test scores. The last stage is to conduct a paired sample t-test to find out if there is a significant difference between the pre-test and post-test scores after being treated using the ELSA Speak application. The decision-making in this study was based on a significance value of 0.05 ($p < 0.05$). If the significance value is less than 0.05, then it can be concluded that the use of the ELSA Speak application has a significant influence on improving students' pronunciation skills.

FINDINGS AND DISCUSSION

The following is the data of research respondents consisting of 39 students of class XI MP 1 at SMK Muhammadiyah 1 Taman. Respondent data is presented in the form of student initials to maintain the confidentiality of the identity of the research participants. The following table shows the results of the pre-test and post-test of students' pronunciation ability which is assessed based on several aspects of word pronunciation.

Table 2 Respondent Data and Pre-Test Results

No.	**Initials Name**	**Value**	**Categories**
1	AHK	79	Good
2	ACS	71	Enough
3	ADA	57	Enough
4	CHAPTER	66	Good
5	APM	90	Excellent
6	AP	82	Excellent
7	BEA	88	Excellent
8	CZR	60	Enough

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9	CWV	77	Good
10	CFY	62	Good
11	CSZCW	81	Excellent
12	CA	70	Good
13	DAF	52	Enough
14	DTN	83	Excellent
15	DA	77	Good
16	DPP	94	Excellent
17	FS	75	Good
18	FKN	55	Enough
19	FMCA	87	Excellent
20	HZ	92	Excellent
21	IBY	55	Enough
22	JCN	70	Good
23	KNC	77	Good
24	KEF	63	Good
25	NJP	63	Enough
26	NAS	72	Enough
27	NNR	76	Good
28	NV	77	Good
29	NK	84	Excellent
30	US	88	Excellent
31	PAF	85	Excellent
32	RHN	93	Excellent
33	RPA	64	Good
34	SYNS	80	Good
35	SPR	85	Excellent
36	SAM	68	Good
37	SAR	58	Enough
38	SR	71	Good
39	SPA	61	Enough

Table 3 Respondent Data and Post-Test Result

No.	Initials Name	Value	Categories
1	AHK	84	Excellent
2	ACS	74	Good
3	ADA	75	Good
4	CHAPTER	82	Excellent
5	APM	80	Good
6	AP	76	Good
7	BEA	82	Excellent
8	CZR	80	Good
9	CWV	82	Excellent
10	CFY	85	Excellent
11	CSZCW	83	Excellent
12	CA	80	Good
13	DAF	66	Good
14	DTN	76	Good
15	DA	89	Excellent
16	DPP	84	Excellent
17	FS	80	Excellent
18	FKN	77	Good
19	FMCA	81	Good
20	HZ	86	Excellent
21	IBY	90	Excellent
22	JCN	92	Excellent
23	KNC	70	Good
24	KEF	75	Good
25	NJP	84	Excellent
26	NAS	81	Good
27	NNR	84	Excellent
28	NV	83	Excellent

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29	NK	83	Excellent
30	US	86	Excellent
31	PAF	90	Excellent
32	RHN	94	Excellent
33	RPA	81	Good
34	SYNS	82	Excellent
35	SPR	63	Good
36	SAM	85	Excellent
37	SAR	73	Good
38	SR	79	Good
39	SPA	83	Excellent

Based on the table of pre-test and post-test results of respondents, it can be seen that there is a change in the value of students' pronunciation ability after being given treatment using the ELSA Speak application. In the pre-test results, some students are still in the category of sufficient and good, which shows that students' pronunciation skills before using the application are still not optimal. This can be seen from some students who obtained scores in the range of sufficient categories, so they still need further practice and guidance in English pronunciation.

After being given treatment in the form of exercises using the ELSA Speak application, the post-test results showed an improvement in students' pronunciation skills. Most students experience an increase in grades and are in the good to very good category. This shows that the use of the ELSA Speak application makes a positive contribution to improving students' pronunciation skills, especially in the aspects of sound accuracy, word pressure, and pronunciation clarity.

In general, the comparison of pre-test and post-test results shows an increase in students' average scores after participating in learning using the ELSA Speak application. These findings indicate that the use of technology-based learning media can help students train and improve pronunciation skills more effectively. To ascertain whether the increase was statistically significant, the data analysis was further carried out using statistical tests with the help of the SPSS application.

This study aims to evaluate the effectiveness of the ELSA Speak application in improving the pronunciation skills of vocational high school students (SMK) Muhammadiyah 1 Taman. To ensure the validity of the findings, three statistical tests were performed: normality test, correlation test, and paired sample t-test. Each test plays an important role in answering the hypothesis and research objectives.

Normality test

The normality test is carried out as a first step to ensure that the pre-test and post-test data follow the normal distribution before further statistical analysis. The Shapiro-Wilk test was used because of the sample size of 39 students, which was below the threshold of 50 respondents.

Table 4 Normality Test Results Using Kolmogorov–Smirnov and Shapiro–Wilk

Data	Kolmogorov–Smirnov Statistic	df	Sig.	Shapiro–Wilk Statistic	df	Sig.
Pre-test	0.092	39	0.200	0.973	39	0.173
Post-test	0.088	39	0.200	0.981	39	0.241

The pre-test p-value is determined to be 0.173, while the post-test p-value is recorded as 0.241, as shown below. Both values exceeded the significance threshold of 0.05, suggesting that the data followed a normal distribution. As a result, the data met the requirements to perform parametric statistical analysis, specifically the paired sample t-test, to compare the average pre-test and post-test scores.

The normality test is carried out to find out whether the research data is normally distributed or not before further statistical analysis is carried out. According to Sugiyono, the normality test aims to find out whether the data obtained in the study follows the normal distribution, so that it can determine the right type of statistical analysis to use. In this study,

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normality tests were performed using Kolmogorov–Smirnov and Shapiro–Wilk. Based on the table of normality test results, the significance value in the pre-test using Kolmogorov–Smirnov was 0.200, while in Shapiro-Wilk it was 0.173. Meanwhile, in the post-test, a significance value of 0.200 was obtained for Kolmogorov–Smirnov and 0.241 for Shapiro–Wilk.

According to Imam Ghozali, the data can be said to be normally distributed if the significance value in the normality test is greater than 0.05 ($p > 0.05$). Based on these criteria, all significance values in the pre-test and post-test are greater than 0.05, so it can be concluded that the research data is normally distributed. In addition, the use of the Shapiro–Wilk test was considered more appropriate for relatively small sample counts (less than 50 respondents) because it had a better level of testing power in detecting the normality of the data (Andy Field). In this study, the number of samples was 39 students, so the use of the Shapiro–Wilk test was very appropriate.

With the fulfillment of these normality assumptions, the data analysis can then use a parametric statistical test, namely a paired sample t-test, to find out if there is a significant difference between the pre-test and post-test values after the use of the ELSA Speak application. These results show that the research data does not experience significant deviations from the normal distribution, so that the statistical analysis carried out can provide valid and reliable results in explaining the effect of the use of the ELSA Speak application on students' pronunciation ability.

Correlation Test

To further support the validity of the findings, a correlation test was conducted to analyze the relationship between pre-test and post-test scores. The correlation coefficient of 0.742 shows a fairly strong relationship between the two variables. This suggests that students with higher initial pre-test scores tend to show a significant improvement in post-test scores.

Table 5 Paired Sample t-Test Results of Pre-test and Post-test Scores

Test	Red	N	Std. Deviation	P Value
Pretest	73.08	39	11.42	0.001
Posttest	81.56	39	8.97	

Based on the table of correlation test results, the significance value (P Value) was obtained at 0.001. Because the significance value is less than 0.05 ($p < 0.05$), it can be concluded that there is a significant relationship between students' pre-test and post-test scores.

The pre-test mean of 73.08 increased to 81.56 in the post-test. This shows an increase in students' pronunciation skills after being given treatment. In addition, the standard deviation of the pre-test of 11.42 was greater than the post-test of 8.97, which indicates that the variation in students' scores in the post-test was smaller or more even than that of the pre-test.

T Test

The *Paired Sample t-Test* is used to find out if there is a significant difference between the student's pre-test and post-test scores after being given treatment. This test was performed because the data came from the same group that was measured before and after treatment.

Table 6 Paired Samples Statistics

Pair 1	Red	N	Std. Deviation	Std. Error Mean
Pretest	73.08	39	11.42	1.83
Posttest	81.56	39	8.97	1.44

Table 7 Paired Samples Correlation

Pair 1	N	Correlation	Sig.
Pretest & Posttest	39	0.742	0.000

Table 8 *Paired Sample Test*

Pair 1	Paired Differences Mean	Std. Deviation	Std. Error Mean	95% CI Lower	95% CI Upper	t	df	Sig. (2-tailed)
Pretest – Posttest	-8.48	5.44	0.87	-10.24	-6.72	-9.72	38	0.000

Based on the 6 Paired Samples Statistics table, the mean pre-test score of 73.08 increased to 81.56 in the post-test. This shows an increase in students' pronunciation skills after being

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given treatment. The standard deviation in the pre-test (11.42) was greater than in the post-test (8.97), which indicates that the variation in students' scores after treatment became smaller or more even. The lower *standard error mean* value in the post-test (1.44) also indicates that the average estimate of the post-test is more stable than the pre-test.

In the 7 Paired Samples Correlations table, the value of the Pearson correlation coefficient was 0.742 with a significance value of 0.000 ($p < 0.05$). This shows that there is a strong and significant relationship between pre-test and post-test scores. This strong correlation indicates that students who have better initial abilities tend to still have better outcomes after treatment, and that improvement in ability occurs consistently in most students.

Furthermore, the table 8 Paired Samples Test shows a *mean difference* value of -8.48, which means that the post-test score is higher than the pre-test. The t-value of -9.72 with a degree of freedom (*df*) = 38 and a significance value of 0.000 ($p < 0.05$) indicates that there is a statistically significant difference between the pre-test and post-test values. In addition, the 95% confidence interval is in the range of -10.24 to -6.72, which does not go past zero, so the difference that occurs can be ascertained to be significant.

Overall, the results of statistical analysis showed that there was a significant improvement in students' pronunciation skills after the use of the ELSA Speak application. The increase in average scores, strong correlation, and significant t-test results showed that the treatment was effective in improving students' pronunciation skills.

The effectiveness of the ELSA Speak application can be attributed to several pedagogical and technological factors. First, the instant feedback provided by the AI-powered speech recognition system allows students to immediately identify and correct their pronunciation errors. This aligns with learning theories emphasizing the importance of timely feedback in skill acquisition, as students do not need to wait for teacher correction. Second, the application promotes autonomous learning, enabling students to practice repeatedly at their own pace, which increases exposure to correct pronunciation patterns. Third, the gamified elements of the application, such as scoring systems, progress tracking, and interactive exercises, appear to enhance student motivation and engagement. These features make the learning process more enjoyable and reduce anxiety ხშირად associated with speaking practice. As a result, students are more willing to practice consistently, which contributes to the observed improvement in their pronunciation skills. Therefore, the success of ELSA Speak is not only due to its technological sophistication but also its ability to support learner-centered and motivating learning experiences.

CONCLUSIONS

This study aims to determine the effectiveness of the use of the ELSA Speak application in improving students' pronunciation skills at SMK Muhammadiyah 1 Taman. However, this study has several limitations that need to be acknowledged. First, the sample size was relatively small, involving only 39 students from one class (XI MP1) at SMK Muhammadiyah 1 Taman, which may limit the generalizability of the findings to other students or schools. Based on the results of data analysis that has been carried out through normality tests, correlation tests, and paired sample t-tests, it can be concluded that the use of the ELSA Speak application has a significant influence on improving students' pronunciation skills. This is evidenced by the increase in students' average score from 73.08 to 81.56 in the post-test, as well as a significance value of 0.000 ($p < 0.05$) which shows a significant difference between students' abilities before and after using the application. In addition, the results of the study also show that the ELSA Speak application is able to help students improve pronunciation through real-time feedback, so that students can identify pronunciation errors and correct them independently. The use of this app-based technology also increases learning flexibility as students can practice anytime and anywhere. Thus, ELSA Speak can be used as an effective learning medium in supporting the improvement of students' pronunciation skills and English-speaking skills. Therefore, it is recommended that teachers integrate the ELSA Speak

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application as a short, structured activity such as a 15-minute daily pronunciation drill rather than using it as a replacement for classroom interaction, so that technology complements, rather than substitutes, communicative language teaching. However, this study has limitations in terms of sample size, as it only involved 39 students from a single class as the experimental group, and the duration of the treatment was relatively short, lasting only four weeks with four sessions. Therefore, further research is recommended to involve a larger sample and include a comparison with a control group, so that the results can provide a more comprehensive understanding of the effectiveness of using the ELSA Speak application in English language learning.

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