AI IN LANGUAGE EDUCATION: SYSTEMATIC REVIEW OF ELSA SPEAK'S IMPACT ON ENGLISH

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The use of technology in teaching and learning English significantly helps students in the learning process. Media such as the ELSA Speak app are among the information and communication technology (ICT) resources used to improve language skills, this review focuses on previous studies on the use of ELSA Speak to develop EFL/ESL learners' pronunciation skills. This systematic review investigates the effectiveness of ELSA Speak in improving pronunciation skills among English language learners. This study follows the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to obtain results. The findings reveal that ELSA Speak, with its interactive features, significantly improves learners' pronunciation skills. The practical implication of this study is that EFL/ESL teachers are encouraged to integrate ELSA Speak into their teaching practices to support the student pronunciation learning process.

Keywords: Artificial Intelligence; EFL; ELSA Speak; ESL; Pronunciation Skills

1. INTRODUCTION

The correct pronunciation of English words cannot be underestimated. Correct pronunciation plays a fairly important role in oral language skills, namely listening and speaking. Incorrect pronunciation will cause communication to be ineffective because it can lead to misunderstandings. Good and correct pronunciation is pronunciation that involves mastering English phonology in order to produce precise and accurate sounds in every word, phrase, sentence, and conversation. Because the pronunciation of one word itself can be different if the word is in the sentence and its pronunciation is influenced by other words in the sentence (Rinaepi et al., 2022). In the era of globalization, this skill is very important because the need to communicate across cultures is increasing and can affect a person's identity and their togetherness in society (Chun, 2019). Correct pronunciation can directly affect fluency in English by improving the understanding of speakers and listeners (Rizakhodjayeva & Abdulamit, 2021). Teaching pronunciation is very important for all language learners because it makes them understand the sound system, stress, intonation, and rhythm patterns, which are not found in learning grammar and vocabulary. Because understanding grammar well and a lot of vocabulary will be useless if the pronunciation is wrong and changes the meaning of a word (Сокирська, 2023).

However, the challenges in teaching pronunciation need to be considered. Using correct intonation, appropriate emphasis, English consonants, and other phonetic skills is a difficulty that many students experience (Nguyen, 2023). Moreover, lack of learning resources, lack of interest in learning English, and the influence of the mother tongue exacerbate difficulties in teaching pronunciation (Astina et al., 2020). In particular, in middle school students, the influence of the first language and lack of practice are their main challenges (Praistiana & Budiharto, 2020). The lack of practice is due to the limited time of teaching in the classroom. Hence the need for innovative teaching tools that can provide accurate feedback and learning experiences tailored to specific individual needs and characteristics.

In recent years, artificial intelligence (henceforth, AI) technology has proven to have many benefits for improving English language education. AI has been used in many aspects of teaching in English including translation, writing, listening, and oral instruction, which helps in the modernization of English education (Yang, 2020). Educators, including educators in

primary, secondary, higher education, and non-formal education, have shown a positive view of AI technology in teaching and learning ESL, despite challenges in its implementation (Santosa et al., 2023; Zulkarnain & Yunus, 2023). The existence of tools for smart English education has changed the development of teaching methodologies, made teaching more efficient, effective, and quality, and improved students' overall English language skills (Enzelina et al., 2023; Yu, 2021). More specifically, AI technology plays a very important role in providing a more individualized learning experience tailored to different individual characters which makes learning more effective (Ju & Qu, 2021). AI technology is now widely used in applications, for example, applications that use AI to analyze student performance directly and in real life, provide personal feedback to correct mistakes, and improve learning efficiency with traditional methods (Juniantini et al., 2024)

The English Language Speech Assistant (henceforth, ELSA Speak) application is one of the AI applications that has gained popularity recently. ELSA is an English pronunciation teaching app that was created to help users speak confidently and clearly. ELSA Speak uses AI speech recognition technology that has been proven to excel in providing immediate feedback after the user speaks that is tailored to the user's individual pronunciation ability (Aswaty & Indari, 2022). More than 10 million people have used ELSA Speak to improve their English pronunciation, taking advantage of its advanced features and user-friendly interface. ELSA Speak provides several features that can train oral articulation to match speech patterns and sound like native speakers (Aryanti & Santosa, 2024). One of the ways ELSA Speak does is that, for example, if a user makes a mistake in pronunciation, the app will ask the user to repeat the wrong pronunciation of the word by providing the option to re-record it in order to achieve a higher score (Ridhon & Daulay, 2023). This is one of the attractions of this application, this application can adjust to the user's speech pattern so that the feedback provided is appropriate and makes it an effective choice for EFL/ESL learners (Dhivya et al., 2023).

Previous research and user feedback highlight the benefits of ELSA Speak in English language learning. Not only limited to one aspect ELSA Speak can also improve other language skills, namely, improving listening skills, speaking, reading, and writing skills in English (Dhivya et al., 2023). ELSA Speak can also improve the articulation of English vocabulary. This means that ELSA Speak assists users in pronouncing English words more clearly and precisely which will contribute to oral communication skills (Ridhon & Daulay, 2023). ELSA Speak has also been proven to improve pronunciation skills because ELSA Speak has a feature that allows learners to get accurate feedback regarding their pronunciation, so learners know which areas they need to improve (Manurung et al., 2024). This has been researched and proven at the secondary school to university levels for English as a foreign language and a second language (Samad & Ismail, 2020; Rinaepi et al., 2022). These findings highlight the significant role ELSA Speak plays in improving English language proficiency among EFL/ESL learners, particularly pronunciation.

Although many studies on ELSA Speak applications have been conducted, there is still a gap in the systematic literature review regarding what are the benefits for EFL/ESL learners' pronunciation skills and how the perception and level of user satisfaction among EFL/ESL learners who use ELSA Speak applications. This paper aims to fill this gap by conducting a systematic literature review of previous research published from 2020 to 2024 on the application of ELSA Speak applications for EFL/ESL learners. The main goal is to find out how ELSA Speak apps can improve pronunciation skills and find out the perception and satisfaction level of users among EFL/ESL learners. From the objectives of this study, the research questions of this research are:

1. What are the benefits of using the ELSA Speak applications on EFL/ESL learners' pronunciation skills?
2. What is the perception and level of user satisfaction among EFL/ESL learners who use ELSA Speak applications?

2. RESEARCH METHOD

In examining the benefits and perceptions as well as the level of satisfaction in using

the ELSA application in the context of teaching English as a foreign and second language, the research reviewed was a study published in the range of 2020 to 2024. The design of this study uses a systematic literature review that applies the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). The PRISMA framework is applied to clarify the structure and visualize the process of identification and selection of results in this article. This PRISMA model is used to determine eligibility criteria, data collection protocols, data details, study information sources, and overall findings.

All research articles analyzed in this systematic literature review (SLR) were obtained from an electronic database platform, namely Google Scholar, the search for articles on Google Scholar used a specific keyword, namely, "benefits of ELSA Speak applications for EFL/ESL learners." The timeframe chosen for this SLR is the 2020 and 2024 ranges. The review process involves three main steps: first conducting a database search by keyword, then applying inclusion and exclusion criteria, then selecting appropriate articles. From this search process, 200 articles were found in the database. Inclusion and exclusion criteria are then applied to determine articles that fit this study.

Table 1. Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
The use of ELSA Speak Application in teaching EFL/ESL.	Does not involve the use of ELSA Speak in teaching EFL/ESL.
Must focus on the implementations of ELSA for learners of EFL/ESL	Discusses the implementations of ELSA Speak for learners of languages other than EFL/ESL.
Must be empirical research	Not empirical research.
Published with the period from 2020 to 2024	Not published with the period from 2020 to 2024.
The context must be EFL, ESL, and English language teacher	Not set in the context of EFL and ESL or English language teacher.

Data screening uses an inclusion and exclusion criteria system. The inclusion criteria are used to determine articles that are in accordance with the scope of this SLR article, while the exclusion criteria are used to filter out articles that are less in accordance with the scope of this research. After the selection process from the database using inclusion and exclusion criteria, 13 articles were found to be suitable for the research topic and used in this study. *Figure* 1, depicts a visual representation of the search and selection process.

Of the thirteen articles that met the inclusion criteria, the majority discussed the use of the ELSA Speak application in an effort to develop pronunciation skills for EFL/ESL learners. The findings from these articles show how ELSA Speak can help users improve their English pronunciation skills, providing direct feedback and accurate suggestions for improvement. Most of this research was conducted in Indonesia, which means that the country has a great interest and attention in this application. The research article used covers various levels of education, especially at the high school and college levels. Of the thirteen studies, ELSA Speak was used in several countries in Asia. Most studies come from Indonesia and there are also from other countries such as India.
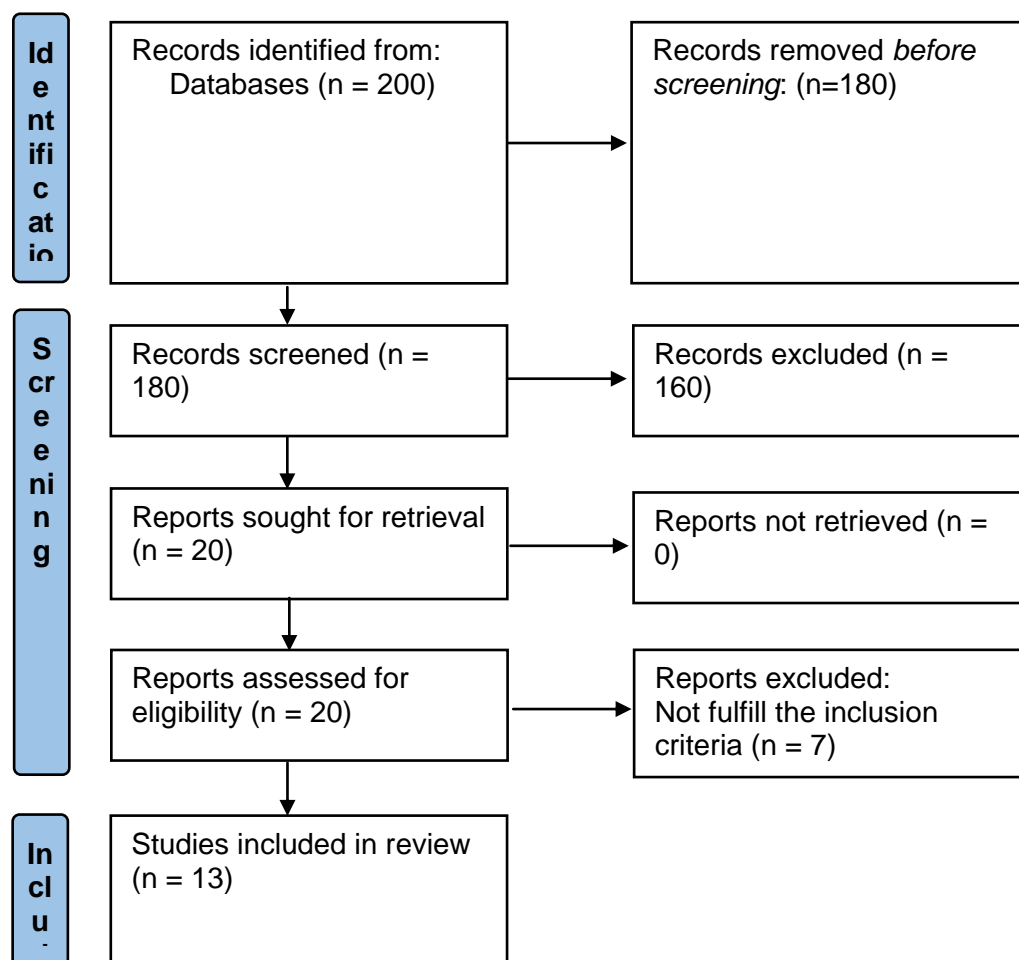
Figure 1. Visual representation of the search and selection process based on (Page et al., 2021)

3. FINDINGS AND DISCUSSION

After selecting articles according to the selection criteria through systematic review, thirteen suitable articles were found. Table 2 provides an overview of the selected studies regarding the use of ELSA Speak applications to develop EFL/ESL learners' pronunciation skills. From thirteen articles published from the 2020 to 2024 range, it was found that the use of the ELSA Speak application can significantly improve the pronunciation skills of EFL/ESL learners. Based on the final results of the thirteen articles reviewed, most examined the use of ELSA Speak to develop EFL learners' pronunciation skills, especially in the context of secondary and college education.

In Indonesia, the use of ELSA Speak as a learning medium has been often used and can be seen from the many studies about ELSA Speak in the country. Previous studies have mostly focused on improving oral pronunciation and communication skills using ELSA applications. However, there are also studies that have found that ELSA Speak can contribute to other language skills such as listening, speaking, reading, and writing skills. The majority of research on the use of the ELSA Speak application by EFL learners was conducted in Indonesia and a small amount of research from India and other countries. Every year, from 2020 to 2024, there is new research on the use of ELSA Speak as a medium or tool for teaching, assessment, and English skill development. Table 2 shows that most of the results of using ELSA Speak are to develop EFL learners' pronunciation skills. Most of the previous studies used quantitative research designs, and some used mixed research designs, action research, and qualitative research. From the results of the review, ELSA Speak research to develop EFL learners' pronunciation skills was mostly conducted at the high school level in Indonesia and some at universities. Several studies were also conducted

in other countries to develop EFL/ESL students' pronunciation skills, but they did not meet the inclusion criteria of this study.

Table 2. The Selected Article

No.	Authors and Year	Findings	Methods	Limitation
1.	Arbain et al. (2023)	ELSA Speak significantly enhances the English pronunciation skills of students in Indonesia	Quantitative	Conducted in a single educational institution with a short duration, focusing solely on English pronunciation skills, not considering individual student characteristics, and not exploring student perceptions and experiences.
2.	Ridhon and Daulay (2023)	ELSA Speak app can improve the articulation of English Vocabulary	Qualitative	Not exploring obstacles beyond internet-related issues.
3.	Dhivya et al. (2023)	ELSA Speak can help improve listening skills followed by speaking, reading, and writing.	Quantitative	Limited to Business English communication and did not cover other fields in English such as ESP, EAP, and technical English writing.
4.	Manurung et al. (2024)	ELSA Speak can identify the ability of students' pronunciation	Qualitative	Small sample size, self-reported data, and lack of generalization beyond the specific student population.
5.	Samad and Ismail (2020)	ELSA Speak app is effective in enhancing the pronunciation ability of 1st semester students in Indonesia	Quantitative	Not mentioned
6.	Senowarsito et al. (2024)	The dictionary speech assistant of ELSA Speak is beneficial for students in learning pronunciation	Mixed-method	The study focused on junior high students only and did not explore the long-term effects of using the RLR method in improving pronunciation skills.
7.	Rinaepi et al. (2022)	ELSA Speak can improve students' pronunciation ability of 11-grade students at SMK	Quantitative	Conducted in a specific school, limiting generalizability, small sample size, focus on a specific age group, and lack of follow-up assessments.
8.	Aswaty and Indari (2022)	There was a significant effect of using ELSA Speak App on student's speaking ability	Quantitative	Limited topics due to paid content and dependency on an internet connection.
9.	Anggraini (2022)	ELSA Speak App was beneficial for improving	Action Research	Not mentioned

No.	Authors and Year	Findings	Methods	Limitation
		students' pronunciation ability		
10.	Rismawati et al. (2022)	Not only ELSA Speak app effective for teaching pronunciation but also effective in maintaining students' attitudes toward learning English pronunciation.	Quantitative	The time spent on the treatment was limited to just one meeting.
11.	Tampubolon et al. (2023)	ELSA Speak App can be used as a tool to measure students' pronunciation ability.	Qualitative	The study only focused on second-year students in Indonesia and the study did not compare the effectiveness of ELSA Speak with other pronunciation improvement tools.
12.	Febri (2023)	There is a significant effect of using the ELSA Speak App to improve students' pronunciation.	Quantitative	The study was conducted in a specific school and grade, limiting generalizability.
13.	Sari and Setyowati (2023)	ELSA Speak Application significantly improves students' speaking abilities.	Action Research	The study only focused on one specific class and small sample size.

In this study, thirteen articles were reviewed related to the use of the ELSA Speak application on EFL/ESL learner's pronunciation skills. From these articles, it was found that the use of ELSA Speak significantly improved the pronunciation skills of EFL/ESL learners. With a systematic literature review design, several articles from the 2020-2024 range were used regarding the use of ELSA Speak in English learning for EFL/ESL learners.

The benefits of using the ELSA app on pronunciation skills for EFL/ESL learners
ELSA Speak applications have been shown to significantly develop pronunciation skills among EFL/ESL learners. Various studies have shown its effectiveness in various educational contexts, for example, research conducted in one of the vocational schools in Indonesia showed a significant improvement in students' English pronunciation skills. Likewise, studies conducted at other institutions have proven that ELSA Speak is effective in enhancing student's pronunciation skills for second-year high school students and first-year college students. ELSA Speak is said to improve voice articulation when prociting English words which can improve students' pronunciation skills. ELSA Speak also helps improve listening skills, followed by speaking, reading, and writing which show complete benefits for language learners. Specific improvements include better articulation of English vocabulary and the ability to identify pronunciation skills, which helps target areas that need improvement. In addition, the Dictionary speech assistant feature from ELSA Speak has proven to be very beneficial for teaching pronunciation skills and maintaining a positive learning attitude among students.

The perception and level of user satisfaction of ELSA Speak
Although the benefits of using the ELSA Speak app to improve pronunciation abilities have been proven, there is a significant research gap regarding user perception and

satisfaction levels. Few studies have highlighted students' perceptions and experiences in depth, such as a study conducted on vocational schools in Indonesia that said there needs to be a better understanding of user satisfaction and attitudes towards ELSA Speak. In addition, research from Ridhon and Daulay (2023) states that barriers beyond internet-related problems are not explored, showing a gap in understanding the broader challenges and user satisfaction levels. Some studies also focus on specific institutions, age groups, or sample sizes, which limits the generalization of their findings regarding user satisfaction. Therefore, while the ELSA Speak app has proven to be beneficial for pronunciation improvement, future research should aim to fill this gap by digging deeper into learners' experiences, challenges, and overall satisfaction with the app to provide a more comprehensive understanding of its impact on language learning.

The benefits and limitations

The findings of various studies show that the ELSA Speak application can significantly improve student's pronunciation skills at various levels of education. For example, a study conducted by Arbain et al. (2023) found that the ELSA Speak application significantly improved pronunciation proficiency in vocational high school students in Indonesia. These findings indicate that technology such as ELSA Speak can be an effective tool in leading education, which often requires a more practical and applicative approach. In the context of higher education, Samad and Ismail (2020) said that the ELSA Speak application can improve student's pronunciation skills in the first year of university in Indonesia. This proves that ELSA Speak can identify students' diverse pronunciation skills, which can be used for accurate evaluation tools related to English pronunciation skills and also help students improve their pronunciation skills because ELSA Speak can also provide direct and specific feedback on student development (Manurung et al., 2024). Senowarsito et al. (2024) added that the Dictionary speech assistant feature of ELSA Speak is beneficial in student pronunciation learning which helps students improve their pronunciation skills personally.

In addition, Ridhon and Daulay (2023) reported that the ELSA Speak application can improve voice articulation when practicing English vocabulary. This is especially important because clear and accurate pronunciation is the key to effective oral communication, the ability to articulate vocabulary appropriately not only improves listener comprehension but also increases the speaker's confidence in various situations involving oral communication (Сокирська, 2023; Rizakhodjayeva & Abdulamit, 2021). Not only significant in improving pronunciation skills, ELSA Speak is also proven to improve other language skills such as listening, speaking, reading, and writing (Dhivya et al., 2023).

However, these studies also highlight some limitations that need to be addressed. Arbain et al. (2023) informed that their research was conducted in one educational institution with a short duration, focusing only on English pronunciation skills and not considering the individual characteristics of students or their perceptions and experiences. These limitations point to the need for broader and more in-depth research that considers the various factors that affect learning. Manurung et al. (2024) also said that there is a limitation on the number of samplings used in their research, which limits the generalization of findings beyond a specific student population. Rinaepi et al. (2022) and Febri (2023) also said the same thing, namely that their findings may not be generalized because they were carried out in certain schools and with a small sample. Tampubolon et al. (2023) also only focused on a small sample, namely only in the second year of high school in Indonesia. Dhivya et al. (2023) also stated that the research they conducted was limited to business English only and did not cover other areas such as ESP and EAP. Other limitations in the use of ELSA Speak are internet connectivity and access to paid content, as found by Aswaty and Indari (2022), as well as the short duration of the study (Senowarsito et al., 2024). This shows that there are practical obstacles that can reduce the effectiveness of using the ELSA Speak application in different contexts.

The practical implications of these findings are that the ELSA Speak app can be an additional tool or medium for effective learning in language teaching, especially for pronunciation skills. However, to maximize its benefits, it is important to overcome the

challenges that hinder the implementation of this application. The use of ELSA Speak as a medium or learning tool must be supported by an appropriate pedagogical approach that can combine various methods with resources. Theoretically, the findings of this study support the theory of language learning that emphasizes the importance of repetitive practice and direct and personalized feedback. ELSA Speak with its features that can provide direct and personalized feedback is in line with this theory.

4. CONCLUSION AND SUGGESTIONS

The ELSA Speak app is beneficial in helping EFL/ESL learners improve their pronunciation skills more effectively. The use of ELSA Speak to develop pronunciation skills in EFL/ESL learners has shown a positive effect, the results of this systematic literature review reveal the influence of the use of ELSA Speak on English learner's pronunciation skills, especially in EFL/ESL. Previous studies reviewed in this study have consistently shown that ELSA Speak provides an efficient way for EFL/ESL learners to improve their pronunciation skills through interactive features. These features include real-time feedback, pronunciation assessments, and personalized lesson plans, which provide opportunities for learners to practice and improve their pronunciation. This article is not exhaustive but serves as a valuable resource for understanding the benefits and limitations of using ELSA Speak to improve pronunciation in EFL/ESL contexts. Suggestions for future research include the exploration of the other aspects of English language learning beyond pronunciation skills, investigations of the effectiveness of ELSA Speak at different levels of education and among different populations of learners, and conducting a longitudinal study to assess the long-term impact of ELSA Speak use on language skills development.

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