



**TECHNICAL UNIVERSITY OF COTOPAXI**  
**PUJILÍ CAMPUS**  
**UNDERGRADUATE PROGRAM**  
**PEDAGOGY OF NATIONAL AND FOREIGN LANGUAGES ENGLISH MAJOR**  
**RESEARCH REPORT**

**“ELSA SPEAK APP IN PRONUNCIATION PRACTICE”**

Research report before obtaining the bachelor degree in National and Foreign  
Language Pedagogy, English Major

**Authors:**

Cajas Chipantiza Gabriela Estefanía  
López Salao Pamela Alejandra

**Tutor:**

Cando Guanoluisa Fabiola Soledad, M.Sc.

**PUJILÍ-ECUADOR**  
**AUGUST – 2024**

## DECLARATION OF AUTHORSHIP

Cajas Chipantiza Gabriela Estefanía, with citizenship card No. 1755187976, López Salao Pamela Alejandra, with citizenship card No. 0603929134, declare to be authors of the present RESEARCH PROJECT: “**ELSA SPEAK APP IN PRONUNCIATION PRACTICE**”, being Cando Guanoluisa Fabiola Soledad, M.Sc, Tutor of the present work; and, I expressly exempt the Technical University of Cotopaxi and its legal representatives from possible claims or legal actions.

Furthermore, I certify that the ideas, concepts, procedures and results expressed in this research work are my sole responsibility.

Pujilí, August 21, 2024.



Gabriela Estefanía Cajas Chipantiza  
ID: 1755187976



Pamela Alejandra López Salao  
ID: 0603929134

## ENDORSEMENT OF THE TUTOR OF THE RESEARCH PROJECT

As Tutor of the Research Project on the title:

“ELSA SPEAK APP IN PRONUNCIATION PRACTICE”, by Cajas Chipantiza Gabriela Estefanía; López Salao Pamela Alejandra, from the career of Pedagogy of National and Foreign Languages, I consider that said Research Report is worthy of the endorsement of approval by complying with the technical standards, translation and formats provided, as well as it has also incorporated the observations and recommendations proposed in the pre-defense.

Pujilí, August 21, 2024.



Cando Guanoluisa Fabiola Soledad, M.Sc

ID: 0502884604

**TUTOR**


## ENDORSEMENT OF APPROVAL OF THE DEGREE TRIBUNAL

As the Readers' Tribunal, approve the present Research Project according to the regulations issued by the Technical University of Cotopaxi, and by the Pujilí Campus; because, the applicants: Cajas Chipantiza Gabriela Estefanía; López Salao Pamela Alejandra, with the title of the Research Project: **“ELSA SPEAK APP IN PRONUNCIATION PRACTICE”**, has considered the recommendations issued timely and meets the sufficient merits to be submitted to the act of substantiation of the degree work.

For the above mentioned, it is authorized to save the corresponding files in a CD, according to the institutional regulations.

Pujilí, August 21, 2024.

For the record sign:

  
PhD. Toyar Viera Vicente Rodrigo  
ID: 0502414089  
**LECTOR 1 (PRESIDENT)**

  
M.Sc. Andrade Morán José Ignacio  
ID: 0503101040  
**LECTOR 2 (MEMBER)**

  
PhD. Arias Arroyo Paulina Alexandra  
C.C: 0502212095  
**LECTOR 3 (MEMBER)**

## **GRATEFULNESS**

*"The reason my back aches is so that my wings can emerge. I believe in you, and even if my beginnings seem humble, my future will be prosperous."*

*- BTS*

*We would like to express our sincerest gratitude to God and the universe for the abundant blessings and divine guidance that have illuminated our path throughout this academic journey. To the Technical University of Cotopaxi, we extend our thanks for providing us with the opportunity to grow in an environment of excellence and commitment.*

*A special acknowledgment is owed to M.Sc. Fabiola Cando for her patience, guidance, and invaluable wisdom, which have been fundamental in the development of our thesis and in our professional and academic growth. To all the professors who, with their dedication and expertise, have illuminated our educational journey.*

*To our families, we want to express our heartfelt gratitude for their wonderful and unconditional support in every step we have taken. You have been the pillars that sustained us during the most challenging moments, and your love and understanding have been fundamental in helping us achieve our goals.*

*To our friends, who, with their companionship and words of encouragement, have made this journey more bearable and filled with pleasant experiences.*

*To all of you, we send our deepest gratitude.*

**Gabriela and Pamela.**

## **DEDICATION**

*"Everything you lose is a step you take; you've got no reason to be afraid"*

*- Taylor Swift*

*I dedicate this work to my grandparents, Jorge and Amparo, for being my angels from heaven; everything I do is for you, and wherever you are, I hope you are proud of me. To my parents, Wilson and Claudia, my sister Dome, and my aunts Paty and Samy, for their endless love, support, and constant encouragement; to my cousins Josselyn and Diana, for being like sisters and always being there for me; to my dear cat Coffee, for being my best friend, and to my beloved babies, from here and heaven; to Oli, for his friendship despite the distance; to Pame, my thesis partner and soulmate, for her dedication and for showing me the true meaning of friendship; and thanks to BTS, Taylor Swift, 1D, and Bruno Mars for inspiring my love for English.*

*I carry each of you in my heart and love you more than words can express.*

**Gabriela**

## **DEDICATION**

*As a token of eternal love and gratitude, I dedicate this work to my Heavenly Father, God, who is the light of my path. To the stars of my life: my father, Luis, whom I hope to make proud wherever he may be, and my beloved and caring grandfather, Rafael. To each member of my family, who are my deepest inspiration and always encourage me to keep fighting; may this achievement be a humble gesture of love and gratitude for all of you. To my dear friends, Gabriela, Anthony, Esthefany, and Alex, who have been so kind and loyal. To my little piece of heaven, thank you for bringing life to my life, and to my little puppy, Pinina. I carry you in every part of my being.*

**Pamela**

# TECHNICAL UNIVERSITY OF COTOPAXI

## PEDAGOGY OF NATIONAL AND FOREIGN LANGUAGES

**THEME: “ELSA SPEAK APP IN PRONUNCIATION PRACTICE”**

**Authors:**

Cajas Chipantiza Gabriela Estefanía  
López Salao Pamela Alejandra

### ABSTRACT

Pronunciation is a crucial element for clear and effective communication in the English language. In this context, tools like ELSA Speak have emerged as promising alternatives for enhancing pronunciation skills. This study aimed to explore the use of ELSA Speak in pronunciation practice among first-year students at the Technical University of Cotopaxi during the April-August 2024 academic period. The research employed a quantitative approach with a descriptive design, utilizing entrance and exit tests, as well as a survey adapted from Vahdat and Rasti (2013) and validated by two university professors. The study involved 51 participants. Data from the survey were processed using SPSS and Microsoft Excel. The results indicated that 72.5% of students achieved higher scores on their final test, though the improvement was minimal, with 48.65% showing an increase of 1-5 points. Students' perceptions of the application were generally moderate to positive, with a moderate level of boredom and stress reported. The findings reveal that students generally perceived ELSA Speak as a moderately to highly effective tool, with 37.25% rating it highly and 45.10% moderately. In conclusion, The moderate levels of boredom and stress experienced by students while using ELSA Speak suggest that these emotional responses could influence their perception of the app's functionality. Although the app offers useful features, its ability to capture and maintain students' interest may not be optimal. Addressing these emotional aspects could enhance both the app's effectiveness and user satisfaction. Therefore, it is recommended to supplement the use of the app with additional resources. Considering the limitations of the free version of ELSA Speak, integrating alternative practice methods or materials could help sustain students' interest and motivation, thereby maximizing the app's potential to improve pronunciation practice.

**Keywords:** ELSA Speak, Pronunciation, Acceptance.

# UNIVERSIDAD TÉCNICA DE COTOPAXI

## EXTENSIÓN PUJILÍ

### TEMA: “APLICACIÓN ELSA SPEAK EN LA PRÁCTICA DE LA PRONUNCIACIÓN”

#### **Autores:**

Cajas Chipantiza Gabriela Estefanía  
López Salao Pamela Alejandra

#### **RESUMEN**

La pronunciación es crucial para una comunicación clara y efectiva en inglés. En este contexto, herramientas como ELSA Speak son alternativas prometedoras para mejorar la pronunciación. Este estudio exploró el uso de ELSA Speak en estudiantes de primer año en la Universidad Técnica de Cotopaxi durante el período Abril-Agosto 2024. La investigación empleó un enfoque cuantitativo y un diseño descriptivo, utilizando pruebas de entrada y salida, y una encuesta adaptada de Vahdat y Rasti (2013), validada por dos profesores. El estudio incluyó 51 participantes. Los datos de la encuesta se procesaron con SPSS y Microsoft Excel. Los resultados mostraron que el 72.5% de los estudiantes mejoraron en su prueba final, aunque con un incremento mínimo del 48.65% de 1-5 puntos. Las percepciones de la aplicación fueron moderadas a positivas, con un nivel moderado de aburrimiento y estrés. Los hallazgos revelaron que los estudiantes percibieron ELSA Speak como una herramienta moderadamente a altamente efectiva, con un 37.25% calificándola como altamente efectiva y un 45.10% como moderadamente efectiva. En conclusión, los niveles de aburrimiento y estrés podrían influir en la percepción de la funcionalidad de la aplicación. Aunque ELSA Speak ofrece características útiles, su capacidad para mantener el interés de los estudiantes puede no ser óptima. Abordar estos aspectos emocionales podría mejorar la efectividad de la aplicación y la satisfacción del usuario. Se recomienda complementar la aplicación con recursos adicionales. Dado que la versión gratuita de ELSA Speak tiene limitaciones, integrar métodos o materiales alternativos podría mantener el interés y la motivación de los estudiantes, maximizando así su potencial para mejorar la pronunciación.

**Palabras claves:** ELSA Speak, Pronunciación, Aceptación.

## INDEX

COVER PAGE .....	i
GRATEFULNESS .....	v
DEDICATION .....	vi
DEDICATION .....	vii
ABSTRACT .....	viii
RESUMEN .....	ix
INDEX.....	x
FIGURES INDEX .....	xii
TABLES INDEX.....	xii
1. GENERAL INFORMATION .....	1
2. PROBLEM STATEMENT .....	2
Research Questions .....	4
3. OBJECTIVES .....	4
General Objective .....	4
Specific Objectives .....	4
4. ACTIVITIES AND TASK SYSTEM IN RELATION TO THE OBJECTIVES PROPOSED.....	4
5. JUSTIFICATION.....	5
6. SCIENTIFIC AND TECHNICAL FOUNDATION.....	6
6.1 Research Background .....	6
6.2 Theoretical Framework.....	7
English as a Foreign Language .....	7
Receptive and Productive Skills .....	8
English Pronunciation.....	9
Elements of pronunciation .....	10
Problems in pronunciation skills.....	11

Teaching and Learning Pronunciation .....	12
Traditional Approaches.....	13
<input type="checkbox"/> Imitation and Repetition Method.....	13
<input type="checkbox"/> Auditory Training .....	13
Modern Approaches.....	13
<input type="checkbox"/> Communicative Approach .....	13
<input type="checkbox"/> Phonological Awareness.....	13
Teaching pronunciation strategies .....	14
Technological Tools for Pronunciation .....	16
Websites .....	16
Mobile apps.....	17
Artificial intelligence in pronunciation.....	19
ELSA Speak Application.....	20
Features in ELSA Speak.....	21
Advantages and disadvantages of ELSA Speak .....	22
<input type="checkbox"/> Advantages.....	22
<input type="checkbox"/> Disadvantages .....	22
Teaching Pronunciation with ELSA Speak .....	22
7. METHODOLOGY.....	23
Research approach .....	23
Research Design .....	23
Research context and participants.....	24
Data collection procedure .....	24
Entrance Test.....	24
Exit Test .....	25
Survey .....	25

Data analysis process .....	25
8. ANALYSIS AND DISCUSSION OF RESULTS.....	26
9. RESEARCH IMPACTS.....	38
10. CONCLUSIONS AND RECOMMENDATIONS.....	38
Conclusions.....	38
Recommendations.....	39
11. REFERENCES .....	41

### **FIGURES INDEX**

Figure 1. Features of English Pronunciation. ....	10
Figure 2. Key to phonetic symbols. ....	11

### **TABLES INDEX**

Table 1. Differences in the entrance test and final test.....	26
Table 2. Improvement points.....	27
Table 3. Surveys. ....	28
Table 4. Motivation. ....	30
Table 5. Pronunciation Learning. ....	31
Table 6. Boredom/Stress. ....	33
Table 7. App features. ....	34
Table 8. Surveys per student. ....	35
Table 9. Level of perception.....	37

## 1. GENERAL INFORMATION

**Theme:** ELSA Speak app in pronunciation practice

**Starting Date:** April 2024

**Ending Date:** August 2024

**Place of Research:** Technical University of Cotopaxi - Pujilí

**Sponsoring Faculty:** Pujilí Campus

**Sponsoring Major:** Pedagogy of National and Foreign Languages

**Macro Project of the Major:** The Academic Discourse: A Transdisciplinary Study of Education and Linguistics in Linguistic-Communicative Contexts for English Language Teaching.

**Research Group:**

**Work Team:**

**Project Coordinator:**

Name: Cando Guanoluisa Fabiola Soledad

Phone Number: 0999865286

E-mail Address: [fabiola.cando@utc.edu.ec](mailto:fabiola.cando@utc.edu.ec)

**Researchers:**

Name: Cajas Chipantiza Gabriela Estefanía

Phone Number: 0995260415

E-mail Address: [gabriela.cajas7976@utc.ud.ec](mailto:gabriela.cajas7976@utc.ud.ec)

Name: López Salao Pamela Alejandra

Phone Number: 0995813957

E-mail Address: [pamela.lopez9134@utc.edu.ec](mailto:pamela.lopez9134@utc.edu.ec)

**Knowledge Area:** Education

**University Research Line:** Education, Communication and Design for the development human and social.

**Extension Subline:** Teacher professional development, school management and learning communities.

## 2. PROBLEM STATEMENT

In recent times, a range of tools, including mobile applications, has been utilized to support English learners in enhancing their pronunciation skills. These tools are designed to offer structured practice and feedback to improve English pronunciation. For instance, it can be achieved through the utilization of speech recognition technology, which offers lessons and a variety of topics for users to engage in pronunciation practice, ranging from English word drills to phrases and sentences (Anggraini, 2022). Therefore, the integration of various tools, such as ELSA Speak into pronunciation classes can help to explore their impact on students' perceptions of pronunciation practice, as the research conducted by Samad and Ismail (2020), conclude that the ELSA Speak app is a useful resource for enhancing students' pronunciation abilities and effectively aids their development in this area.

In this line, the effectiveness of using ELSA Speak for improving the pronunciation, the students' level of acceptance, and the factors involved in the perception of the app in freshman students at the Technical University of Cotopaxi, is a key concern due to there is no information about it in this particular context. This problem leads to different causes such as some teachers do not implement technological tools in their classes. In this context, Rahman (2015) affirms that “the teachers do not use technology to teach students and the classrooms are traditional classroom and they create fewer opportunities for students to use technology” (p. 31). Furthermore, related to the concern is that the technological instruments are not accurate to practice pronunciation and noisy environment and not a good internet connection can really affect the use of the mobile apps that use voice recognition (Fatimah, 2021). In addition, some teachers and students are unfamiliar with ELSA Speak as a teaching support, it is other cause related to this problem, for that reason Andrade (2014), affirms that both students and educators encounter various obstacles when incorporating technology into the classroom.

Like this, the research conducted by Samad and Aminullah (2019) showed that “the students consider that the content design of the ELSA Speak software is good” (p. 61). However, it is essential to note that some studies highlight potential challenges or limitations associated with the use of such tools like for the use the application, students need a smartphone for downloading and installation. Additionally, access to some topics is restricted to paid

content, and the application requires an internet connection to operate. Furthermore, its functionality is limited to a specific accent (Aswaty & Indari, 2022).

Besides, there will not be implementation of new technological tools for pronunciation, and those are really necessary, how the research conducted by Ílter (2009) in Akdeniz University Preparatory Classes in 2007-2008 academic year concluded that “48.9 % of male and 56.6 % of female students think that their teachers should use more technology in the classroom” (p. 146). In this way, another problem is that some teachers will not discover a more efficient way to make students practice pronunciation, as Pourhosein (2011) stated that “pronunciation must be viewed as a crucial and integral part of communication that should be incorporated into classroom activities” (p. 12).

These challenges encompass technical issues, maintaining student engagement, addressing off-task behavior, and the limited familiarity of teachers with the technology. Likewise, some teachers do not know how to teach pronunciation accurately, like one research that mentions that a total of 78% of teachers, acknowledge a deficiency in knowledge for teaching English pronunciation (Pourhosein & Sabouri, 2016). The identified obstacles collectively underscore the need for tailored strategies to enhance the effective integration of ELSA SPEAK into the EFL learning environment at the Technical University of Cotopaxi. As consequences of the problem, students will not have the opportunity to practice and improve pronunciation, also the poor opportunities for students to practice during the English language teaching process, within oral skills, pronunciation has traditionally been taken as a neglected point (Calvo, 2017).

Moreover, the main objective of this project is to explore the use of ELSA Speak in the practice of pronunciation for EFL freshman students at the Technical University of Cotopaxi. This includes investigating whether students improve their pronunciation, their level of acceptance of the app, and the factors influencing their perceptions.

## Research Questions

- Did students improve their pronunciation by using ELSA Speak?
- What factors are involved in students' perceptions of the app's performance?
- What is the students' level of acceptance of using the ELSA Speak app as a technological tool to practice pronunciation skills in freshman students at the Technical University of Cotopaxi?

## 3. OBJECTIVES

### General Objective

- To explore the use of ELSA Speak in practice pronunciation in freshman students of the Technical University of Cotopaxi during April-August 2024 academic term.

### Specific Objectives

- To determine whether or not in freshman students' improve their pronunciation by using ELSA Speak app.
- To analyze students' level of acceptance of using the ELSA Speak app as a technological tool to practice pronunciation skills in freshman students at the Technical University of Cotopaxi.
- To identify the factors involved in the students' perceptions of the app's performance.

## 4. ACTIVITIES AND TASK SYSTEM IN RELATION TO THE OBJECTIVES PROPOSED

Specific Objective	Activities	Verification Means
To determine whether or not freshman students' improve their pronunciation by using ELSA Speak app.	<ul style="list-style-type: none"> <li>-Design a syllabus with the lessons of the app.</li> <li>-Training and presentation of the application</li> <li>-Apply the entrance test on the app.</li> <li>-Daily lesson assignment.</li> </ul>	<ul style="list-style-type: none"> <li>-Syllabus.</li> <li>-Result tables.</li> <li>-Discussion.</li> </ul>

	-Apply the post-test on the app.	
To analyze students' level of acceptance of using the ELSA Speak app as a technological tool to practice pronunciation skills in freshman students at the Technical University of Cotopaxi.	-Create a survey to collect students' opinions. -Provide inform consent in the survey. -Apply the instrument. -Collect data. -Analyze students' perspectives about the app.	-Survey. -Inform consent. -SPSS Program -Result tables. -Discussion.
To identify the factors involved in the students' perceptions of the app's performance.	-Create a survey to collect students' opinions. -Provide inform consent in the survey. -Apply the instrument. -Collect data. -Analyze students' perspectives about the app.	-Survey. -SPSS Program -Result tables. -Discussion.

## 5. JUSTIFICATION

This research investigates the benefits of ELSA Speak on the pronunciation skills of freshman students at the Technical University of Cotopaxi. It focuses on how effectively the application helps students improve their English pronunciation, how well students accept this tool for their pronunciation practice and the level of improvement while its use.

The study examines the use of the application through various methods, including assessing students' improvement in pronunciation, analyzing their level of acceptance of the tool, and identifying factors that influence their perceptions of its effectiveness. Data is collected through surveys, and entrance and exit tests to gain a comprehensive understanding of the application's benefits.

The research is conducted to explore the benefits and challenges associated with using the application for pronunciation practice. Understanding these aspects will help evaluate the level of the acceptance and improvement while using such tools in language learning and contribute to the development of more effective strategies for practicing pronunciation, ultimately enhancing students' learning outcomes.

## **6. SCIENTIFIC AND TECHNICAL FOUNDATION**

### **6.1 Research Background**

Recent research underscores the significant impact of the ELSA Speak application on improving English pronunciation across different educational settings. Akhmad and Munawir (2022) conducted a study at the University of West Sulawesi, utilizing a quantitative approach with a pre-test and post-test design to assess pronunciation improvements in students. Their findings revealed a marked enhancement in students' supra-segmental pronunciation skills, evidenced by a substantial increase in post-test scores compared to pre-test scores, and a high positive perception rating of 82%. This indicates that ELSA Speak effectively supports pronunciation development and is well-received by students. Similarly, Samad and Ismail (2020) evaluated the app's effectiveness among first-semester students at STKIP Muhammadiyah Enrekang, finding significant improvements in pronunciation, reflected by an increase in post-test scores. This study reinforces the app's utility in early-stage language learning contexts. Kholis (2021) explored the use of ELSA Speak at Nahdlatul Ulama University, employing a combination of quantitative and qualitative methods. The research highlighted the app's role in enhancing pronunciation accuracy and ease of use, particularly through its instant feedback feature. This indicates that ELSA Speak is effective in improving pronunciation skills among higher education students. Fatimah (2021) also found the app beneficial for EFL learners, though she suggested incorporating additional features, such as Indonesian translations, to enhance vocabulary acquisition and overall language learning experience. These studies collectively demonstrate the app's positive impact on pronunciation improvement and its adaptability to different educational contexts.

Further analysis by Souza and Neto (2023) at Universidade do Estado do Rio Grande do Norte examined the role of educational technology in pronunciation teaching, specifically focusing on ELSA Speak. Their study acknowledged the app's effectiveness in providing structured pronunciation practice but critiqued its mechanical activities for lacking contextual relevance. They advocated for a balanced approach that integrates meaningful learning experiences with technological tools. Abreu and Vasconcelos (2021) highlighted the importance of combining digital tools with teacher support at the Federal University of Pernambuco and the Federal Rural University of Pernambuco, noting that while the app is effective, the presence of a human tutor enhances its benefits. Medina (2023) at Fundación Universitaria los Libertadores observed that, despite initial struggles, students' writing skills and confidence improved over time with the app's use, emphasizing its potential as a supplementary educational tool. Flora (2021) reviewed ELSA Speak's features and usability, pointing out limitations in the free version and the necessity of good internet connectivity for optimal use.

In Ecuador, Bustamante (2023) and Criollo et al. (2023) demonstrated that ELSA Speak significantly improved speaking skills among high school students, with enhancements in vocabulary, grammar, and fluency. Cisneros (2023) research at Universidad Técnica del Norte corroborated these findings, highlighting the app's effectiveness in pronunciation improvement while noting challenges such as decreased motivation. Overall, these studies emphasize the app's substantial contributions to language learning, while also suggesting areas for refinement to better meet the diverse needs of students and educational contexts.

## **6.2 Theoretical Framework**

### **English as a Foreign Language**

Learning English as a foreign language (EFL) has become an essential skill. Not only is it the predominant language in international communication, but it is also crucial in fields such as business, science, and technology. In this context, Jordão (2009) mention “it is not true of every language: it is certainly true of powerful languages like English, the language of international communication, also known as lingua franca or global language” (p. 2). This importance has led millions of people around the world to embark on the process of learning English to improve their academic, professional, and personal opportunities.

Over time, English language teaching has been accompanied by significant changes which have been the basis of its evolution. In the beginning, methods focused on the well-known grammar translation, which consisted of translating word by word, with the purpose of learning translation and grammar. “In the early stages of learning, acceptability may mean little more than a reasonable degree of accuracy in pronunciation and grammar. Later, it will increasingly come to include producing language which is appropriate to specific kinds of social situation” (Richards & Rodgers, 2014, p. 21).

However, modern didactic methods were applied that allow the student as the center of learning in a communicative context with the integration of practices in real situations. Nevertheless, learning English as a foreign language presents several challenges. One of the biggest obstacles is the lack of exposure to native speakers, making it difficult to practice the language in authentic contexts. Therefore, Wold (2006) says “[i]t is this dynamic process of interaction that provides learners the opportunity to grasp the difference between their own use of the language and correct use” (p. 9).

### **Receptive and Productive Skills**

Learning English as a foreign language involves developing different skills that help you communicate effectively. These skills are divided into two main categories: receptive skills and productive skills. Receptive skills are those that we use to receive and understand information, so of this way, Al-Jawi (2010) argues that “[r]eceptive skills are the ways in which people extract meaning from the discourse they see or hear” (p. 3). The use of resources and tools can be used to develop and promote the improvement of listening and reading skills, and currently, several alternatives promote the same, such as podcasts, series, movies, music, books, and others.

On the other hand, it is possible to say that “[t]he productive skills of language are speaking and writing because these skills can measure learners' ability to produce language. Both skills concern the language product or output through speech or written test” (Santosa et al., 2023).

Both receptive and productive skills must be developed in a balanced manner. Exposure to quality input, such as listening and reading in English, facilitates the production of effective output in speaking and writing. A balanced approach ensures that you not only understand the language but can also use it actively and effectively.

### **English Pronunciation**

The importance of pronunciation in learning the English language becomes a vital process, which implies the clear production of sounds and words must be exposed in the best way when communicating so that it can be understood, this is compared with Jarosz (2019) who mentions that “pronunciation constitutes one of the most relevant aspects of oral communication. The quality and ‘correctness’ of pronunciation impact, to a large extent, the intelligibility and comprehensibility of speech” (p. 9).

As well as, it is known that misinterpretations can occur with the incorrect pronunciation of words that sometimes sound so similar and this can be understood in the wrong context, thus shortening the objective of the message; in other terms, “confusion and misinterpretations can be created when phonemic errors occur” (Szpyra-Kozłowska, 2014, p. 2). In addition, learning English pronunciation involves adapting to differences in the phonetic system and sound production compared to the native language.

This includes adjustments to the articulatory apparatus, becoming familiar with the phonological inventory of English, and mastering suprasegmental features such as emphasis, rhythm, and intonation (Mompean & Fouz-González, 2015). Therefore, pronunciation becomes crucial in language learning to achieve a successful and understandable communicative interaction. Pronunciation becomes a skill and necessity for language learners, and at times becomes a challenging difficulty due to the complexity of elements required to master a language. Subsequently, Brown (2014) argues that “The average native speaker of a language such as English may feel that they simply open their mouth and produce sounds without thinking too much about the nature of those sounds” (p. 6). This is why the ease with which native speakers speak their language can become enviable, while learners tend to be governed by continuous and meticulous practice to speak the language properly.

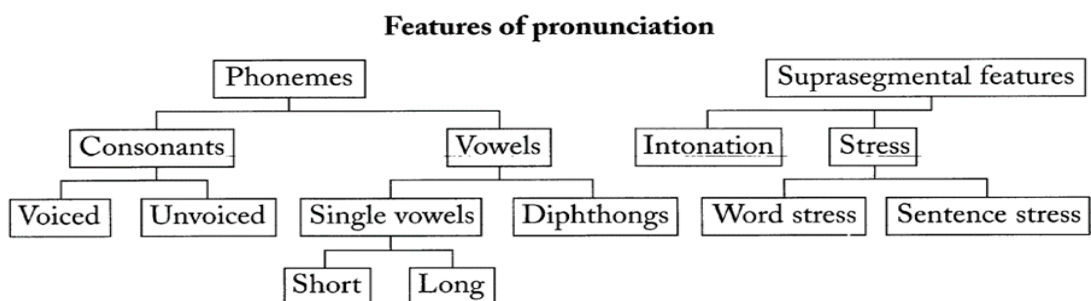
Pronunciation is essential not only for the clarity of the message and the denotative meaning but also for the subtleties of meaning and connotation within the message, thus conveying a certain impression of the speaker. Similarly to this, Ehrlich and Avery (2013) state that pronunciation problems often differ based on learners' native languages. Viewed as a communicative resource, pronunciation is a key aspect of communicative competence that extends far beyond being understood in the sense of speaking in a way that the audience can recognize the words being said (Pennington & Rogerson-Revell, 2018). In brief, English pronunciation poses multifaceted challenges for learners, encompassing the need to adapt to unfamiliar sounds, and contend with the influence of individual accents and dialects, emphasizing the critical importance of comprehensive language instruction that addresses the nuanced components of pronunciation to ensure effective and clear communication.

Gómez and Sánchez (2016) additionally, explain that:

Phonetic transcription is necessary to raise awareness of the target that should be aimed at, as well as of the possible pronunciations to be expected from native speakers. But this is a skill that can be best mastered by regular practice. So, whether working alone or in a group (where you can learn from others), learners are encouraged to engage in the task itself as often as possible (...). This means that they are always acceptable, but not necessarily the only possible ones as there may be other alternatives since pronunciation is subject to more variation than any other aspect of language (p. 28).

## Elements of pronunciation

**Figure 1.** *Features of English Pronunciation.*



*Note.* Adapted from *How to Teach Pronunciation* (p. 1), by Kelly, 2000, Longman publisher.

Mastering the correct phonetic symbols is essential for effective communication. Understanding and using these symbols accurately in English is vital for conveying clear messages to listeners and readers. Using phonetic symbols correctly ensures that sounds are understood by both native and non-native speakers, facilitating communication and reducing misunderstandings due to mispronunciation (Khualid et al., 2024).

The elements of pronunciation can cover many branches, but mainly we must emphasize the use of phonetic symbols which become the basis of good and effective pronunciation.

**Figure 2.** Key to phonetic symbols.

### **Vowels and diphthongs**

i:	as in	see /si:/	ɜ:	as in	fur /fɜ:(r)/
ɪ	as in	sit /sɪt/	ə	as in	ago /ə'gəʊ/
e	as in	ten /ten/	eɪ	as in	page /peɪdʒ/
æ	as in	hat /hæt/	əʊ	as in	home /həʊm/
ɑ:	as in	arm /ɑ:m/	aɪ	as in	five /faɪv/
ɒ	as in	got /gɒt/	aʊ	as in	now /naʊ/
ɔ:	as in	saw /sɔ:/	ɔɪ	as in	join /dʒɔɪn/
ʊ	as in	put /pʊt/	ɪə	as in	near /nɪə(r)/
u:	as in	too /tu:/	eə	as in	hair /heə(r)/
ʌ	as in	cup /kʌp/	ʊə	as in	pure /pjʊə(r)/

### **Consonants**

p	as in	pen /pen/	s	as in	so /səʊ/
b	as in	bad /bæd/	z	as in	zoo /zu:/
t	as in	tea /ti:/	ʃ	as in	she /ʃi:/
d	as in	did /dɪd/	ʒ	as in	vision /vɪʒn/
k	as in	cat /kæt/	h	as in	how /haʊ/
g	as in	get /get/	m	as in	man /mæn/
tʃ	as in	chin /tʃɪn/	n	as in	no /nəʊ/
dʒ	as in	June /dʒu:n/	ŋ	as in	sing /sɪŋ/
f	as in	fall /fɔ:l/	l	as in	leg /leg/
v	as in	voice /vɔɪs/	r	as in	red /red/
θ	as in	thin /θɪn/	j	as in	yes /jes/
ð	as in	then /ðen/	w	as in	wet /wet/

*Note.* Adapted from *Elements of Pronunciation* (p. 4), by Mortimer, 1985, Cambridge University Press.

### **Problems in pronunciation skills**

Learning to pronounce correctly in English can be a big challenge for many students. Although knowing grammar and vocabulary is important, pronunciation plays a crucial role

in effective communication. Similarly, Bakar and Abdullah (2015) add that “L2 learners may still need to master the much learnable segmental sounds of English for mutual intelligibility instead of the complex suprasegmental qualities” (p. 144). Therefore, common problems include difficulties in producing certain sounds, differences in accents and intonation, and the influence of the native language.

These problems can lead to misunderstandings and frustration for both speakers and listeners. Complementary to this, in the study of AbdAlgane and Mohamed (2020) mention the following factors that may be part of the difficulties encountered by the students which are “Mother Tongue Interference”, “little amount of exposure to the target language”, “sound system differences between L1 And L2”, “inconsistency of English vowels”, “influence of spelling on pronunciation”, “lacking of motivation” (pp. 196-197).

In addition, it is important to note that age may be one of the most important factors in showing this ability, since the age at which one begins to learn English can influence pronunciation. This is in contrast to the arguments by Nation and Newton (2009) “The physical explanation says that there are physical changes in the brain as a result of age that affect the learning of a new sound system and other aspects of the language” (p. 78). That means young children tend to acquire a pronunciation more similar to that of native speakers because they have greater brain plasticity and are better at imitating new sounds. Adults, on the other hand, may find it more difficult to modify their established pronunciation patterns.

### **Teaching and Learning Pronunciation**

In the realm of learning English as a foreign language, teaching and mastering pronunciation poses distinct challenges that demand diverse strategies and techniques, as mentioned by Šafranĵ (2013) “More proficient learners appear to use a wider range of strategies in a greater number of situations than do less proficient learners” (p. 775). Therefore, methods and resources for teaching and learning pronunciation are essential components in the learning process, so here are some of the essentials, from traditional methods to modern approaches and the use of advanced technologies. By combining these techniques, educators can provide

students with the tools necessary to develop clear and accurate pronunciation, thereby improving their communicative competence in English.

### **Traditional Approaches**

- **Imitation and Repetition Method**

One of the oldest and most effective methods of teaching pronunciation is imitation and repetition. This approach relies on students repeating sounds, words and phrases after the teacher or recordings of native speakers. Imitation and repetition are fundamental to helping students assimilate the phonetic and prosodic features of the language. By practicing repeatedly, students internalize sound patterns, which facilitates more accurate and natural pronunciation (Celce-Murcia, Brinton, & Goodwin, 2010).

- **Auditory Training**

Auditory training is another traditional technique that focuses on improving students' ability to distinguish between similar sounds. Through listening and repetition activities, students develop better phonetic perception, allowing them to distinguish phonetic contrasts and improve the overall accuracy of their pronunciation (Derwing & Munro, 2005).

### **Modern Approaches**

- **Communicative Approach**

The communicative approach integrates pronunciation practice within authentic communicative activities, promoting natural language use. This method not only improves fluency and accuracy of pronunciation, but also encourages meaningful interaction in real-life contexts. By participating in role-plays, debates and discussions, students practice pronunciation in situations that reflect practical language use (Gilbert, 2008).

- **Phonological Awareness**

The phonological awareness approach focuses on increasing students' awareness of the phonetic and prosodic aspects of the language through specific activities. These activities include exercises involving the identification and production of different sounds, rhythms,

and intonations. By increasing their phonological awareness, students can make significant improvements in their pronunciation skills (Field, 2005).

### **Teaching pronunciation strategies**

Mastering a language is fundamental for effective communication, with accurate pronunciation likely being the most critical element (Alshebeb, 2024). The goal of pronunciation training is not to make learners sound like native speakers but to achieve clear and understandable pronunciation, learners need to change their cognitive perception of the phonetic elements of English words, including individual sounds, stress patterns, and rhythm, to improve their pronunciation (Ghafar, 2023).

Additionally, Guo and Tian (2023) claimed that “by identifying the strategies that English major students find effective, educators can tailor their instruction to address specific pronunciation challenges”; this involves getting used to the new L2 phonetic system, and understanding the rhythm of words and sentences (Sardegna & Jarosz, 2023). It is important to highlight that there are different strategies to ensure that pronunciation becomes a skill that students acquire correctly, such as Celce-Murcia et. al. (1996) stated that teachers “should try to maximize students' exposure to the target language and encourage them to expand their domains of linguistic competence, stressing the importance of language exposure in the process of acquiring all aspects of language: pronunciation, grammar, and vocabulary” (p. 17).

As well as in an educational setting, it is essential to deliver substantial listening practice before expecting students to articulate target language sounds and phonological patterns (Chan, 2018, p. 2). Then again, Chan (2018) pointed out that “tasks for teaching pronunciation to beginners can include: identifying syllables and stress; using auditory, visual, and kinesthetic cues; using total physical response; and using songs”. Also, tongue twisters are effective tools for learning pronunciation. They enhance students' pronunciation skills, improve their memory, and help develop phonemic awareness, leading to better articulation and pronunciation of words (Astutik & Lutfiani, 2017).

Moreover, multiple strategies must be applied according to the pronunciation needs of the students, as Richards (2006) asserts:

Teachers were recommended to use a balance of fluency activities and accuracy and to use accuracy activities to support fluency activities. Accuracy work could either come before or after fluency work. For example, based on students' performance on a fluency task, the teacher could assign accuracy work to deal with grammatical or pronunciation problems the teacher observed while students were carrying out the task (p. 16).

However, it is important to establish correct sounds before engaging in these activities (Bareither, 2007). Additionally, the research realized by Beltrán-Herrera et al. (2016) conclude that students can enhance their pronunciation skills dynamically and enjoyably, ensuring a comfortable and engaging learning environment. The use of the Visual-Auditory-Kinesthetic-Tactile (VAKT) approach was crucial, as it allowed students to benefit from various types of sensory input, including visual, tactile, and auditory, through related activities to improve pronunciation.

Besides, enhancing language instruction goes beyond traditional methods according to Wei (2006) teaching intonation, stress, and sounds can be facilitated through computer-assisted language learning and communication exercises. Additionally, the teacher can apply activities that “lead learners to listen and speak with all their senses, so the 'sound of English' is associated with what they can see, hear, taste, and feel physically and emotionally” (Laroy, 2013, “using all the learners senses”, par. 2).

Finally, achieving proficiency in pronunciation necessitates initial expert guidance, followed by daily, consistent practice with a small selection of sample words (Abdelrady & Jahara, 2021). Teachers can address specific language issues and create a well-rounded learning experience with the help of different strategies like Arimilli et al. (2016) said “depending upon the nature of students, the teachers should use their discrimination power to select the most suitable method or technique for improving pronunciation, increases the enthusiasm

and curiosity [...] it can achieve perfect pronunciation by practicing all these methods” (p. 111).

## **Technological Tools for Pronunciation**

### **Websites**

Calvo (2017) adds that “most of them allow students to practise pronunciation where and when they like while having fun at the same time” (p. 30). Equally important, the use of websites to improve English pronunciation has become increasingly popular, thanks to the accessibility and variety of resources they offer. These online platforms provide interactive tools and exercises specifically designed to help students perfect their pronunciation.

Firstly, Forvo stands out for its extensive bank of pronunciations by native speakers, allowing students to learn the correct pronunciation of difficult or uncommon words and understand accent variations, and Grieser (2010) states that “Forvo.com is a user-driven online dictionary of word and short phrase pronunciations, where individuals may record pronunciations and rate those of others on their “correctness” (p. 75).

Secondly, EnglishCentral combines authentic video content with interactive pronunciation exercises, offering instant feedback to improve both pronunciation and listening and comprehension skills, so Sokyrska (2023) describes it “is a website that offers a range of video-based pronunciation lessons and exercises for learners. The website features a library of videos that cover various aspects of English pronunciation, such as vowel sounds, consonant sounds, and word stress” (p. 135).

Thirdly, BBC Learning English provides a dedicated pronunciation tips section with videos and exercises designed to teach English sounds, tonic accent and intonation, presented in a clear and accessible way. This supported by Aini et al. (2023) whom describe that “[t]he channel provides a range of resources for learning the English language, including films, podcasts, essays, tests, and interactive games aimed at assisting language learners. From grammar and vocabulary to pronunciation, business English, and idioms, the content is comprehensive” (p. 469).

Finally, Ambarwati and Mandasari (2020) share that “[t]he Online Cambridge dictionary is the dictionary that contains definitions and audio pronunciations of words, phrases, and idioms in British and American English style” (p. 51). In this way, this website offers interactive tools and games focused on English phonetics, facilitating learning through fun and educational activities. Sounds of Speech, developed by the University of Iowa, is a visual and auditory tool that shows how English speech sounds are produced through detailed animations, allowing students to see and hear how the sounds should be articulated correctly.

### **Mobile apps**

The rapid evolution of mobile technologies has brought about significant changes in everyday activities like entertainment, work, and education (Yokuş & Yelken, 2017, p. 297). In this way, “mobile devices are widely used in the digital age, [s]ocial network sites, which are becoming indispensable” (Akpınar & Demir, 2018, p. 49). In contemporary society, Artificial Intelligence [AI] has become a critical component of everyday life, profoundly influencing how people work, communicate, and make decisions, like this, consumers also heavily depend on apps and new AI-based technologies (Bartb, et al., 2021). Furthermore, a mobile application is a software created to operate on mobile devices like smartphones and tablets (Dolgaya & Phongtraychack, 2018). Mobile phones have become indispensable tools in our daily lives, with social networking emerging as one of the primary uses. Also, individuals use mobile phones primarily for social networking (around 80%) and have different preferences for apps (Jain & Viswanathan, 2015). In the same way, mobile apps deliver accessible, interactive exercises and immediate feedback. Consequently, the use of English pronunciation apps can motivate EFL students to become more involved and foster a positive mindset and behavior towards pronunciation learning. (Haryadi & Aprianoto, 2020).

English pronunciation apps can make learning pronunciation more engaging and enjoyable for EFL students. They not only serve as a new learning tool but also offer an alternative way to hear accurate English pronunciation in contexts where native speakers are largely inaccessible (Haryadi & Aprianoto, 2020). In this way, there are numerous applications available for practicing pronunciation, such as the English Pronunciation App [EP] which is defined by Adityarini et al. (2021) as “an app developed by BkiT Software in 2017. It has

several features: explanation text on each segmental feature, an organ speech picture where the sound is articulated, a model of articulation, and a video of how to articulate the sound” (p. 830).

Additionally, one major benefit of using EP is its accessibility. Those wanting to improve their English pronunciation can easily find and download an EP app online. This software allows students to practice their pronunciation at any location, whether on a PC or smartphone (Suseno, 2023). As well as ORAI, an application designed for iPhones, created by Danish Dhamani, that is designed to improve people's speaking skills (Halimah, et al., 2018). Likewise, “uses AI and deep learning to improve the speechmaking abilities. It checks a common problem like the pace, clarity of tone, pronunciation and vocal energy” (Maknun, 2020, p. 132), and ORAI also offers a transcript of the student's speech and includes a score represented as a percentage of their achievements (Suryani et al., 2019).

Another app is the English Listening and Speaking app, which learners can download from the Google Play Store and App Store for free, and access all its contents without registering [...] which includes crucial information such as articulation features, spelling, and examples for each English vowel and consonant (Nushi & Momeni, 2021). Also, key features of this learning application, include learning phrases, useful English idioms, and American slang, which help students to enhance their English proficiency (Rama et al., 2022).

Lastly, ELSA Speak is an app specifically created to assist users in minimizing non-native English accents. ELSA, short for "English Language Speech Assistant," is available in both free and paid versions for Android and Apple devices (Becker & Edalatishams, 2019). ELSA's capacity to give consumers quick, precise feedback is among what Suseno (2023) stated as “its most alluring aspects, [a]fter the learner records a few sentences, the software analyzes their speech, looking for any pronunciation mistakes, and giving them personalized feedback on how to get better”. Finally, the ELSA Speak app can help students improve their pronunciation (Anggraini, 2022).

### **Artificial intelligence in pronunciation**

Nowadays technology is a crucial tool for teaching, especially because it can enhance pronunciation teaching strategies by integrating interactive software or applications that provide instant feedback on pronunciation accuracy, computer-assisted tools can help examine various aspects of the acoustic features of L2 pronunciation, thanks to advancements in speech science (Kang & Ginther, 2017).

This way, technology has developed an important feature, that is Artificial Intelligence [AI], a system designed to comprehend natural human speech, integrate the flipped learning approach for language teaching and learning, enhance learners' competence and productivity, and evaluate human speech (Ali, 2020). Furthermore, Sadiku, et al., (2022) defined it as “the ability of a computer system to perform human tasks (such as thinking and learning) that usually can only be accomplished using human intelligence” (p. 5). With AI, students receive real-time feedback and personalized guidance, which helps them improve their pronunciation more effectively.

In this way Mohammadkarimi (2024) highlights that:

Moreover, significant progress has been made in the development of AI-powered interactive pronunciation training systems that aim to replicate genuine conversational situations. These systems provide learners with the opportunity to refine their pronunciation skills in a lifelike environment. Learners actively engage in dialogues with virtual agents powered by artificial intelligence. In these interactions, learners receive feedback on various aspects of their pronunciation, encompassing accuracy, stress, intonation, and rhythm (p. 100).

This makes learning pronunciation more effective and personalized, “the AI virtual spoken English tool has gradually moved from theoretical research to real-world applications and the more widely used AI virtual English teaching pronunciation correction” (Shi & Wang, 2021, p. 1). As well as AI-powered tools and technologies are being utilized to create more immersive and engaging learning experiences for students at all grade levels [...] it is believed

that AI can enhance education for every student by making it more equitable, efficient, and enjoyable (Sotomayor Cantos et al., 2023).

Likewise, artificial intelligence-powered platforms can provide real-time feedback, intelligent content recommendations, and personalized learning paths (Suman & Suman, 2023); complementary to this, Calvo (2017) points out that “these programs allow students to practice both their productive and perceptive oral skills and they emphasize both segmental and suprasegmental issues” (p. 8). Thus, AI-based pronunciation tools can significantly enhance pronunciation accuracy (Mohammadkarimi, 2024). Similarly, Kim and Su (2024) conclude in their research that “the use of AI chatbots also encourages meaningful interaction, greater production, and higher levels of engagement among learners” (p. 10). Additionally, when integrated into traditional classrooms, AI chatbots can enhance students' language proficiency by offering additional practice and instant feedback (Hoang et al., 2023).

### **ELSA Speak Application**

Nowadays, speech recognition technologies can offer instant feedback on pronunciation and intonation, enabling students to practice and enhance their speaking skills (Ayala & Alvarado, 2023). In this way, ELSA Speak was developed to make learning English enjoyable and memorable. It provides a variety of themes customized to the user's training needs and offers learning levels ranging from beginner to advanced. Additionally, it evaluates the accuracy of the user's pronunciation (Shehata, 2024); the features are varied, and it covers topics such as food, entertainment, technology, culture, daily conversations, and relationships (Maria, 2022).

The full name of the app, ELSA, is English Language Speech Assistant (Sholekhah & Fakhurriana, 2023) is a mobile app created to improve English pronunciation and fluency by utilizing advanced speech recognition technology.

Moreover, according to Rismawati et al., (2022) “ELSA Speaking is virtual language teacher software, used by individuals, language schools, universities and corporations around the world” (p. 178). Also, it gives immediate feedback on word pronunciation, language fluency,

intonation, word stress, English listening, and the use of grammar, and vocabulary (Bui et al., 2024). With advanced technology and personalized lessons, the ELSA Speak app has been created to foster learner independence, boost motivation, and facilitate practice in pronunciation skills (Nguyen & Nguyen, 2024).

As well as, ELSA Speak is a useful mobile app as Kholis (2021) affirms, it “enabled the students to learn pronunciation more easily and fast. It gave usefulness especially in giving correction and feedback instantly. The students were motivated in learning to pronounce words” (p. 10). In conclusion, the app's innovative approach guarantees that users get the support they need to effectively enhance their speaking skills, similar to Anggraini (2022) who said that “ELSA Speak application can support students in improving pronunciation” (p. 139).

### **Features in ELSA Speak**

ELSA's basic interface is user-friendly, offering easy navigation between topics, skills, levels, reports, and other features. Users also have the option to set their preferred display language (Becker & Edalatishams, 2019). Equally important ELSA Speak has some features that according to María (2022), include progress tracking, a virtual AI coach, a tailored learning path, customization options, feedback on pronunciation, and practice opportunities for both speaking and listening.

In the same way, it contains offers various exercises for accurate pronunciation of words, phrases, or sentences. It features a microphone icon that allows learners to practice speaking and compare their pronunciation to the provided audio (Samad & Ismail, 2020). Likewise, to help learners practice Fatimah (2021) points out that the app includes “a dictionary that helps learners know the meaning of the words they learn immediately [...] has 22 most practical topics and more than 800 of fun lessons to help learners pronounce common idioms, expressions and daily conversation in English” (p. 25).

## **Advantages and disadvantages of ELSA Speak**

- **Advantages**

ELSA Speak has many benefits as a language learning app; this app uses exclusive artificial intelligence (AI) technology, featuring automatic speech recognition (ASR), to offer feedback on the accuracy of users' pronunciation (Aswaty & Indari, 2022). Equally important, in the ELSA Speak app, students can explore aspects of pronunciation such as phonetics and phonology, learning how words are correctly written and pronounced (Kholis, 2021). ELSA Speak is an effective application for practicing isolated sounds. like Becker and Edalatishams (2019) state that it “is an app that has made great strides in the world of AI for practicing the pronunciation of individual sounds” (p. 438); and also motivates learners to improve their pronunciation and vocabulary. Additionally, ELSA Speak provides audio, vocabulary, and phonetic transcription tools to support their learning of these aspects (Darsih et al., 2021).

- **Disadvantages**

ELSA Speak has a few disadvantages as a language learning app thus ELSA’s developers have misrepresented the abilities of their proprietary AI system, which often mistakenly identifies incorrect sounds as correct (Becker & Edalatishams, 2019). Additionally, in their research, Becker and Edalatishams (2019) declared that ELSA focuses only on segmental aspects of pronunciation. Then again, besides the free plan, it contains a premium plan that according to Nushi and Sadeghi (2021) “ELSA’s premium version does not offer features that the free version does not; the only difference is the larger number of exercises the premium version includes [...] the premium version may not be affordable for all” (p. 299).

## **Teaching Pronunciation with ELSA Speak**

ELSA Speak being an AI-based tool, helps students to understand more about pronunciation; uses adaptive algorithms that evaluate learners' current pronunciation skills and provides learners with focused feedback and improvement suggestions, promoting a learner-centered and personalized method for pronunciation training (Gusrianto & Iswahyuni, 2024). The app offers helpful features that can be used as teaching material, such as audio voice, phonetic transcription, vocabulary, conversation audio, and quizzes, effectively assisting and

motivating learners to practice their pronunciation (Darsih et al., 2021). As well as, utilizing the ELSA Speak Dictionary Speech Assistant to enhance students' pronunciation, the students receive valuable corrections from the AI for any mispronounced words and phrases during this process (Susanto et al., 2024).

## **7. METHODOLOGY**

### **Research approach**

A quantitative approach was used aimed to measure and analyze patterns and relationships through numerical data. A quantitative approach was used to analyze students' perceptions of the ELSA Speak app. Ahmad et al., (2019) say that quantitative approach “is a form of research that relies on the methods of natural sciences, which produces numerical data and hard facts. It aims at establishing cause and effect relationship between two variables by using mathematical, computational and statistical methods” (p. 2829).

### **Research Design**

This study employs a descriptive research design to analyzed the use of the ELSA Speak app for pronunciation practice in freshman students at the Technical University of Cotopaxi. As noted by Manjunatha (2019), “a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the ‘what’ of the research subject rather than the ‘why’” (p. 863).

The primary goal of this approach is to elucidate how the app affects students' pronunciation improvement and their level of acceptance. To achieve this, quantitative data were gathered through pronunciation tests to measure improvements and surveys to gauge students' perceptions of the app. Statistical analyses, including frequencies, percentages, and averages, will be utilized to identify trends and perceptions. This will provide a comprehensive understanding of the app's impact on pronunciation skills and the factors influencing its reception among students. As detailed by Nassaji (2015), data were collected quantitatively and analyzed using statistical techniques to explore and identify patterns and relationships within the data.

## **Research context and participants**

This research was conducted in English major at the Technical University of Cotopaxi [UTC], which is located in Pujilí, a town situated in the Cotopaxi Province of Ecuador. The institution is an extension of the UTC, which focuses on technical and vocational education. The participants were 51 students, belong to the first semester, Class A with 24 students; 9 males and 15 females, aged between 35 freshman students; 12 males and 23 females, aged between 18 to 30 years old, and Class B with 27 students; 8 males and 19 females, aged between 18 to 40 years old.

The research used a non-probability sampling technique, specifically convenience sampling which Golzar et al., (2022) pointed out that “is frequently utilized in education and social sciences where researchers have ready access to existing target populations” (p. 73). In this way, the use of convenience sampling was practical for this study, as it allowed for the efficient identification and inclusion of participants from these specific groups. This was appropriate because the sample consisted of new students, and ELSA Speak is designed for beginner levels rather than advanced ones.

A formal permission to the English teacher was asked in order to conduct the research. Then it was provided to teachers and students with a syllabus outlining the sounds, content, and lessons that students would practice using the ELSA Speak app independently. (See Appendix 1 and 2). The researchers used the app for 6 months to develop the syllabus. It was not required for the app to be used in class but as an autonomous task. Likewise, within the survey, students were provided with an item where they agreed to answer the survey voluntarily, giving them the option to participate or not in the study. By obtaining this informed consent, transparency, respect and ethical conduct were ensured throughout our research process (See Appendix 3).

## **Data collection procedure**

### **Entrance Test**

For the entrance test, students were given training on how to use the ELSA Speak app, which included straightforward instructions and key details about its features. After this training,

they took an initial placement test within the app to determine their starting level of pronunciation before beginning its use. (See Appendix 4).

### **Exit Test**

At the end of the two-week period, students were asked to retake the same placement test within the ELSA Speak app. The purpose of this test was to evaluate any improvements in pronunciation that might have resulted from using the app. Comparing the results of the entrance and exit tests helped assess the app's effectiveness in enhancing pronunciation skills. (See Appendix 4).

### **Survey**

To gather data on students' perceptions of the app, a survey was administered via Google Forms. This survey was designed taking into account the questionnaire designed by Vahdat and Rasti (2013), it was adapted to the objectives of this study by two English teachers. (See Appendix 5 and 6). Survey research offers flexibility in recruiting participants, collecting data, and employing different methods. It can utilize quantitative strategies, qualitative strategies, or a combination of both (Ponto, 2015, p. 168).

### **Data analysis process**

Initially, to assess student improvement, the frequency of changes in test scores was calculated by comparing the entrance and exit test results. This involved determining how many students improved, maintained the same score, or experienced a decline. The frequency and percentage of these changes were categorized using the following scales for 1-5 points, 6-10 points, 11-15 points, 16-20 points, and 20-25 points.

Subsequently, survey data was processed using SPSS to compute the mean and standard deviation of responses. As defined by Frey (2017), SPSS is “a commercially distributed software suite for data management and statistical analysis [...] it helped revolutionize research practices in the social sciences, enabling researchers to conduct complex statistical analysis on their own” (para. 1). This analysis provided insights into the overall acceptance of the application among students.

Additionally, Excel has become increasingly popular [...] for generating charts, graphs, performing statistical data computations, and creating formulas (Formby et al., 2017). Subsequently, it was used to calculate each student's overall mean and standard deviation, utilizing the "AVERAGE" function for the mean and the "STDEV" function for the standard deviation. In addition, for this calculation, items 3 and 4, “ELSA Speak makes pronunciation practice more boring” and “Learning pronunciation with ELSA Speak is stressful”—were not included. The mean and standard deviation for each remaining survey question were computed to better understand students' level of acceptance.

Finally, the frequency of responses was assessed across various levels of acceptance: 1.00–2.60 indicating a low degree, 2.61–3.40 indicating a medium degree, and 3.41–5.00 indicating a high degree (Pham & Truong, 2021). This categorization helped gauge the distribution of opinions regarding the application. This comprehensive analysis enabled a nuanced understanding of how the application was received and its effectiveness in improving pronunciation skills.

## 8. ANALYSIS AND DISCUSSION OF RESULTS

To answer the first research question about whether students improve their pronunciation by using ELSA Speak, scores of the entrance and final tests were compared.

**Table 1.** *Differences in the entrance test and final test.*

<b>Score</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Same score</b>	9	17.6%
<b>Low score</b>	5	9.8%
<b>Better score</b>	37	72.5%
<b>Total.</b>	51	100%

*Note.* This table displays the repetition count and proportion of scores obtained in the entrance test and post-test of ELSA Speak.

**Table 2.** *Improvement points*

Points	Class	Percentage	Class	Percentage	Frequency	Percentage
	A		B			
<b>1-5 points</b>	10	55.56%	8	42.11%	18	48.65%
<b>6-10 points</b>	5	27.78%	5	26.32%	10	27.03%
<b>11-15 points</b>	1	5.56%	4	21.05%	5	13.51%
<b>16-20 points</b>	0	0%	0	0%	0	0%
<b>20-25 points</b>	2	11.11%	2	10.53%	4	10.81%
<b>Total.</b>	<b>18</b>	<b>100%</b>	<b>19</b>	<b>100%</b>	<b>37</b>	<b>100%</b>

*Note.* This table presents the distribution of scores in Classes A and B, along with their respective proportions.

The results from Table 1 reveal that 72.5% of the students achieved better scores in their final test after using ELSA Speak. However, the improvement is generally minimal, with most students showing only a 1-5 point increase (48.65% overall). A small portion of students (17.6%) maintained the same score, indicating a neutral effect, while 9.8% experienced a decline. Table 2 further breaks down the improvement by class, reinforcing that most students in Classes A and B experienced minimal improvement.

These findings indicate that although the ELSA Speak app helps with pronunciation improvement, the level of progress is limited. This differs from the research by Samad and Ismail (2020), which found that the ELSA Speak app significantly enhances students' pronunciation skills, as evidenced by higher post-test scores compared to pre-test scores, demonstrating its effectiveness. Similarly, Fatimah (2021) affirmed the app's effectiveness, noting significant results for most participants. However, based on the results presented, it can be interpreted that the application does not guarantee uniform effectiveness in improving all participants' pronunciation skills.

On the other hand, the research conducted by Akhmad and Munawir (2022) supports a different perspective, showing significant improvement in students' pronunciation with the

ELSA Speak app, as indicated by the t-test analysis where post-test scores were higher than pre-test scores. With a significance value of less than 0.05, they concluded that the app has a notable impact. Furthermore, research by Adawiah et al. (2024) reinforced this observation, finding that the ELSA Speak app enhances students' speaking skills, with notable improvement in some students who underwent the treatment twice.

Therefore, while the minimal overall improvement noted in this study points to certain limitations in the app's effectiveness, other research suggests that the ELSA Speak app can substantially improve pronunciation and speaking skills under specific conditions. This disparity underscores the need for further investigation into the factors influencing the app's effectiveness in different learning environments.

To answer the second question about the factors involved in students' perception, the items of the survey were classified into 4 categories: motivation, pronunciation learning, boredom/stress, and app features.

**Table 3.** Surveys.

<b>Item</b>	<b>No. people</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
<b>1</b> I am very motivated when I use ELSA Speak to practice pronunciation.	51	3,1961	0,91694	Medium
<b>2</b> When I use ELSA Speak and encounter a word I don't know how to pronounce, I am very motivated to learn it.	51	3,3529	0,93431	Medium
<b>3</b> ELSA Speak makes pronunciation practice more boring.	51	2,5490	1,04525	Medium
<b>4</b> Learning pronunciation with ELSA Speak is stressful.	51	2,6471	1,07375	Medium
<b>5</b> Facing new words helped me improve my pronunciation with ELSA Speak.	51	3,3725	0,95835	Medium

<b>6</b>	ELSA Speak activities helped me to improve my English pronunciation.	51	3,1765	1,12616	Medium
<b>7</b>	The pronunciation of words became entirely understandable with the help of ELSA Speak's phonetic transcription.	51	3,1765	0,88783	Medium
<b>8</b>	When doing activities with ELSA Speak, I felt like I was listening to a real native speaker.	51	3,1176	1,03242	Medium
<b>9</b>	I learned to pronounce new words with ELSA Speak.	51	3,2549	1,11073	Medium
<b>10</b>	When I recall the words I learned to pronounce with ELSA Speak, I remember their pronunciation.	51	3,0588	0,85818	Medium
<b>11</b>	Having fun with ELSA Speak did not reduce my pronunciation learning.	51	3,0196	0,90532	Medium
<b>12</b>	Having fun, motivated me to complete the assigned lessons.	51	3,1176	0,84017	Medium
<b>13</b>	Words and phrases with American native pronunciation, phonetic transcription, and word translation helped me pronounce better.	51	3,2941	0,94433	Medium
<b>14</b>	ELSA Speak helped me develop my pronunciation with words that were already familiar to me.	51	3,2157	0,87895	Medium
<b>15</b>	The repeat option provided by ELSA Speak helped me learn pronunciation better.	51	3,2941	0,87850	Medium
<b>16</b>	ELSA Speak helped me improve the articulation and accent of words.	51	3,1961	0,84899	Medium

<b>17</b>	ELSA Speak offers good opportunities for intentional vocabulary learning and pronunciation.	51	3,3137	0,94848	Medium
<b>18</b>	I don't get anxious when I don't know the meaning of a word in ELSA Speak.	51	3,0000	0,91652	Medium
<b>No. valid (per list)</b>		<b>51</b>			

*Note.* This table presents the results of a survey on respondents' experiences and motivation levels using ELSA Speak for pronunciation practice, categorized into low, medium, and high degrees based on their mean scores.

**Table 4.** *Motivation.*

<b>Item</b>	<b>Motivation</b>	<b>No. people</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
<b>1</b>	I am very motivated when I use ELSA Speak to practice pronunciation.	51	3,1961	0,91694	Medium
<b>2</b>	When I use ELSA Speak and encounter a word I don't know how to pronounce, I am very motivated to learn it.	51	3,3529	0,93431	Medium
<b>3</b>	Having fun, motivated me to complete the assigned lessons.	51	3,1176	0,84017	Medium
<b>4</b>	Having fun with ELSA Speak did not reduce my pronunciation learning.	51	3,0196	0,90532	Medium

*Note.* This table presents the mean and standard deviation of students' motivation levels when using ELSA Speak for pronunciation practice, with all items reflecting a medium degree of motivation.

The results from Table 4 indicate that students generally exhibit a medium level of motivation when using ELSA Speak for pronunciation practice. This moderate motivation is evident across various aspects, including their enthusiasm for practicing, learning new words, completing lessons, and overall enjoyment of the application. Supporting these observations, Aeni et al. (2021) found that students hold positive views on using the ELSA application for Intensive Speaking, noting that it enhances their motivation, making them more active and enthusiastic. This improvement is reflected in their speaking performance and learning motivation throughout sessions. Similarly, Rinaepi et al. (2022) concluded that the ELSA Speak application positively impacts students' attitudes and motivation, attributing this effect to its engaging features and user-friendly smartphone interface.

The app effectively improves student attitudes by employing a theory tailored to their needs. In addition, Karim et al. (2023) reported that 95% of respondents viewed ELSA Speak as an excellent speech application that could significantly boost their motivation to enhance their speaking performance. These consistent findings across various studies underscore the potential of ELSA Speak to positively influence students' motivation and attitudes towards learning pronunciation.

**Table 5.** *Pronunciation Learning.*

<b>Item</b>	<b>Pronunciation Learning</b>	<b>No. people</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
<b>1</b>	ELSA Speak activities helped me to improve my English pronunciation.	51	3,1765	1,12616	Medium
<b>2</b>	The pronunciation of words became completely understandable with the help of ELSA Speak's phonetic transcription.	51	3,1765	0,88783	Medium
<b>3</b>	I learned to pronounce new words with ELSA Speak.	51	3,2549	1,11073	Medium

4	When I recall the words, I learned to pronounce with ELSA Speak, I remember their pronunciation.	51	3,0588	0,85818	Medium
5	ELSA Speak helped me develop my pronunciation with words that were already familiar to me.	51	3,2157	0,87895	Medium
6	ELSA Speak helped me improve the articulation and accent of words.	51	3,1961	0,84899	Medium

---

*Note.* This table presents the mean and standard deviation of students' perceptions of pronunciation learning with ELSA Speak, showing a medium degree of improvement across all items.

The results from Table 5 indicate that students generally perceived a medium level of improvement in their pronunciation skills when using ELSA Speak. This perception spans various aspects, including overall pronunciation enhancement, understanding pronunciation through phonetic transcription, learning to pronounce new words, recalling the pronunciation of learned words, and improving articulation and accent. While ELSA Speak is helpful in developing pronunciation skills, the medium level of improvement suggests that additional enhancements could make the tool more effective in achieving significant progress.

In this context, Sholekhah and Fakhurriana (2023) found that ELSA Speak helps non-native English speakers enhance their pronunciation. Similarly, Anggraini (2022) noted that the ELSA Speak app facilitates faster and easier pronunciation learning for students. Furthermore, Suragih et al. (2022) demonstrated that students could understand how to pronounce vowels, diphthongs, and consonants, stress words appropriately, and learn about intonation using the app.

**Table 6.** *Boredom/Stress.*

<b>Item</b>	<b>Boredom/Stress</b>	<b>No. people</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
<b>1</b>	ELSA Speak makes pronunciation practice more boring.	51	2,5490	1,04525	Medium
<b>2</b>	Learning pronunciation with ELSA Speak is stressful.	51	2,6471	1,07375	Medium
<b>3</b>	I do not get anxious when I don't know the meaning of a word in ELSA Speak.	51	3,0000	0,91652	Medium

*Note.* This table presents the mean and standard deviation of students' perceptions of boredom and stress while using ELSA Speak, with all items reflecting a medium level.

The data in Table 6 reveal that students experienced a moderate level of boredom and stress while using the ELSA Speak app for pronunciation practice. Although the app enhances pronunciation skills, these emotional responses suggest that it may not fully engage students or create an optimal learning environment. This observation aligns with the findings of Yosintha and Rekha (2022), who reported that a significant proportion of students felt bored, stressed, and less motivated during their online learning experiences. Furthermore, Rismawati et al. (2022) emphasized that the ELSA app facilitated easier practice of words and sentences, making the learning process more enjoyable for students. In a similar vein, Akhmad and Munawir (2022) highlighted the positive perception students have of the ELSA Speak Application, as evidenced by an 82% satisfaction score. They attributed this favorable outlook to the app's accessibility, ease of use, and the enjoyment it brings to learning English. Nguyen and Tuyen (2024) further supported this positive reception, noting that cognitive attitudes were the most prominent among students, followed by affective and behavioral attitudes. Thus, while there remains room for improvement in terms of learner engagement, the core functionality of the app evidently supports effective pronunciation practice.

**Table 7.** *App features.*

<b>Item</b>	<b>App features</b>	<b>No. people</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
1	Facing new words helped me improve my pronunciation with ELSA Speak.	51	3,3725	0,95835	Medium
2	When doing activities with ELSA Speak, I felt like I was listening to a real native speaker.	51	3,1176	1,03242	Medium
3	The repeat option provided by ELSA Speak helped me learn pronunciation better.	51	3,2941	0,87850	Medium
4	ELSA Speak offers good opportunities for intentional vocabulary learning and pronunciation.	51	3,3137	0,94848	Medium
5	Words and phrases with American native pronunciation, phonetic transcription, and word translation helped me pronounce better.	51	3,2941	0,94433	Medium

*Note.* This table shows students' mean ratings and standard deviations for various features of ELSA Speak, with all items indicating a medium level of effectiveness.

The data in Table 7 show that students found the ELSA Speak app's functions for pronunciation practice mildly beneficial. Although the app's tools, such as new words, native pronunciation, and repetition, were helpful, their overall score was moderate. This aligns with the findings of Elsani et al. (2023), who highlighted that ELSA Speak offers a wide range of benefits due to its features, including pronunciation lessons and various types of material like conversational simulations for the IELTS exam. Additionally, Rinaepi et al. (2022) noted that the ELSA Speak application can enhance student attitude and motivation, attributing this to its engaging features and the ease of use via smartphones.

Another essential point is that although the application offers several functions for the convenience and learning of the students, there may be discrepancies between the preference for using digital resources and traditional autonomous learning. This is echoed by Çakici (2016), who argued that the integration of ICT into language teaching practices has its limits and should be viewed as an effective supplementary and complementary teaching tool.

Furthermore, Alhumaid (2019) warned that the excessive use of technology might contradict educational purposes if measures are not taken to mitigate potential negative impacts on education. Thus, while the ELSA Speak app offers valuable tools for pronunciation practice, it is important to balance its use with traditional learning methods to maximize educational outcomes and avoid over-reliance on technology as claimed by Boumová (2008) that indicates that in his study “traditional teaching is more successful than modern methodology in terms of spelling and grammar” (p. 82).

To answer the third research question about students’ level of acceptance of ELSA Speak as a tool to improve pronunciation, the means of each student was analyzed.

**Table 8.** *Surveys per student.*

<b>Students</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Degree</b>
Student 1	4,31250	0,463512	High
Student 2	3,00000	0,000000	Medium
Student 3	3,06250	0,242061	Medium
Student 4	4,00000	0,500000	High
Student 5	3,68750	0,582961	High
Student 6	3,25000	0,433013	Medium
Student 7	4,00000	0,000000	High
Student 8	2,81250	0,807678	Medium
Student 9	2,68750	0,463512	Medium
Student 10	2,68750	0,768013	Medium
Student 11	2,75000	0,661438	Medium
Student 12	3,87500	0,780625	High
Student 13	3,62500	0,484123	High
Student 14	2,87500	0,780625	Medium
Student 15	3,25000	0,559017	Medium
Student 16	3,81250	1,333171	High

---

Student 17	3,06250	1,143938	Medium
Student 18	4,18750	0,526634	High
Student 19	2,81250	0,390312	Medium
Student 20	3,81250	0,390312	High
Student 21	2,12500	0,330719	Low
Student 22	2,93750	0,242061	Medium
Student 23	4,00000	0,000000	High
Student 24	3,68750	0,845484	High
Student 25	4,00000	0,000000	High
Student 26	2,00000	0,000000	Low
Student 27	2,81250	0,390312	Medium
Student 28	3,37500	0,484123	Medium
Student 29	3,00000	0,000000	Medium
Student 30	3,62500	0,484123	High
Student 31	3,12500	1,111024	Medium
Student 32	3,25000	0,433013	Medium
Student 33	3,62500	0,992157	High
Student 34	2,37500	0,484123	Low
Student 35	3,00000	0,000000	High
Student 36	2,18750	0,634306	Low
Student 37	2,87500	0,484123	Medium
Student 38	4,75000	0,433013	High
Student 39	3,50000	0,612372	Medium
Student 40	2,12500	0,484123	Low
Student 41	3,43750	0,933324	High
Student 42	3,56250	0,496078	High
Student 43	2,87500	0,484123	Medium

Student 44	4,00000	0,000000	High
Student 45	3,00000	0,000000	Medium
Student 46	1,00000	0,000000	Low
Student 47	1,00000	0,000000	Low
Student 48	4,00000	0,000000	High
Student 49	3,75000	0,433013	High
Student 50	3,75000	0,433013	High
Student 51	2,75000	0,661438	Medium

*Note.* This table presents the survey results per student, showing their average scores, standard deviation, and the degree of their responses categorized as low, medium, or high.

**Table 9.** *Level of perception.*

	<b>Students</b>	<b>Frequency</b>	<b>Percentage</b>
	19 students	High	37.25%
	23 students	Medium	45.10%
	9 students	Low	17.65%
<b>Total.</b>	<b>51 students</b>		<b>100%</b>

*Note:* This table displays the frequency and percentage of students categorized by their level of perception regarding the use of ELSA Speak.

The factors affecting students' perceptions of ELSA Speak's performance—including motivation, perceived effectiveness in pronunciation learning, and emotional responses ranging from boredom to stress—reveal the varied ways students interact with the app. Although the overall perception tends to be slightly positive, the variation in responses, as shown by the standard deviation, underscores the importance of considering these differences when evaluating the benefits of educational technologies like ELSA Speak. Most students report moderate to high levels of engagement and satisfaction with the app, as reflected in Table 9, while a smaller group reports lower levels. This aligns with findings from Samad and Aminullah (2019), who noted that students find ELSA Speak highly beneficial for pronunciation practice, commending its design, multimedia assessments, automatic flexibility, speech recognition, and pedagogical approach. Similarly, Yuliawati and Suryadi

(2024) observed that students widely regard the app as an effective tool for enhancing their English-speaking abilities.

Nevertheless, concerns raised by a minority of students point to areas where the app could be improved to better serve all users. Nguyen and Nguyen (2023) identified challenges such as the need for a smartphone, the cost of the premium version, and the requirement for an Internet connection as factors contributing to some students' dissatisfaction. They also noted that while the premium version offers more exercises, it does not provide additional features beyond those available in the free version, and that the voice recognition technology can struggle with background noise or unclear pronunciation. To maximize the app's effectiveness and better meet students' needs, it would be beneficial to address these issues, enhance user engagement, and complement the app's features with teacher instruction. This approach would not only improve overall satisfaction but also reinforce the positive perception of ELSA Speak as a valuable tool for learning and practicing pronunciation.

## **9. RESEARCH IMPACTS**

From the results, this research offers valuable insights into how particular tools can influence language learning, with a focus on improving pronunciation skills. It provides useful information on the benefits and variants of these tools among learners, which can guide educators in integrating similar resources into their teaching practices. By demonstrating how these tools can meet individual learning needs and support independent practice, the research highlights the option of integrating tools in an autonomous and innovative way. This can lead to more effective and engaging language teaching, in line with contemporary educational approaches that seek to improve learning outcomes through diverse and adaptable strategies.

## **10. CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

Despite a majority of students achieving better scores on their final tests after using ELSA Speak, the overall improvement in pronunciation was minimal. The majority of students showed only a modest increase in their scores, with some maintaining the same score or experiencing a decline. This suggests that while ELSA Speak may contribute to

pronunciation improvement, its impact is limited and might not significantly enhance pronunciation skills for all users.

Students' perception of ELSA Speak as a tool for practicing pronunciation is generally moderate to high, with varying levels of engagement and satisfaction reported. Although many students find the app moderately beneficial, the overall level of motivation and enjoyment is medium. This suggests that while the app is seen as useful, it may not fully capture students' interest or maintain high levels of engagement consistently.

The moderate levels of boredom and stress experienced by students while using the app suggest that these emotional responses could influence their perception of the app's performance. The mild benefit perceived from the app's functions, combined with these negative feelings, indicates that while the app offers some useful features, it may not fully engage students or provide an optimal learning experience. Addressing these emotional aspects could help improve both the effectiveness and user satisfaction with the app.

### **Recommendations**

Although some students showed slight improvement in their pronunciation scores, the overall progress has been modest. It is important to emphasize the value of both explicit and implicit pronunciation instruction provided by the teacher. In this context, technological tools should be considered as additional supplements to more effective teaching and learning. Teachers should integrate diverse methods along with technological resources to tailor instruction to individual students' needs and support more effective pronunciation development.

To enhance the use of ELSA Speak in freshmen students, consider integrating the app as part of a broader learning strategy that includes interactive and personalized features. Providing detailed feedback and creating opportunities for peer collaboration can help sustain their interest and improve engagement with the tool.

Given that students generally perceive the ELSA Speak app as moderately beneficial but report varying levels of engagement and motivation, consider supplementing the app's use

with additional resources. Since the free version of ELSA Speak may have limitations in features and functionality, it might be helpful to integrate alternative practice methods or materials that can complement the app. This approach can address potential gaps in engagement and motivation while leveraging the strengths of the app to enhance overall pronunciation practice.

## 11. REFERENCES

- AbdAlgane, M., & Mohamed, S. (2020). Challenges of Pronunciation to EFL Learners in Spoken English. *Multicultural Education*, 6(5), 193-203. <https://doi.org/10.5281/zenodo.4408549>
- Abdelrady, A. H., & Jahara, S. (2021). Pronunciation Problems Encountered by EFL Learners: An Empirical Study. *Arab World English Journal*, 12(4), 194-212. <https://doi.org/10.24093/awej/vol12no4.14>
- Abreu, F., & Vasconcelos, D. (2021). O Reconhecimento De Voz Como Alternativa Para O Ensino Dapronúncia Dalíngua Inglesaem Aulas Remotas: Estudo De Caso Com O Aplicativo Elsa Speak. *Hipertextus*, 23, 76-97. <https://periodicos.ufpe.br/revistas/index.php/hipertextus/article/view/250370/38892>
- Adawiah, R., Muliati, A., & Samtidar. (2024). The effect of Elsa Speak Application on students' English pronunciation development. *Journal Of Excellence In English Language Education*, 3(1), 65-70. <https://ojs.unm.ac.id/JoELEE/article/view/59627>
- Adityarini, H., Fahdiansyah, M. F., & Novitasari, V. (2021). Enhancing Students' Pronunciation using Android Pronunciation Application. *Advances in Social Science, Education and Humanities Research*, 662, 828-835. <https://www.atlantispress.com/article/125974359.pdf>
- Aeni, N., Fitri, N., Hasriani, F., & Asriati. (2021). Inserting ELSA application in Hybrid Learning to Enhance the Students' Motivation in Speaking. *Celebes Journal of Language Studies*, 1(2), 271-277. <https://harpressid.com/CJLS/article/view/70/47>
- Ahmad, S., Farheen, Z., Gogoi, S., Irfan, S., Srivastava, A., & Wasim, S. (2019). Qualitative v/s. quantitative research- a summarized review. *Evid. Based Med.*, 6(43), 2828-2832. <https://doi.org/10.18410/jebmh/2019/587>
- Aini, N., Abdillah, E. C., & Nurhandayani, N. (2023). BBC Learning English Channel in Listening Skill of EFL Classroom. *International Conference on Education*, 469–478. <https://jurnalfaktarbiyah.iainkediri.ac.id/index.php/proceedings/article/view/1814>
- Akhmad, N. W., & Munawir, A. (2022). Improving the Students' Pronunciation Ability by Using Elsa Speak App. *Journal of Language Teaching and Learning, Linguistics and Literature*, 10(1), 846-857. <https://doi.org/10.24256/ideas.v10i1.2868>
- Akpinar, E., & Demir, K. (2018). The effect of mobile learning applications on students' academic achievement and attitudes toward mobile learning. *Malaysian Online*

- Journal of Educational Technology*, 6(2), 48-59.  
<https://www.researchgate.net/publication/324156092> The Effect of Mobile Learning Applications on Students' Academic Achievement and Attitudes toward Mobile Learning
- Alhumaid, K. (2019). Four Ways Technology Has Negatively Changed Education. *Journal of Educational and Social Research*, 9(4), 10-20.  
<https://www.researchgate.net/publication/336969538> Four Ways Technology Has Negatively Changed Education
- Ali, Z. (2020). Artificial Intelligence (AI): A Review of its Uses in Language Teaching and Learning. *IOP Conference Series. Materials Science And Engineering*, 769(1), 1-6.  
<https://doi.org/10.1088/1757-899x/769/1/012043>
- Al-Jawi, F. D. (2010). *Teaching the receptive skills: Listening & Reading Skills*. Ummal Qura. [https://www.academia.edu/download/56665572/receptive\\_skills.pdf](https://www.academia.edu/download/56665572/receptive_skills.pdf)
- Alshebeb, A. (2024). Upskilling EFL Language Learners for Enhanced Pronunciation Proficiency. *Mağallaï Kulliyatï Al-Adāb - Ğāmi'atï Al-Fayūm*, 16(1), 953-985.  
<https://doi.org/10.21608/jfafu.2024.277033.2024>
- Ambarwati, R., & Mandasari, B. (2020). The Influence of Online Cambridge Dictionary on Students' Pronunciation and Vocabulary Mastery. *Journal of English Language Teaching and Learning*, 1(2), 50-55. <https://doi.org/10.33365/jeltl.v1i2.605>
- Andrade, M. (2014). Role of Technology in Supporting English Language Learners in Today. [Master's thesis, University of Toronto]. University of Toronto.  
[https://tspace.library.utoronto.ca/bitstream/1807/66995/1/Andrade\\_MariadeLoures\\_201406\\_MT\\_MTRP.pdf](https://tspace.library.utoronto.ca/bitstream/1807/66995/1/Andrade_MariadeLoures_201406_MT_MTRP.pdf)
- Anggraini. (2022). Improving Students' Pronunciation Skill Using Elsa Speak Application. *Journey Journal of English Language and Pedagogy*, 5(1), 135-141.  
<http://ejurnal.budiutomomalang.ac.id/index.php/journey/article/view/1840/1072>
- Arimilli, M., Kanuri, A. K., & Kokkirigadda, W. (2016). Innovative Methods In Teaching Pronunciation. *International Journal of Science Technology and Management*, 5(8), 108-112. [http://www.ijstm.com/images/short\\_pdf/1470367873\\_1049ijstm.pdf](http://www.ijstm.com/images/short_pdf/1470367873_1049ijstm.pdf)
- Astutik, I., & Lutfiani, D. (2017). Using Tongue Twister to Improve Students' Pronunciation. *Journal of English Language, Literature, and Teaching*, 2(2), 110-115.  
<http://jurnal.unmuhjember.ac.id/index.php/ELLITE/article/download/1511/1248>

- Aswaty, P., & Indari, A. (2022). The Effect Of Using Elsa (English Language Speech Assistant) Speak Application On Students' Speaking Ability For The Eleventh Grade Of Mas Darul Al Muhajirin In The Academic Year 2021/2022. *Jurnal Serunai Ilmu Pendidikan*, 8(1), 18-23. <https://doi.org/10.37755/sjip.v8i1.616>
- Ayala, P., & Alvarado, L. (2023). Integrating Artificial Intelligence into English Language Education in Ecuador: A Pathway to Improved Learning Outcomes. *593 Digital Publisher CEIT*, 8(3-1), 679-687. <https://doi.org/10.33386/593dp.2023.3-1.1862>
- Bakar, A., & Abdullah, M. (2015). Importance of Correct Pronunciation in Spoken English: Dimension of Second Language Learners' Perspective. *Pertanika Journal of Social Sciences and Humanities*, 23(8), 143–158. <https://acortar.link/PfpkQH>
- Bareither, T. (2007). *Tongue twisters, rhymes, and songs to improve your English pronunciation*. Author House. [https://books.google.com.ec/books?id=j700FjRAoUEC&printsec=frontcover&hl=en&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.com.ec/books?id=j700FjRAoUEC&printsec=frontcover&hl=en&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)
- Bartb, Y., Broekhuizen, T., Dong, J. Q., Fabian, N., Haenlein, M., & Verhoef, P. C. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889-901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Becker, K., & Edalatishams, I. (2019). ELSA Speak – Accent Reduction [Review]. In C. Levis, Nagle, E. Todey, & C. N. In J. Levis (Ed.), *Proceedings of the 10th Pronunciation in Second Language Learning and Teaching Conference* (pp. 434-438). Ames, IA: Iowa State University.
- Beltrán-Herrera, M., Andrade-Chávez, L., & Álvarez-Rojas, D. (2016). Pronunciation improvement in EFL young learners through phonics instruction. *Praxis*, 12(1), 52-62. <https://doi.org/10.21676/23897856.1847>
- Boumová, V. (2008). *Traditional vs. Modern Teaching Methods: Advantages and Disadvantages of Each*. Masaryk University. <https://is.muni.cz/th/f62v8/MgrDiplomkaBoumova.pdf>
- Brown, A. (2014). *Pronunciation and Phonetics: A Practical Guide for English Language Teachers*. (T. & Francis, Ed.) <https://acortar.link/f2Sm2E>
- Bui, H., Kumar, R., & Kamila, N. (2024). *Innovations and Applications of Technology in Language Education (1st ed.)*. (H. K. Bui, Ed.) Auerbach Publications. <https://doi.org/10.1201/9781003473916>

- Bustamante, B. (2023). *ELSA speak application based on artificial intelligence for developing speaking*. Universidad Nacional de Loja. [https://dspace.unl.edu.ec/jspui/bitstream/123456789/28090/1/BernardoAgustin\\_BustamanteRojas.pdf](https://dspace.unl.edu.ec/jspui/bitstream/123456789/28090/1/BernardoAgustin_BustamanteRojas.pdf)
- Çakici, D. (2016). The use of ICT in teaching English as a foreign language. *Participatory Educational Research*, 4(2), 73-77. <https://dergipark.org.tr/en/download/article-file/778411>
- Calvo, B. (2017). Contributions of new technologies to the teaching of English pronunciation. *Language Value*, 9(1), 1-35. <http://dx.doi.org/10.6035/LanguageV.2017.9.2>
- Celce-Murcia, M., Brinton, D., & Goodwin, J. (1996). *Research on the Teaching and Acquisition of Pronunciation Skills*. Cambridge University Press. [https://www.google.com.ec/books/edition/Teaching\\_Pronunciation/twC-H4a8VcYC?hl=es&gbpv=1&dq=teaching+pronunciation&printsec=frontcover](https://www.google.com.ec/books/edition/Teaching_Pronunciation/twC-H4a8VcYC?hl=es&gbpv=1&dq=teaching+pronunciation&printsec=frontcover)
- Celce-Murcia, M., Brinton, D., & Goodwin, J. (2010). *Teaching Pronunciation Hardback with Audio CDs (2): A Course Book and Reference Guide*. Cambridge University Press. <https://acortar.link/9qEeIF>
- Chan, M. (2018). *Tasks for Teaching Pronunciation to Beginners*. In *The TESOL Encyclopedia of English Language Teaching* (eds J.I. Liontas, T. International Association and M. DelliCarpini). <https://doi.org/10.1002/9781118784235.eelt0713>
- Cisneros, G. (2023). *Self-Learning activities using Elsa Speak App to improve pronunciation in the second semester of English Major students at UTN University*. Universidad Técnica del Norte, Ibarra. <https://repositorio.utn.edu.ec/bitstream/123456789/14679/2/05%20FECYT%204294%20TRABAJO%20GRADO.pdf>
- Criollo, M., A, B., Cango, E., & Palacios, J. (2023). ELSA Speak application based on artificial intelligencethe development of English-speaking skills. In *Investigación Contemporánea desde una vision multidisciplinar. Libro 3. Ciencias Sociales*. REDLIC. [https://www.researchgate.net/publication/374761997\\_ELSA\\_Speak\\_application\\_based\\_on\\_artificial\\_intelligence\\_in\\_the\\_development\\_of\\_English\\_speaking\\_skills](https://www.researchgate.net/publication/374761997_ELSA_Speak_application_based_on_artificial_intelligence_in_the_development_of_English_speaking_skills)

- Darsih, E., Wihadi, M., & Hanggara, A. (2021). Using ELSA App in Speaking Classes: Students' Voices. *UNISSET*. <https://eudl.eu/pdf/10.4108/eai.12-12-2020.2304993>
- Derwing, T., & Munro, M. (2005). Second language accent and pronunciation teaching: A research-based approach. *TESOL Quarterly*, 39(3), 379-397. <https://doi.org/10.2307/3588486>
- Dolgaya, D., & Phongtraychack, A. (2018). Evolution of Mobile Applications. *MATEC Web Of Conferences*, 155, 1-7. <https://doi.org/10.1051/mateconf/201815501027>
- Ehrlich, S., & Avery, P. (2013). *Teaching American English Pronunciation*. Oxford. University Press. <https://acortar.link/Vg5cWI>
- Elsani, E., Salsabila, R., Putra, M., Nabila, N., & Nahartini, D. (2023). The Effect of Using Elsa Speak App for First-Semester Students' English Speaking Proficiency. *Edukatif: Jurnal Ilmu Pendidikan*, 5(6), 2644-2655. <https://edukatif.org/index.php/edukatif/article/download/5976/pdf>
- Fatimah, S. (2021). The Use Of Mobile-Assisted Language Learning Application In Pronunciation Training. *UG Journal*, 15(4), 23-33. <https://ejournal.gunadarma.ac.id/index.php/ugjournal/article/view/3941/2182#>
- Fatimah, S. (2021). The Use Of Mobile-Assisted Language Learning Application In Pronunciation Training. *UG Journal*, 15(4), 23-33. <https://ejournal.gunadarma.ac.id/index.php/ugjournal/article/view/3941/2182#>
- Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL Quarterly*, 39(3), 399-423. <https://doi.org/10.2307/3588487>
- Flora, F. (2021). *Herramientas digitales para el desarrollo de la competencia*. Tecnológico de Monterrey. [https://repositorio.tec.mx/bitstream/handle/11285/645468/Tesis%20Final\\_Fabiola%20Flora\\_RITEC.pdf?sequence=3&isAllowed=y](https://repositorio.tec.mx/bitstream/handle/11285/645468/Tesis%20Final_Fabiola%20Flora_RITEC.pdf?sequence=3&isAllowed=y)
- Formby, S. K., Medlin, B. D., & Ellington, V. (2017). Microsoft Excel: Is It An Important Job Skill for College Graduates? 15(3), 55-63. <http://files.eric.ed.gov/fulltext/EJ1140801.pdf>
- Frey, F. (2017). SPSS (Software). In R. P. J. P. Matthes, *International Encyclopedia of Communication Research Methods*. Wiley Blackwell. [https://www.researchgate.net/publication/311101660\\_SPSS\\_software](https://www.researchgate.net/publication/311101660_SPSS_software)

- Ghafar, Z. (2023). Teaching Pronunciation: a Critical Assessment of the Role of Instructors. *International Journal of Applied and Scientific Research*, 1(2), 93-104. [https://www.researchgate.net/publication/375090510 Teaching Pronunciation a Critical Assessment of the Role of Instructors](https://www.researchgate.net/publication/375090510_Teaching_Pronunciation_a_Critical_Assessment_of_the_Role_of_Instructors)
- Gilbert, J. (2008). *Teaching Pronunciation: Using the Prosody Pyramid*. Cambridge University Press.
- Golzar, J., Noor, S., & Tajik, O. (2022). Sampling Method | Descriptive Research. *International Journal of Education & Language Studies*, 1(2), 72-77. [https://www.ijels.net/article\\_162981\\_06fc448b8914d42316b8d44829c88188.pdf](https://www.ijels.net/article_162981_06fc448b8914d42316b8d44829c88188.pdf)
- Gómez, G., & Sánchez, R. (2016). *English Pronunciation for Speakers of Spanish: From Theory to Practice*. (D. Gruyter, Ed.) <https://acortar.link/NV5TVi>
- Grieser, J. (2010). The Effect of Dialect Features on the Perception of “Correctness” in English-Word Voting Patterns on Forvo.com. *University of Pennsylvania Working Papers in Linguistics*, 16(2), 74-82. <http://repository.upenn.edu/pwpl/vol16/iss2/10>
- Guo, L., & Tian, Q. (2023). English Pronunciation Learning Strategies among English Major Students. *Lecture Notes on Language and Literature*, 6(10), 25-32. <https://doi.org/10.23977/langl.2023.061004>
- Gusrianto, E., & Iswahyuni, I. (2024). ELSA Speak Application as an Advanced Program for Improving Pronunciation for Students in Indonesia: A Literature Review. *Proceedings of the 3rd International Conference on Language, Literature, Education, and Culture*. <https://eudl.eu/doi/10.4108/eai.25-10-2023.2348268>
- Halimah, H., Ibrahim, G. A., & Lustyantie, N. (2018). Students’ Perception on The Implementation of Orai Application In CLL Method in Teaching Speaking. *JEELS*, 5(1), 1-21. <https://doi.org/10.30762/jeels.v5i1.69>
- Haryadi, S., & Aprianoto. (2020). Integrating “English Pronunciation” App Into Pronunciation Teaching: How It Affects Students’ Participation And Learning. *JOLLT Journal of Languages and Language Teaching*, 8(2), 202-212. <https://doi.org/10.33394/jollt.v8i2.2551>
- Hoang, N. T., Duong, N. H., & Le, D. H. (2023). Exploring Chatbot AI in improving vocational students’ English pronunciation. *AsiaCALL Online Journal*, 14(2), 140-155. <https://doi.org/10.54855/acoj.231429>

- Ílter, B. (2009). Effect of technology on motivation in EFL Classrooms. *Turkish Online Journal of Distance Education-TOJDE*, 10(4), 136-158. <https://dergipark.org.tr/tr/download/article-file/156228>
- Jain, V., & Viswanathan, V. (2015). *The Usage and Applications of Mobile Apps*. (E. (Z. Yan, Ed.) IGI Global. <https://doi.org/10.4018/978-1-4666-8239-9.ch100>
- Jarosz, A. (2019). *English Pronunciation in L2 Instruction: The Case of Secondary School Learners*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-13892-9>
- Jordão, C. M. (2009). English as a foreign language, globalisation and conceptual questioning. *Globalisation, societies and education*, 7(1), 95-107. <https://doi.org/10.1080/14767720802677390>
- Kang, O., & Ginther, A. (2017). *Assessment in second language pronunciation*. Routledge. [https://books.google.com.ec/books?id=YAqDwAAQBAJ&printsec=frontcover&hl=es&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.com.ec/books?id=YAqDwAAQBAJ&printsec=frontcover&hl=es&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)
- Karim, S., Hamzah, A., Anjani, N., Prianti, J., & Sihole, I. (2023). Promoting Efl Students' Speaking Performance Through Elsa Speak: An Artificial Intelligence In English Language Learning. *JOLLT Journal of Languages and Language Teaching*, 11(4), 655-668. <https://e-journal.undikma.ac.id/index.php/jollt/article/download/8958/4932>
- Kelly, G. (2000). *How to Teach Pronunciation*. Pearson Education Limited ed. <https://acortar.link/XY2WCK>
- Kholis, A. (2021). Elsa Speak App: Automatic Speech Recognition (ASR) for Supplementing English Pronunciation Skills. *Pedagogy: Journal of English Language Teaching*, 01-14. <https://e-journal.metrouniv.ac.id/pedagogy/article/view/2723/2135>
- Khualid, R., Kinanti, & Lubis, Y. (2024). Analysis of the Correct Pronunciation of Phonetic Symbols in English. *Cemara Education and Science*, 2(1), 1-10. <https://doi.org/10.62145/ces.v2i1.57>
- Kim, A., & Su, Y. (2024). How implementing an AI chatbot impacts Korean as a foreign language learners' willingness to communicate in Korean. *System*, 122, 1-12. <https://doi.org/10.1016/j.system.2024.103256>

- Laroy, C. (2013). *Pronunciation - resource books for teachers*. Oxford University Press. .  
[https://books.google.com.ec/books?id=afKdBgAAQBAJ&printsec=frontcover&hl=es&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.com.ec/books?id=afKdBgAAQBAJ&printsec=frontcover&hl=es&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)
- Maknun, L. (2020). The Implementation of Orai as Artificial Intelligence for Digital Native Students in English Speaking Learning. *Indonesia Technology Enhanced Language Learning*, 131-138.  
[https://www.researchgate.net/publication/347409312\\_The\\_Implementation\\_of\\_Orai\\_as\\_Artificial\\_Intelligence\\_for\\_Digital\\_Native\\_Students\\_in\\_English\\_Speaking\\_Learning](https://www.researchgate.net/publication/347409312_The_Implementation_of_Orai_as_Artificial_Intelligence_for_Digital_Native_Students_in_English_Speaking_Learning)
- Manjunatha, N. (2019). Descriptive Research. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 6(6), 863-867.  
<https://www.jetir.org/papers/JETIR1908597.pdf>
- Maria, C. (2022). *TPR Teaching*. <https://www.tprteaching.com/elsa-speak-review/>
- Medina, T. (2023). *De distractor a aliado: Uso del celular como recurso didáctico para el aprendizaje*. Fundación Universitaria los Libertadores.  
<https://repository.libertadores.edu.co/server/api/core/bitstreams/83d84086-630a-488b-b190-17253591ee99/content>
- Mohammadkarimi, E. (2024). Exploring The Use Of Artificial Intelligence In Promoting English Language Pronunciation Skills. *LLT Journal: A Journal on Language and Language Teaching*, 27(1), 98-115. <https://doi.org/10.24071/llt.v27i1.8151>
- Mompean, J. A., & Fouz-González, J. (2015). *Investigating English Pronunciation: Trends and Directions*. Palgrave Macmillan. <https://acortar.link/JwDILq>
- Mortimer, C. (1985). *Elements of Pronunciation: Intensive Practice for Intermediate and More Advanced Students*. Cambridge University Press.  
<https://books.google.com.ec/books/content?id=eroD9vMzMYEC&hl=es&pg=PP6&img=1&zoom=3&sig=ACfU3U13TcSn0w2WeC-ZSpJaQbVoMiYfvA&w=1280>
- Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. *Language Teaching Research*, 19(2), 129 –132.  
<https://doi.org/10.1177/1362168815572747>
- Nation, I., & Newton, J. (2009). *Teaching ESL/EFL Listening and Speaking*. (T. & Francis., Ed.) <https://privateedelt.com/wp-content/uploads/2022/11/teaching-esl-efl-listening-and-speaking.pdf>

- Nguyen, K. N., & Nguyen, T. M. (2023). Non-Specialized Students' Benefits And Challenges In Using Elsa Speak Application For Pronunciation Learning. *European Journal of Alternative Education Studies*, 8(4), 90-106. <http://dx.doi.org/10.46827/ejae.v8i4.5149>
- Nguyen, K., & Nguyen, T. (2024). Tertiary Students' Perceptions On Elsa Speak Application For Pronunciation Learning. *European Journal of Applied Linguistics Studies*, 7(1), 1-13. <http://dx.doi.org/10.46827/ejals.v7i1.483>
- Nguyen, T., & Tuyen, L. (2024). The Effects of Using “Elsa Speak app” on the Enhancement of College Students' English-Speaking Skills. *International Journal of English Literature and Social Sciences*, 9(1), 27-32. <https://doi.org/10.22161/ijels.91.4>
- Nushi, M., & Momeni, A. (2021). English Listening and Speaking: A Review. *eaching English as a Second Language Electronic Journal*, 25(3), 1-8. <https://tesl-ej.org/pdf/ej99/m2.pdf>
- Nushi, M., & Sadeghi, M. (2021). A Critical Review of ELSA: A Pronunciation App. *Computer Assisted Language Learning Electronic Journal*, 22(3), 287-302. [https://www.researchgate.net/publication/355792692\\_A\\_Critical\\_Review\\_of\\_ELSA\\_A\\_Pronunciation\\_App](https://www.researchgate.net/publication/355792692_A_Critical_Review_of_ELSA_A_Pronunciation_App)
- Pennington, M. C., & Rogerson-Revell, P. (2018). *English Pronunciation Teaching and Research: Contemporary Perspectives*. Palgrave Macmillan UK. <https://acortar.link/R0Aho3>
- Pham, V., & Truong, M. (2021). Teaching Writing in Vietnam's Secondary and High Schools. *Education Sciences*, 11(10), 1-23. <https://doi.org/10.3390/educsci11100632>
- Ponto, J. (2015). Understanding and Evaluating Survey Research. *Journal of the Advanced Practitioner in Oncology*, 6(2), 168-171. [https://www.researchgate.net/publication/286445115\\_Understanding\\_and\\_Evaluating\\_Survey\\_Research](https://www.researchgate.net/publication/286445115_Understanding_and_Evaluating_Survey_Research)
- Pourhosein, A. (2011). A Study on the Situation of Pronunciation Instruction in ESL/EFL Classrooms. *Journal of Studies in Education*, 1(1), 1-15. <https://doi.org/10.5296/jse.v1i1.924>
- Pourhosein, G. A., & Sabouri, N. (2016). Why Is English Pronunciation Ignored by EFL Teachers in Their Classes? *International Journal of English Linguistics*, 6(6), 195-208. <http://dx.doi.org/10.5539/ijel.v6n6p195>

- Rahman, T. (2015). *Challenges of Using Technology in the Secondary English Language Classroom*. BRAC University. <https://core.ac.uk/download/pdf/61807266.pdf>
- Rama, A. N., Ahmad, D., & Nurwanti. (2022). The Effect of English Listening and Speaking Application On Students' Listening Skill at Lakidende University. *Jurnal Pendidikan dan Konseling*, 4(3), 1166-1171. <https://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/4740/3219>
- Richards, J. (2006). *Communicative language teaching today*. Cambridge University Press. <https://www.professorjackrichards.com/wp-content/uploads/Richards-Communicative-Language.pdf>
- Richards, J. C., & Rodgers, T. S. (2014). *Approaches and Methods in Language Teaching*. Cambridge University Press & Assessment. <https://www.english-efl.com/wp-content/uploads/2020/12/Communicative-Language-Teaching.pdf>
- Rinaepi, Triwardani, H. R., & Azi, R. N. (2022). The Effectiveness Of Elsa Speak Application To Improve Pronunciation Ability. *Jurnal Fakultas Keguruan & Ilmu Pendidikan*, 3(1), 28-33. <https://media.neliti.com/media/publications/455734-the-effectiveness-of-elsa-speak-applicat-e47fc683.pdf>
- Rismawati, D., Suryana, Y., & Agustiana, V. (2022). The Effectiveness Of Elsa Speaking Application In Improving English Pronunciation. *The Proceedings of English Language Teaching, Literature, and Translation (ELTLT)*, 10(1), 177–184. <https://proceeding.unnes.ac.id/elslt/article/view/1329>
- Sadiku, M. N., Musa, S. M., & Chukwu, U. C. (2022). Artificial Intelligence in Education. *International Journal of Scientific Advances*, 2(1), 5-11. <https://pdfs.semanticscholar.org/3d48/dc2040d6f9d323933720ecaa2163fc013778.pdf>
- Šafranĳ, J. (2013). Strategies of learning English as a foreign language at Faculty of Technical Sciences. *Procedia - Social and Behavioral Sciences*, 93, 775-782. <https://doi.org/10.1016/j.sbspro.2013.09.278>
- Samad, I. S., & Aminullah, A. (2019). Applying ELSA Speak Software in the Pronunciation Class: Students' Perception. *Jurnal Edumaspul*, 3(1), 56-63. <https://doi.org/10.33487/majesty.v2i2.510>

- Samad, I. S., & Aminullah, A. (2019). Applying ELSA Speak Software in the Pronunciation Class: Students' Perception. *Jurnal Edumaspul*, 3(1), 56-63. <https://ummaspul.ejournal.id/maspuljr/article/view/85/67>
- Samad, I. S., & Ismail, I. (2020). ELSA Speak Application as a Supporting Media in Enhancing Students' Pronunciation Skill. *Majesty Journal*, 2(2), 1-7. <https://doi.org/10.33487/majesty.v2i2.510>
- Santosa, M. H., Vidya, A., & Wahyuni, S. (2023). *The Digital Classroom for Effective EFL Learning: Exploring Technology in Action*. Multilingual Matters Ltd. [https://www.google.com/ec/books/edition/Second Language Practice/YQJXzy4pGnMC?hl=es&gbpv=1&dq=receptive%20skills&pg=PA24&printsec=frontcover](https://www.google.com/ec/books/edition/Second+Language+Practice/YQJXzy4pGnMC?hl=es&gbpv=1&dq=receptive%20skills&pg=PA24&printsec=frontcover)
- Sardegna, V., & Jarosz, A. (2023). *English Pronunciation Teaching Theory, Practice and Research Findings*. Library of Congress. [https://books.google.com/ec/books?id=h3GLEAAQBAJ&printsec=frontcover&hl=es&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.com/ec/books?id=h3GLEAAQBAJ&printsec=frontcover&hl=es&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)
- Shehata, M. (2024). A Program Based on Artificial Intelligence to Enhance Prospective Teachers' English Pronunciation. *CDELT Occasional Papers in the Development of English Education*, 86(1), 145-179. <https://doi.org/10.21608/OPDE.2024.362818>
- Shi, X., & Wang, S. (2021). Research on Correction Method of Spoken Pronunciation Accuracy of AI Virtual English Reading. *Advances in Multimedia*, 2021, 1-12. <https://doi.org/10.1155/2021/6783205>
- Sholekhah, M., & Fakhurrriana, R. (2023). The Use of ELSA Speak as a Mobile-Assisted Language Learning (MALL) towards EFL Students' Pronunciation. *Journal of Education, Language Innovation, and Applied Linguistics*, 2(2), 93-100. <https://doi.org/10.37058/jelita.v2i2.7596>
- Sokyrska, O. (2023). Pronunciation as an Important Aspect of ELT: Modern Trends. *European Science*, 2(((sge18-02))), 118-140. <https://doi.org/10.30890/2709-2313.2023-18-02-026>
- Sotomayor Cantos, K., Varas Giler, R., & Castro Magayanes, I. E. (2023). Artificial Intelligence In Language Teaching And Learning. *Ciencia Latina Revista Científica Multidisciplinar*, 7(4), 5629- 5638. [https://doi.org/10.37811/cl\\_rcm.v7i4.7368](https://doi.org/10.37811/cl_rcm.v7i4.7368)

- Souza, L., & Neto, J. (2023). Tecnología y enseñanza de la pronunciación: análisis del software ELSA Speak. *Hachetetepe. Revista científica De Educación Y Comunicación*, 26, 1-11. <https://doi.org/10.25267/Hachetepe.2023.i26.1201>
- Suman, C., & Suman, S. (2023). Using Artificial Intelligence for Foreign Language Learning. *A Peer Review Research Journal of Language and Human Development*, 1(1), 57-64. <https://doi.org/10.13140/RG.2.2.11629.97768>
- Suragih, E., Tabrani, N., & Muthmainnah, N. (2022). Improving students' pronunciation skill using ELSA Speak application. *Journal of English Education and Linguistics*, 8(1), 133-145. <https://doi.org/10.32682/jeell.v8i1.1937>
- Suryani, L., Syahrizal, T., & Fauziah, U. (2019). Using Orai Application In Teaching Pronunciation. *Indonesian EFL Journal*, 5(2), 93-102. <https://doi.org/10.25134/iefllj.v5i2.1835>
- Susanto, A. S., Ardini, S. N., & Sukmaningrum, R. (2024). Dictionary Speech Assistant to Improve Students' Pronunciation. *Allure Journal*, 4(1), 14-22. <https://doi.org/10.26877/allure.v4i1.17267>
- Suseno, E. (2023). Developing Pronunciation Skills Through Application To Enhance Speaking Ability: Systematic Literature Review. *Innovare Journal of Social Sciences*, 11(5), 1-5. <https://journals.innovareacademics.in/index.php/ijss/article/download/48662/28774>
- Szpyra-Kozłowska, J. (2014). *Pronunciation in EFL Instruction: A Research-based Approach*. Multilingual Matters. <https://acortar.link/rDFmjV>
- Vahdat, S., & Rasti, A. (2013). The Effect of Video Games on Iranian EFL Learners' Vocabulary Learning. *The Reading Matrix*, 13(1), 61-71. [https://www.readingmatrix.com/articles/april\\_2013/vahdat\\_behbahani.pdf](https://www.readingmatrix.com/articles/april_2013/vahdat_behbahani.pdf)
- Wei, M. (2006). A Literature Review on Strategies for Teaching Pronunciation. (ED491566) ERIC. <https://eric.ed.gov/?id=ED491566>
- Wold, J. B. (2006). *Difficulties in Learning English As a Second Or Foreign Language*. ePublications at Regis University. <https://epublications.regis.edu/cgi/viewcontent.cgi?article=1333&context=theses>
- Yokuş, G., & Yelken, T. Y. (2017). *The Adoption of Mobile Devices as Digital Tools for Seamless Learning*. (I. S. (Eds.), Ed.) Digital Tools for Seamless Learning. <https://doi.org/10.4018/978-1-5225-1692-7.ch015>

- Yosintha, R., & Rekha, A. (2022). "Elsa Speak" In An Online Pronunciation Class: Students' Voices. *IJEE (Indonesian Journal of English Education)*, 9(1), 160-175. <https://doi.org/10.15408/ijee.v9i1.23033>
- Yuliawati, N. L., & Suryadi. (2024). Students' Perceptions On The Use Of Elsa Speak Application To Improve English Speaking Skills. *TELL-US Journal*, 9(4), 1114-1137. <https://doi.org/10.22202/tus.2023.v9i4.7649>