



People's Democratic Republic of Algeria  
Ministry of Higher Education and Scientific Research  
University of Chadli Bendjedid El-Tarf  
Faculty of Letters and Foreign Languages  
Department of English



*Tracking the Role of AI Driven Tools in Enhancing Pronunciation among Second  
Year EFL Students at Chadli Bendjedid University*

Dissertation submitted to the Department of English in Partial Fulfilment of the  
Requirement for the Master Degree in Didactique de l'Anglais

**Presented by:**

Ms. Ines Chouabi

**Supervised by:**

Dr. Zouleykha Belabbes

**BOARD OF EXAMINERS**

Chair: Ms. Assia Berzane

MAA

University of Chadli Bendjedid- El Tarf

Supervisor: Dr. Zouleykha Belabbes

MCA

University of Chadli Bendjedid- El Tarf

Examiner: Dr. Naima Ladaci

MCA

University of Chadli Bendjedid- El Tarf

**Academic Year**

**2024/2025**

## Declaration

I hereby certify that this research work, which I now submit for assessment of the program of study leading to the award of Master in *Didactique de l'Anglais* is entirely the result of my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the context of my work.

Students' name: Ines Chouabi

Signed: .....

Date: ..... / ..... / .....

Student number: .....

## Dedication

In the Name of ALLAH the Most Gracious, the Most Merciful All the Praise is due to ALLAH  
alone, the Sustainer of all the worlds

This work is dedicated:

**To myself** for the late nights, the silent tears, the moments of doubt I overcame, and the strength I found within. I am proud of the woman I am becoming, dedicated, passionate, and resilient. This journey has not been easy, but I never gave up. This accomplishment is a symbol of my growth and belief in myself.

To my dearest parents my mother '*Samira*' and my father '*Yacine*'. No words can truly express how grateful I am for everything you have done for me. My mother Samira, you are the light of my life, the one whose prayers, kindness, and unconditional love have carried me through every challenge. Your sacrifices, your warm heart, and your endless support are the reason I am who I am today. My father Yacine, you are my role model, the strongest and most loving man I know. Your constant encouragement, wisdom, and belief in me gave me the courage to dream and the strength to succeed. Without your guidance and support, this journey would have been impossible

To my beloved brothers *Anis*, *Mahdi*, *Adib* and *Ilyes*, who were always supporting me,

To my dear childhood friends *Isra*, *Nibel*, *Douaa*, *Bila* who has been by my side through every stage of life, thank you for your lifelong friendship, loyalty, and support.

To my cousins *Amina*, *Feryal* and *Hadjer* thank you for your heartfelt encouragement and for always checking in on me. Your support meant more than you can imagine.

And finally, I dedicate this work to all my family members and friends who supported me in any way throughout this journey. Your presence and help have been deeply appreciated.

## **Acknowledgements**

First and foremost, I would like to express my heartfelt thanks to the Almighty ALLAH for granting me the strength, patience, and perseverance to pursue and complete this work.

I am deeply grateful to my supervisor, Dr. Zouleykha Belabbes, for her valuable guidance, continuous support, and insightful advice throughout this journey. Her patience and encouragement helped me overcome many challenges during the course of this research. I truly hope that one day I will be able to guide my students with the same wisdom and dedication as Dr. Zouleykha Belabbes.

I would also like to extend my sincere gratitude and respect to all the members of the jury for generously giving their time to read and evaluate this thesis. Your feedback and comments are highly appreciated.

My thanks go as well to Mr. Djedid, Head of the English Department, and to all the teachers of English at Chadli Bendjedid University, El Tarf, for their support and commitment to our academic growth.

I am also thankful to all Second-year students at El Tarf University who contributed to this research with their collaboration and participation

### *Abstract*

The rapid growth of technology witnessed a great impact on language learning, particularly in the area of pronunciation. This research work attempts to probe the role of AI pronunciation tools such as Duolingo, Elsa speak, Google Pronunciation Tool in enhancing second-year EFL students' pronunciation at Chadli Bendjedid University during the 2024–2025 academic year. These tools are particularly designed to offer real-time feedback with interactive practice, while each one of them plays a critical role in assessing the learners' pronunciation improvement. The study used a mixed-method approach and collected data via a questionnaire distributed to 30 EFL students. The findings highlight that students found these tools beneficial for their pronunciation enhancement, which fostered their confidence. They practiced their pronunciation repeatedly to strengthen their ability to produce the correct words and detect their pronunciation errors. The integration of these tools showed great improvement in multiple areas, such as reducing anxiety and increasing learners' autonomy. However, certain difficulties were identified, including some limitations and the need for teacher guidance when using these tools effectively. The study presents practical recommendations for integrating AI pronunciation tools into EFL classrooms and encourages further research on their long-term effectiveness.

*Keywords:* AI pronunciation tools, Duolingo, ELSA Speak, Google pronunciation, improvements, pronunciation.

## ملخص

شهد النمو السريع للتكنولوجيا تأثيرًا كبيرًا على تعلم اللغات، لا سيما في مجال النطق. تهدف هذه الدراسة إلى استكشاف دور أدوات تحسين نطق طلاب السنة الثانية في اللغة الإنجليزية كلغة أجنبية بجامعة الشاذلي بن جديد خلال السنة الأكاديمية 2024-2025. تم تصميم هذه الأدوات لتوفير تغذية راجعة فورية مع ممارسات تفاعلية، حيث يلعب كل منها دورًا مهمًا في تقييم تطور نطق المتعلمين. استخدمت الدراسة منهجًا مختلطًا، وجمعت البيانات من خلال استبيان وُزِع على 30 طالبًا. أظهرت النتائج أن الطلاب وجدوا هذه الأدوات مفيدة في تحسين نطقهم، مما عزز ثقتهم بأنفسهم. كما قاموا بممارسة النطق بشكل متكرر لتعزيز قدرتهم على إنتاج الكلمات بشكل صحيح واكتشاف أخطائهم النطقية. وقد أظهرت عملية دمج هذه الأدوات تحسنًا ملحوظًا في عدة جوانب، مثل تقليل القلق وزيادة استقلالية المتعلمين. ومع ذلك، تم تحديد بعض الصعوبات، بما في ذلك بعض القيود والحاجة إلى التوجيه من المعلم لتحقيق الاستخدام الفعال لتلك الأدوات. تقدم الدراسة توصيات عملية لإدماج أدوات النطق الذكية في أقسام اللغة الإنجليزية كلغة أجنبية، وتشجع على إجراء بحوث مستقبلية حول فعاليتها على المدى الطويل.

الكلمات المفتاحية: أدوات النطق الذكية ، التحسينات، النطق ، Duolingo ELSA Speak Google Pronunciation

## Table of Contents

Declaration.....	i
Dedication .....	ii
Acknowledgements .....	iii
Abstract .....	iv
المخلص.....	v
Table of Contents .....	vi
List of Abbreviation and Acronyms .....	x
List of Tables.....	xii
List of Figures.....	xiii
<b>General Introduction</b> .....	1
Introduction.....	1
1. Statement of the Problem.....	1
2. Aims of the Study.....	2
3. Research Questions.....	2
4. Hypotheses.....	2

5. Significance of the Study .....	3
6. Research Design .....	3
7. Organization of the Dissertation.....	3
8. Limitation of the Study .....	4
<b>Chapter One: English Pronunciation and AI Tools</b>	<b>5</b>
Introduction.....	5
1.1.Pronunciation in EFL Learning .....	5
1.1.1.Definition of Pronunciation .....	5
1.1.2.The Role of Pronunciation .....	6
1.1.3. The Importance of Pronunciation.....	7
1.1.4. Difficulties in Learning English Pronunciation .....	9
1.1.4.1.Irregularities in English and Pronunciation.....	10
1.1.4.2. Complexity of The English Vowel System.....	10
1.1.4.3. Word Stress and Rhythm.....	10
1.1.4.4. Features of Connected Speech in Real Communication .....	11
1.1.4.5. Accent Variation Across English Dialects .....	11
1.1.4.6 Intonation Patterns .....	12
1.1.4.7 .Fear of Making Mistakes .....	12
1.2 AI Powered Pronunciation Tools .....	12

1.2.1 Overview of Common AI pronunciation Tools .....	12
1.2.2 AI Powered Pronunciation Tools .....	13
1.2.2.1 Duolingo.....	13
1.2.2.2 ELSA Speak .....	14
1.2.2.3 Google Pronunciation Tool .....	15
1.3 The Role of AI in Language Learning .....	16
1.3.1 Advantages of AI Tools in Pronunciation Practise .....	16
1.3.1.1 Accessibility and Flexibility .....	16
1.3.1.2 Immediate Feedback.....	17
1.3.1.3 Reduced Anxiety .....	17
1.3.1.4 Repetition and Reinforcement .....	17
1.3.1.5 Personalized Learning .....	18
1.3.2 AI-Based Feedback Mechanisms (Speech Recognition, Acoustic Analysis).....	<b>18</b>
1.3.2.1 AI-Based Framework .....	19
1.3.2.2 Feedback Mechanism .....	19

1.3.2.3 Speech Recognition .....	19
1.3.2.4 Acoustic Analysis .....	19
Conclusion .....	20
 <b>Chapter Two : Data Analysis, Discussion and Recommendations</b>	
Introduction.....	21
2.1. Research Design.....	21
2.2. Sample Population.....	21
2.3. Data Gathering Tools.....	22
2.4. Description of the Students' Questionnaire.....	22
2.5 Analysis of the Students' Questionnaire.....	23
2.6. Discussion of the Findings.....	38
2.7. Practical Implications .....	39
2.8 Recommendations .....	40
Conclusion.....	41
<b>General Conclusion .....</b>	<b>42</b>
References.....	44
 Appendix	

## **List of Abbreviations and Acronyms**

**AI** - Artificial Intelligence

**Duolingo** – "duo" (meaning "two") and "linguo" (meaning "language")

**EFL** - English as a Foreign Language

**ELSA** - English Language Speech Assistant

**IELTS** - International English Language Testing System

**ML** - Machine Learning

**N.** : Number.

**TOEFL** - Test of English as a Foreign Language

**%** : Percentage.

## List of Tables

<b>Table 1:</b> <i>Participants' Age Groups</i> .....	23
<b>Table 2:</b> <i>Participants' Perception of Their Current English Pronunciation</i> .....	25
<b>Table 3:</b> <i>Most Common Pronunciation Mistakes Among EFL Learners</i> .....	26
<b>Table 4:</b> <i>The impact of AI tools on the Pronunciation of the Students after Using it</i> .....	31

## List of Figures

<b>Figure 1 :</b> <i>Participants' Perception of the Easiness of Learning English</i> .....	24
<b>Figure 2 :</b> <i>Participants Usage of AI Pronunciation Tools for Practice</i> .....	27
<b>Figure3:</b> <i>Most Commonly Used AI Pronunciation Tools Among Participants</i> .....	28
<b>Figure 4:</b> <i>Participants' Preferences for AI Pronunciation Tool Features</i> .....	29
<b>Figure 5 :</b> <i>The Frequency of Using AI Tools for Pronunciation Practice</i> .....	30
<b>Figure 6 :</b> <i>The Effectiveness of AI Pronunciation Tools in Improving English Pronunciation</i> .....	31
<b>Figure 7 :</b> <i>Participants' Challenges in Using AI Learning Applications</i> .....	32
<b>Figure 8:</b> <i>Participants' Preferences Between AI Tools and Human Guidance</i> .....	33
<b>Figure 9:</b> <i>Participants' Opinions on AI Pronunciation Tools' Ability to Adapt to Different Accents and Speech Patterns</i> .....	34
<b>Figure 10 :</b> <i>Students' suggestions about the Improvement to some AI Pronunciation Tools</i> .....	35
<b>Figure 11 :</b> <i>Students' comparison between AI tools and Traditional Pronunciation tools method</i>	36
<b>Figure 12:</b> <i>Students' suggestions about the Role of AI Tools During Classroom</i> .....	37

## **General Introduction**

In today's era, the English language is considered the most widely used and influential language around the world, due to its significance, especially in communication and the way of pronouncing words. One of the key aspects of effective communication in English is clear pronunciation, which plays a critical role in avoiding misunderstanding. In the past, learners depended on traditional methods by searching through books or dictionaries to find how a word is correctly pronounced, which required effort and time-consuming. But nowadays, with the rapid advancement of artificial intelligence, the use of AI tools offers an opportunity for EFL learners to enhance and improve their pronunciation accuracy successfully. With instant outcomes and personalized feedback to correct mistakes in real time, these tools facilitate learners in fixing mispronunciations. However, it has also led learners to become more flexible and consistent.

### **1. Statement of the problem**

Despite the high importance of pronunciation in English language learning, many EFL learners still face difficulties during their pronunciation practice, such as a lack of ability to produce clear and intelligible speech. The traditional classroom method and materials applied do not support enough for effective pronunciation practice, but depending on various AI pronunciation tools such as Duolingo, ELSA speak , Google pronunciation tool can encourage the learners and help them to tackle these challenges and promote the learners autonomy by leading them to practice pronunciation anytime and anywhere.

### **2. Aims of the Study**

The aim of this study is to examine the perception of second-year EFL students at Chadli Bendjedid University on enhancing their English pronunciation depending on the use of AI tools such as ELSA Speak, Duolingo, and Google Pronunciation Tools. However, it also

focuses on the effectiveness of those tools and investigates the experience of the students through the use of these tools as part of their English language learning.

### **3. Research Questions**

This study intends to answer the following questions :

- ❖ Do AI pronunciation tools enhance the pronunciation accuracy of second-year EFL students at Chadli Bendjedid University?
- ❖ How do second-year EFL students at Chadli Bendjedid University perceive the use of AI pronunciation tools in refining their English pronunciation?

### **4. Research Hypotheses**

Based on the previous questions, the following hypotheses are proposed :

- ❖ The use of AI tools leads to the improvement of pronunciation practice among second-year EFL students at Chadli Bendjedid University. The AI tools enable students to enhance their pronunciation accurately and according to what suits their needs, such as interactive communication.
- ❖ The second-year EFL students at Chadli Bendjedid University view AI tools as highly beneficial in fostering their pronunciation, as these tools offer accessibility and make pronunciation practice more flexible by providing correct and personalized feedback.

### **5. Significance of the Study**

**Students :** The research involves the students' perception about their experience during the use of AI pronunciation tools to improve their pronunciation accuracy, such as Duolingo, Elsa Speak, Google Pronunciation Tool, etc., all of which positively impact the learners' way of improving their pronunciation.

**Teachers :** The positive results of the students' perceptions regarding the use of AI tools attract teachers to adopt these tools in the classroom, which enhances classroom interaction.

**Researchers :** The findings are beneficial for researchers who wish to explore the role of AI in language learning, focusing on pronunciation development, and provide a foundation for future academic exploration in the field of technology-supported pronunciation training.

## **6. Research Design**

This dissertation is based on a descriptive study, utilizing a questionnaire designed for second-year EFL students at Chadli Bendjedid University. Before applying the questionnaire, a pre-questionnaire was distributed to students from the English department (i.e., first year, second year, and third year) to select a suitable level and to gather various perspectives on the improvement of English pronunciation through AI pronunciation tools such as ELSA Speak, Duolingo, and Google Pronunciation Tool. This process was carefully designed to examine the proposed hypotheses. The collected data will be analyzed using a mixed-method approach, combining both quantitative and qualitative methods to ensure the investigation of the topic from all relevant areas.

## **7. Organization of the Dissertation**

This dissertation is divided into two chapters. The first chapter includes a literature review providing the key elements of the use of AI pronunciation tools among EFL learners. It includes topics such as pronunciation in EFL learning, the challenges faced by EFL learners in pronunciation, an overview of AI-powered pronunciation tools, and the definitions of ELSA speak, Dualingo, and Google pronunciation tool. It also covers the role of AI-powered pronunciation tools in language learning. The second chapter involves the methodology used during the application of this study and the analysis of the questionnaire results. It also tackles the interpretation of the results and highlighting some suggestions to help second-year EFL learners use AI pronunciation tools regularly to improve their pronunciation accuracy.

## **8. Limitations of the Study**

The most challenge during conducting this research was the lack of the students' engagement and their familiarity with AI tools; many students did not use the AI at all, which lead the analysis of the questionnaire data became difficult, and this was the most difficult limitation we faced in our research study.

## CHAPTER ONE

### English Pronunciation and AI Tools

#### Introduction

This chapter outlines the key concepts of the study, including the definition of pronunciation, the role and importance of pronunciation in communicative learning, an overview of AI pronunciation tools (Duolingo, Elsa speak , Google pronunciation ), and their advantages followed by the AI-based feedback mechanism.

#### 1.1 Pronunciation in EFL Learning

##### 1.1.1 Definition of Pronunciation

Pronunciation refers to the manner in which language is spoken; it encompasses how a word is articulated, how a person speaks, and the verbal expressions of a language (Hornby, 1947). Seidlhofer (2001a) defines pronunciation as “the production and the perception of the significant sounds of a particular language in order to achieve meaning in contexts of language use” (p. 56). In other words, pronunciation involves producing the correct sounds to form meaningful communication. Likewise, Yates and Zielinski (2009) notes that "Pronunciation refers to how we produce the sounds that we use to make meaning when we speak"(p. 11).

As defined by the Online Cambridge Dictionary, it is “the way in which a word or letter is said or said correctly, or the way in which a language is spoken” (<https://dictionary.cambridge.org/dictionary/english/pronunciation> ). Roche (2009), similarly, describes pronunciation as “the way in which a person sounds the words of a language when speaking” (p.15).

Seidlhofer's (2001a) definition emphasizes that pronunciation is essential for conveying meaning through spoken language. This highlights that pronunciation involves using vocal sounds to express meaning. Among the various aspects of speaking, pronunciation is arguably one of the most challenging skills to master in English due to the time and effort required to learn how to pronounce words accurately (Szynalski, 2004, as cited in Gutama, 2020).

### **1.1.2 The Role of Pronunciation**

The significance of pronunciation in effective communication has been stressed, as noted by Fraser (2000a); nevertheless, proper pronunciation in English is often neglected in language instruction. Consequently, many EFL learners remain unaware that it should be considered one of the core competencies to master. It was also pointed out that adopting efficient teaching methods can significantly enhance students' pronunciation and offer valuable listening practice, which is essential for successful spoken interaction.

"Pronunciation plays an important role in people's lives, as it allows them to express their identity through speech and demonstrate their membership in specific communities" (Seidlhofer, 2001a, p.56). This quote underlines the idea that pronunciation is not merely a technical skill but a key marker of social identity and group belonging. The way people pronounce words reflects their regional background, cultural roots, and sometimes even their social class or level of education. Moreover, in societies where a certain accent or pronunciation is dominant, speakers who articulate words clearly or naturally are more likely to be understood and socially accepted.

Seidlhofer (2001b) explains that pronunciation serves two main functions: it enables clear communication and signals a person's connection to a linguistic or cultural group. It is treated as a foundational subskill in language learning. As learners work on their

pronunciation, they develop confidence, speak more fluently, and engage in real-time conversation. When pronunciation is emphasized during language acquisition, learners tend to achieve greater overall proficiency.

### **1.1.3 The Importance of Pronunciation**

Pronunciation is often the first aspect noticed when speaking English; if it is poor, neither grammar nor vocabulary can compensate. Burns and Claire (2003) emphasize that achieving intelligibility, comprehensibility, and interpretability is crucial for effective communication (pp. 5–6). Thus, pronunciation is a vital component of English speaking skills. Even with perfect grammar and vocabulary, mispronunciation can lead to misunderstandings, hindering the listener's ability to grasp the intended message. Therefore, pronunciation significantly impacts speaking and is arguably more critical than advanced grammar and vocabulary.

Fraser (2000b) asserts that speaking English encompasses various sub-skills, including vocabulary, grammar, and pragmatics, but identifies pronunciation as "by far the most important." She notes that "with good pronunciation, a speaker remains intelligible despite other errors; conversely, poor pronunciation can render speech difficult to understand, regardless of grammatical accuracy" (p.7). This stresses that pronunciation affects both sides of communication. Clear pronunciation facilitates understanding even with minor grammatical mistakes, whereas poor pronunciation can cause ambiguity, despite flawless grammar. Mastering pronunciation enables learners to pronounce words confidently, whether in weak or strong forms, leading to effective communication.

Gilakjani (2011) highlights that "good pronunciation is one of the most important aspects of language learning because it directly affects learners' communicative competence

and performance" (p.74). Clear and accurate pronunciation boosts students' confidence, allowing them to speak without hesitation. This comfort encourages greater participation in conversations and classroom activities. Recognizing the value of pronunciation motivates students to engage more deeply in their language learning journey.

Seidlhofer (2001b) emphasizes that pronunciation plays a significant role in our personal and social lives, as the way we speak reflects our identities and indicates our association with particular communities. Pronunciation not only ensures intelligibility but also conveys information about our backgrounds, culture, and group affiliations.

Celce-Murcia, et al. (1996) state that "pronunciation plays a crucial role in language teaching and learning. It is non-negligible even if the necessity and importance to teach it has been debated and changed a lot" (p. 3). Despite evolving teaching methodologies, pronunciation remains a fundamental aspect of language education. Neglecting it can impede effective communication. Even with a strong grasp of grammar and vocabulary, poor pronunciation can lead to misunderstandings. Conversely, good pronunciation fosters clarity and confidence in speech. Regular practice helps learners connect their speech patterns; thus, enhancing overall communication.

Burns and Claire (2003) advocate that it is more important for English speakers to achieve:

Intelligibility: producing sound patterns recognizable as English;

Comprehensibility: enabling the listener to understand the meaning;

Interpretability: allowing the listener to grasp the speaker's intent (pp. 5–6).

Teaching pronunciation is crucial in enhancing students' intelligibility. When learners articulate sounds clearly, listeners can recognize them as English. Without intelligibility, listeners may struggle to comprehend the speaker's message. Comprehensibility relies on clarity and accuracy, while interpretability involves understanding the speaker's purpose and tone.

#### **1.1.4 Difficulties in Learning English Pronunciation**

Gilakjani (2011) observed that "many teachers do not devote enough time to teaching pronunciation and they often do not have enough training or confidence to teach it effectively" (p. 74). This highlights a prevalent issue in language classrooms: the neglect of pronunciation instruction; i.e., teachers often prioritize vocabulary and grammar, suspending pronunciation practice. This inaccuracy is compounded by many teachers' lack of training and confidence in teaching pronunciation, resulting in students receiving insufficient practice, which fosters poor pronunciation habits.

Furthermore, Gilakjani (2011) noted that "learners face difficulties because they are not sufficiently exposed to the target language and are often not motivated enough to improve their pronunciation skills" (p. 75). Two critical factors—lack of exposure and motivation—significantly impact learners' pronunciation. Without regular interaction with native speakers or authentic listening experiences, such as podcasts or conversations, learners struggle to grasp the natural rhythm and nuances of spoken English. Additionally, many learners do not prioritize pronunciation, focusing instead on reading or writing skills. This lack of motivation often stems from fear of making mistakes, leading to reduced effort in enhancing spoken English.

#### **1.1.4.1 Irregularities in English Spelling and Pronunciation**

English spelling often does not align with pronunciation, posing challenges for learners. This discrepancy arises from the language's evolution, incorporating elements from French, Latin, and other languages.

Examples:

"Ewe" → pronounced / j u: /

"Island" → pronounced /aɪlənd/

"yacht " → pronounced /jɔ:t/

#### **1.1.4.2 Complexity of the English Vowel System**

English contains a vast array of vowel sounds, making pronunciation challenging for learners, especially those whose native languages have fewer vowel sounds.

Example:

- "Full" /fʊl/ vs. "Fool" /fu:l/
- "Bit" /bɪt/ vs. "Beat" /bi:t/

A slight change in vowel sound can alter the word's meaning entirely.

#### **1.1.4.3 Word Stress and Rhythm**

Proper stress placement within words is crucial for intelligibility. Incorrect stress can lead to misunderstandings.

Examples:

- "INcrease" (noun) vs. "inCREASE" (verb)

- "REcord" (noun) vs. "reCORD" (verb)

Stress can be indicated through variations in pitch or duration. Misplaced stress may confuse listeners.

#### **1.1.4.4 Features of Connected Speech in Real Communication**

In natural speech, words often connect, leading to alterations in pronunciation:

Linking sounds: "say it " → "sei - j- it "

Elision: "friends of mine" → sounds like "frens of mine"

Assimilation: "good boy" → sounds like "gub boy"

Understanding these patterns is essential for clear communication.

#### **1.1.4.5 Accent Variation Across English Dialects**

English is spoken with various regional accents, each with distinct pronunciation patterns, which can be challenging for learners.

Examples:

British English: "what" → /'wɒt /

American English: "what" → /'wɑ:t/

These differences can affect learners' comprehension and pronunciation.

#### **1.1.4.6 Intonation Patterns**

"Intonation carries important information about the speaker's attitude and the structure of the message" (Brazil et al., 1980, p. 1). Intonation adds "music" to speech, conveying emotions and intentions. Incorrect intonation can render speech flat or unnatural, leading to misunderstandings.

- A rising tone in "You're coming?" signals a question.
- A falling tone in "You're coming." signals a statement.

#### **1.1.4.7 Fear of Making Mistakes**

A psychological barrier many learners face is the fear of making mistakes, which can inhibit speaking practice. Celce-Murcia (1996) states, "Fear of making mistakes can inhibit learners from speaking, leading to reduced opportunities for practice and ultimately slower language development" (p. 19). Encouraging a supportive environment where mistakes are viewed as learning opportunities can help learners build confidence and improve pronunciation.

### **1.2 AI-Powered Pronunciation Tools**

#### **1.2.1 Overview of common AI pronunciation tools**

Artificial Intelligence (AI) represents a significant technological advancement in language education. As part of computer science, AI encompasses technologies and methods designed to perform tasks typically associated with human intelligence. These include data mining, machine learning, and natural language processing, all of which play a crucial role in modern educational contexts. Almelhes (2023) emphasizes that such technologies are influential in the era of Education 4.0, highlighting their impact on teaching methodologies (p. 1259).

The integration of AI into education has led to the development of applications that enhance teaching methods and facilitate the learning process. Vera (2023) notes that AI has become an essential component in education, creating tools that improve teaching methodologies and make learning more accessible.

Despite the promise of personalized learning, there remains a level of ambivalence among researchers and educators regarding the use of AI technologies in language classrooms. Sumacul et al. (2022), as cited in Vera (2023), maintain that while AI offers opportunities for learners to adapt to individual needs, there is still uncertainty about its appropriate use and whether it can effectively replace traditional teaching methods (p. 69).

Alhalangri and Abdalgane (2023) argue that integrating AI generators into classrooms can enhance the availability of up-to-date resources for teachers and provide students with access to real-world experiences, thereby enriching both teaching and learning processes (p. 41).

Overall, AI is considered a transformative force in language education, offering tools and technologies that emulate human decision-making and thinking processes. These tools support various educational tasks, improving both teaching and learning experiences. While AI continues to gain interest for its ability to support effective teaching strategies and adapt to learners' needs, questions remain about its capacity to fully replace traditional teaching methods.

## **1.2.2 AI-Powered Pronunciation Tools**

### **1.2.2.1 Duolingo**

According to Jašková (2014), Duolingo is a free application available on various platforms, such as computers and mobile phones, offering courses in over 23 languages and boasting approximately 200 million registered users worldwide.

Duolingo employs spaced repetition and interactive exercises to facilitate language learning. Learners engage with bite-sized lessons that include multiple-choice questions, translation tasks, and matching activities. This approach emphasizes frequent practice and rewards, keeping learners motivated through streaks and points (Munday, 2016).

However, Duolingo's focus on translation-based exercises may limit its effectiveness in developing conversational fluency and understanding contextual language use. It also lacks depth in more advanced grammar and syntax necessary for higher-level language learning (Liu et al., 2019).

Despite these limitations, Duolingo offers a comprehensive suite of language skills, including listening, writing, speaking, grammar, and vocabulary, available across various platforms (Amin, 2021). Its methodology is carefully structured to suit learners' needs, making it an attractive choice for those aiming to improve their conversational fluency and tackle more complex language challenges. Moreover, as a free application, Duolingo provides an accessible option for learners with limited resources.

### **1.2.2.2 ELSA Speak**

ELSA Speak is an AI-powered language learning application designed to enhance English pronunciation skills. It utilizes speech recognition technology to provide immediate feedback to learners, focusing specifically on pronunciation rather than comprehensive language instruction (Hirata, 2021).

Developed by Vu Van in 2015 and based in San Francisco, ELSA Speak helps users pronounce words more accurately by analyzing their speech and offering corrective feedback. The application includes an interactive dictionary that teaches users how to pronounce specific words or phrases (Pilar, 2013).

ELSA Speak has demonstrated significant effectiveness in enhancing students' pronunciation due to its AI-based features, which allow learners to practice independently and

address areas of confusion. The system analyzes pronunciation results by providing scores and corrections, facilitating targeted improvement (Fitria, 2021).

The application offers features that support students in improving their English-speaking skills, including practice for consonant sounds, vowels, word and sentence stress, and proper intonation (Samad & Aminullah, 2019). Additionally, ELSA Speak allows for two-way learning, enabling users to pronounce specific words or sentences and receive feedback (Istiara et al., 2023).

ELSA Speak is particularly beneficial for learners preparing for international exams such as IELTS and TOEFL, as it helps identify weaknesses and build confidence through repeated practice. While it does not address other language aspects like grammar or writing, its focused approach to pronunciation makes it a valuable supplementary tool for improving spoken English.

### **1.2.2.3 Google Pronunciation Tool**

Before the emergence of specialized applications like ELSA Speak and Duolingo, Google's pronunciation tool was a popular resource for language learners. Integrated into Google Search, it allows users to type in words and hear their correct pronunciation in both American and British accents. The tool offers slow playback options and visual feedback, aiding learners in understanding proper pronunciation.

Google has enhanced this tool with interactive AI-driven pronunciation feedback, enabling users to speak into their device's microphone. The system uses acoustic analysis and speech recognition to assess pronunciation, providing phonetic assistance and visual cues to highlight mistakes and suggest corrections. This immediate feedback helps students improve their pronunciation accuracy, making the Google Pronunciation Tool a valuable resource, especially when teacher assistance is unavailable.

## **1.3 The Role of AI in Language Learning**

### **1.3.1 Advantages of AI Tools in Pronunciation Practice**

AI-powered tools have shown remarkable potential in improving pronunciation accuracy, enhancing learner motivation, and reducing speaking-related anxiety. According to Vančová (2023), EFL learners using AI tools tend to achieve more significant gains in pronunciation due to the personalized feedback these tools provide on how words should be articulated correctly (p. 81). Such tools enable learners to practice in private, non-judgmental environments, which alleviates anxiety and encourages them to speak freely without fear of error or embarrassment. This environment builds learners' confidence, preparing them for real-life communication situations.

These tools also evaluate speech input statistically and deliver adaptive feedback tailored to individual users, simulating the dynamics of authentic communication. In a systematic review, Vančová (2023) notes that AI pronunciation tools often outperform traditional methods, thanks to their immediate feedback mechanisms and their adaptability to learners' unique needs (p. 83). Utilizing advanced technologies such as speech recognition and natural language processing, AI tools facilitate effective pronunciation training and foster deeper engagement from learners during practice.

#### **1.3.1.1 Accessibility and Flexibility**

AI pronunciation tools offer learners the advantage of unrestricted access. The ability to use these tools anytime and anywhere enhances consistent practice without the necessity of instructor supervision. This level of flexibility supports self-directed learning and is especially valuable for learners who may not have access to regular classroom settings. Because they remove the constraints of time and place, AI tools are widely recognized as one of the most effective modern resources for language learning (Qiao & Zhao, 2023).

### **1.3.1.2 Immediate Feedback**

A major strength of AI tools lies in their ability to deliver instant corrective feedback. As learners speak, the system processes their audio input, identifies pronunciation errors, and provides feedback in real-time. Unlike conventional methods—where feedback may be delayed—AI tools enable immediate correction, helping learners understand and address their mistakes on the spot. This accelerates learning and supports the rapid development of accurate pronunciation, contributing significantly to a more effective and engaging learning process. (John et al., 2022; Ngo et al., 2024).

### **1.3.1.3 Reduced Anxiety**

AI-driven tools offer a psychologically supportive environment by eliminating the fear of being judged. Learners often experience anxiety when speaking in front of teachers or peers; however, practicing with AI tools reduces this pressure. As Vančová (2023) explains, this private setting encourages more frequent practice and helps build learners' confidence in their speaking abilities (p. 84). This reduction in anxiety not only enhances performance but also increases learners' willingness to engage actively with the language (Inada, 2021; Tsiplakides & Keramida, 2009).

### **1.3.1.4 Repetition and Reinforcement**

AI tools facilitate unlimited practice, making repetition—a core element of effective language acquisition—more accessible. These tools enable learners to repeat pronunciation drills as often as necessary without time constraints, helping reinforce correct articulation. This repetitive exposure leads to improved memory retention and long-term accuracy in pronunciation. As learners become more familiar with sound patterns, their confidence and ability to communicate fluently also improve (Tsai, 2015).

### **1.3.1.5 Personalized Learning**

One of the most significant advantages of AI tools is their capacity for personalization. Every learner encounters unique pronunciation challenges. For instance, a student who struggles with silent letters (like "k" in "knight" or "b" in "lamb") may receive targeted exercises to address those specific issues. AI systems adapt to each learner's level and needs, offering customized learning paths that support individual progress. This tailored instruction enhances the effectiveness of the learning process, as it focuses directly on areas requiring improvement (Vančová, 2023, p. 85).

## **1.3.2 AI-Based Feedback Mechanisms (Speech Recognition, Acoustic Analysis)**

### **1.3.2.1 AI-Based Framework**

The underlying framework of AI pronunciation tools is built on complex algorithms and computational models capable of processing spoken language, recognizing patterns, and generating context-aware responses. These systems are typically powered by machine learning (ML), enabling the tools to adapt and improve over time based on user interactions. When a learner speaks, the system transcribes their input using speech recognition, compares it with native pronunciation models, and generates personalized feedback. As it processes more data, the system becomes increasingly adept at identifying subtle errors and tailoring responses to individual learner profiles, thus ensuring meaningful and accurate feedback aligned with the learner's progress and goals. (Dennis, 2024; Sun et al., 2023).

### **1.3.2.2 Feedback Mechanism**

Feedback is a central component of AI pronunciation tools. Unlike classroom settings where feedback may be delayed, AI tools offer immediate, precise responses. After analyzing spoken input, the system identifies errors—such as incorrect stress, mispronounced words, or

improper intonation—and provides correction suggestions. Many platforms also allow learners to hear the correct pronunciation and attempt it again until they match the standard. This instant and repeated feedback supports a continuous learning loop that enhances learners' confidence and understanding of pronunciation patterns, while also reducing performance-related anxiety (Sun et al., 2023).

### **1.3.2.3 Speech Recognition**

Speech recognition technology converts spoken language into text or phonetic symbols, allowing the AI system to evaluate pronunciation accuracy. When learners speak, the tool captures and transcribes their input, then compares it with correct phonetic models. Differences are highlighted, and the tool provides targeted corrections. Advanced systems can detect even minor deviations in speech, such as misplaced stress, vowel distortions, or omitted consonants. This allows for accurate and context-sensitive feedback, which is essential for helping learners improve their pronunciation effectively and naturally. (Dennis, 2024; Sun et al., 2023).

### **1.3.2.4 Acoustic Analysis**

Acoustic analysis enhances pronunciation learning by assessing the physical characteristics of speech, including pitch, stress, duration, and intonation. Unlike methods that focus solely on sound accuracy, this analysis evaluates broader speech patterns to foster natural-sounding fluency. The AI system compares the learner's pitch and rhythm to native speaker norms and offers specific corrections. For example, if a syllable is too short or stress is misplaced, the system points it out and suggests adjustments. By addressing both individual sounds and holistic speech features, learners achieve not only accurate but also fluent and expressive pronunciation (Bouchhioua, 2024).

Together, these components—AI-based frameworks, real-time feedback, speech recognition, and acoustic analysis—work in harmony to create a comprehensive and adaptive pronunciation learning environment. These mechanisms allow learners to receive precise, personalized, and timely assistance, addressing limitations found in traditional language instruction. The result is a more accessible, engaging, and effective pathway to improving pronunciation skills for EFL learners.

## **Conclusion**

This chapter aims to give basic information about how pronunciation is taught and learned, using ideas from different researchers. It explains what pronunciation is, why it matters, and gives an overview of some AI tools used for pronunciation practice. It also describes their main features, benefits, and how they work, focusing on tools like Google Pronunciation, ELSA Speak, and Duolingo. The next chapters will focus on analyzing data and giving useful recommendations.

## CHAPTER TWO

### Method, Data Analysis, and Recommendations

#### Introduction

This chapter outlines the methodology employed in the study, detailing the selection of the sample population and the data collection tools used. It includes a description and analysis of the questionnaire distributed to students, followed by a discussion of the findings and concluding with practical recommendations.

#### 2.1 Research Design

This research uses a descriptive approach to examine how students effectively use AI pronunciation tools to improve their English pronunciation. A well-structured questionnaire with a mixed-method design was employed to gather the necessary data.

#### 2.2 Sample Population

The sample of this research consisted of second year students from the department of English at the university of Chadli Bendjedid . There are (fifty) 50 second year English students at the department of English but only (thirty) 30 students took part in this research and the other 20 were all the time absent.

The reason behind choosing to work with second year students is linked to the fact that those students are already studied the phonetic module before a year so it is obvious to find some of them facing difficulty and challenges during their pronunciation practices.

## 2.3 Data Gathering Tool

A structured questionnaire was administered to investigate how second-year EFL students at Chadli Bendjedid University use AI tools to enhance their pronunciation. The tool was designed to assess the extent to which AI tools support the development of students' speaking skills.

## 2.4 Description of the Students' Questionnaire

The questionnaire consisted of 16 questions and employed a mixed-method design, incorporating both closed and open-ended questions. Most items were multiple-choice and yes/no questions, providing quantitative data for analysis. The final section allowed students to share suggestions and personal reflections on the role of AI in pronunciation learning.

**Question 1.** Asked students to state their age.

**Question 2.** Investigated whether students found the English language easy to learn.

**Question 3.** Asked students to evaluate their current pronunciation skills in English.

**Question 4.** Explored the most common pronunciation challenges of the learners.

**Question 5.** Asked students if they used any AI tools for their pronunciation practices.

**Question 6.** Identified the specific AI pronunciation tools used by students.

**Question 7.** Mentioned some AI pronunciation tool features.

**Question 8.** Investigated the frequency of AI pronunciation tool used among students (daily, weekly, and monthly).

**Question 9.** Assessed the degree of use of AI pronunciation tools in improving students' pronunciation skills.

**Question 10.** Asked students about their level of confidence after using AI tools.

**Question 11.** Investigated the challenges students face when using AI tools by providing some choices, for example, lack of accuracy, difficulties in understanding the AI system, and how it works.

**Question 12.** Explored which one is easier: AI, human instruction, or a combination of both.

**Question 13.** Asked about potential improvements to some AI tools.

**Question 14.** Provided a comparison between AI tools and traditional methods.

**Question 15.** Investigated students' suggestions on the role AI pronunciation tools should play in the language classroom.

**Question 16.** Explored whether AI pronunciation tools can adapt to different accents and speech patterns.

The questions were carefully and precisely selected to gather the appropriate information needed for the analysis of the study.

**2.5. Analysis of Students Questionnaire**

**Question 1: What is your age?**

**\*18-20      \*21-23      \*24 or older**

**Table 1**

*Participants' Age Groups*

<b>Option</b>	<b>Participants</b>	<b>Percentage</b>
<b>18-20</b>	<b>22</b>	<b>73%</b>
<b>21-23</b>	<b>8</b>	<b>27%</b>
<b>24 or older</b>	<b>0</b>	<b>0%</b>

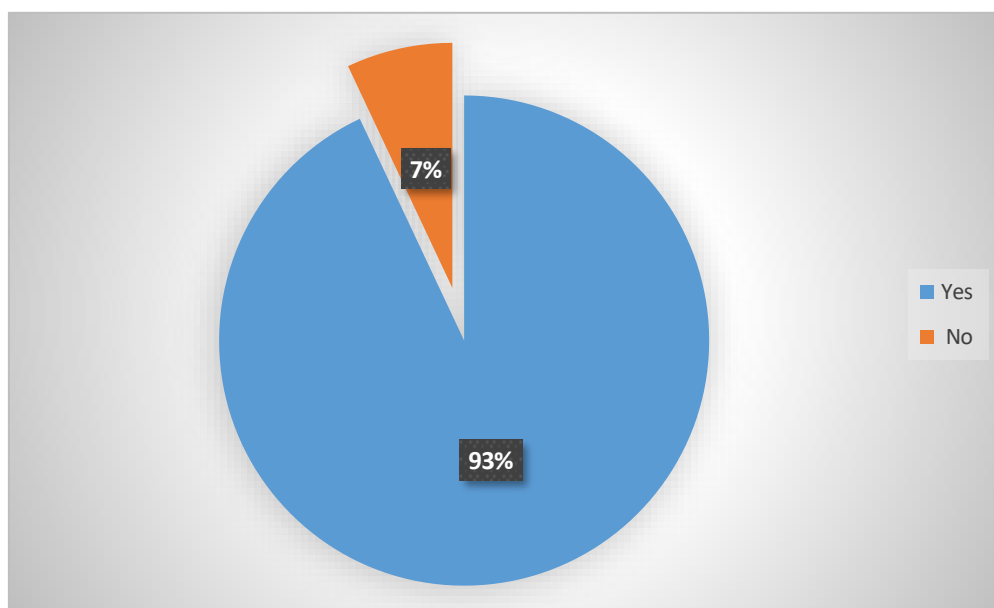
We can notice from the Table 1 above that the age range of second-year students is between 18 and 20 (73%), with the majority of students aged between 21 and 23 (27%). There are no students aged 24 or older.

### **Question 2-Did you find the English language easy to learn?**

- Yes
- No

**Figure 1**

*Participants' Perception of the Easiness of Learning English*



The figure shows that 93% of the participants stated that the English language is easy to learn, whereas only 7% (2 participants) claimed that they found the English language difficult to learn.

### **3-How would rate your current pronunciation in English language ?**

- Very good

- Good
- Average
- Poor

Table 2

*Participants' Perception of Their Current English Pronunciation*

Option	Participants	Percentage
Very good	8	27%
Good	18	60%
Average	4	13%
Poor	0	0%

The results showed that 18 participants (60%) said that their pronunciation is good in English, and 8 participants (27%) said that their pronunciation is very good. Four participants (13%) claimed that their pronunciation is average, while no participant stated that his/her Pronunciation is poor.

**4- What are the most common pronunciation mistakes made by EFL learners ?**

- Difficulty in pronouncing certain words
- Misplacing word stress
- Incorrect intonation patterns
- Pronouncing silent letters
- All of the above

Table 3

*Most Common Pronunciation Mistakes Among EFL Learners*

Option	Participants	Percentage
Difficulty in pronouncing certain words	17	56%
Misplacing word stress	5	16%
Incorrect intonation patterns	2	6%
Pronouncing silent letters	5	16%
All of the above	1	3%

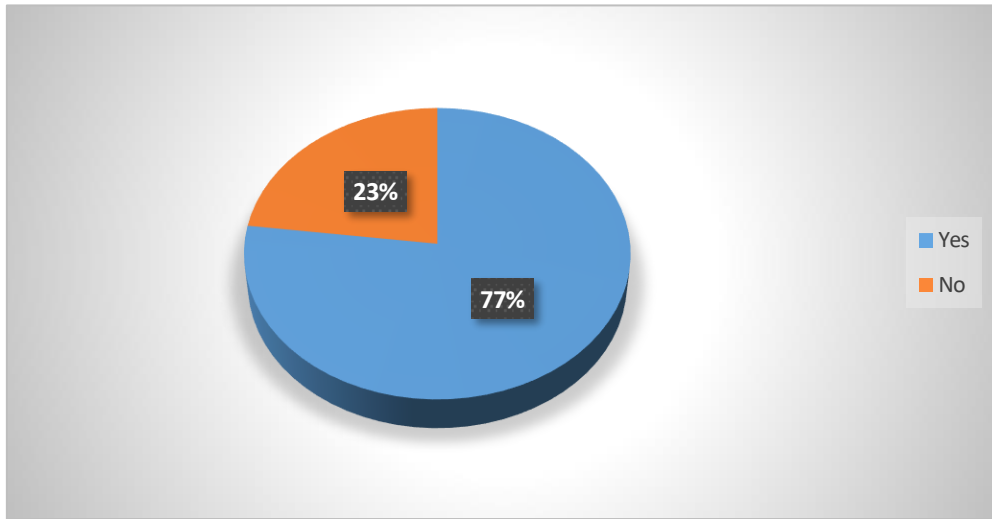
According to the table above, we found that 17 of the participants found difficulties in pronouncing certain words. Most participants, 56%, found difficulties in pronouncing certain words, followed by misplacing word stress and pronouncing silent letters with the same percentage of 16% for each, which led the participants to face both problems during pronunciation practice. In addition to that, 6% of the participants used incorrect intonation patterns, and only 1 participant (3%) claimed that made all the mistakes that are mentioned.

**5- Have you used any AI driven tools to practise pronunciation ?**

- Yes
- No

Figure 2

Participants usage of AI pronunciation tools for practice



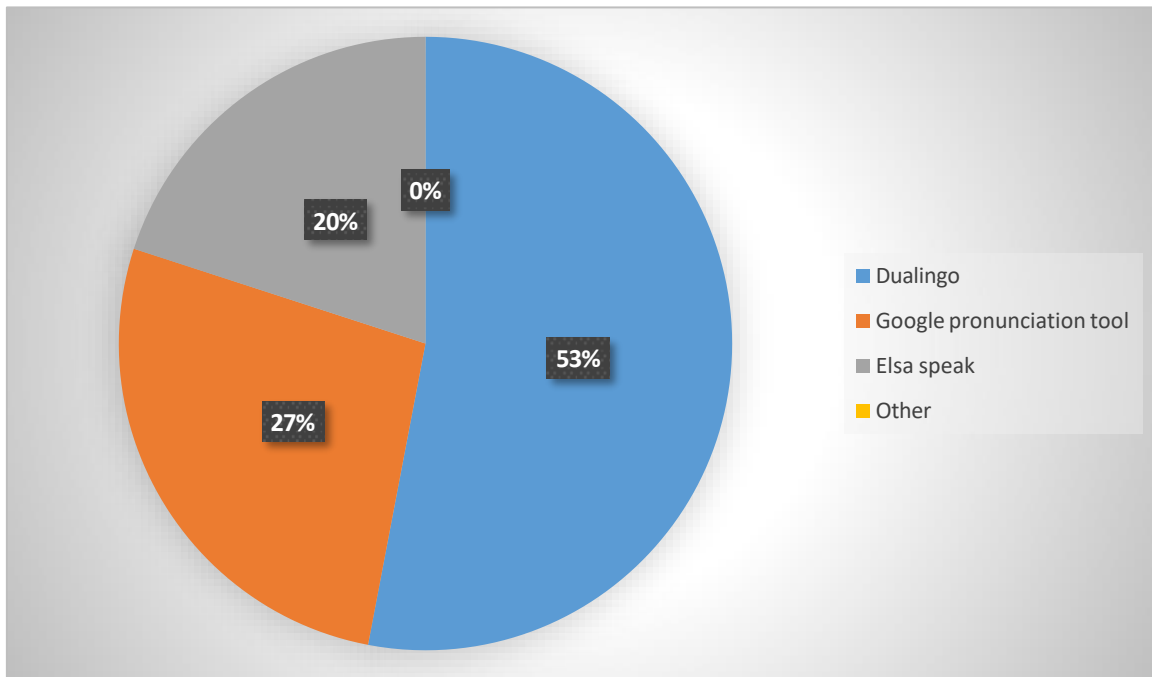
In the figure, we saw that most of the participants, 77% used AI-driven tools in their pronunciation practice, while 23% of the participants did not use AI tools at all.

**6-If yes which AI driven pronunciation tools have you used ?**

- Elsa speak
- Duolingo
- Google pronunciation tool
- Other .....
- .....

Figure 3

*Most Commonly Used AI Pronunciation Tools Among Participants*



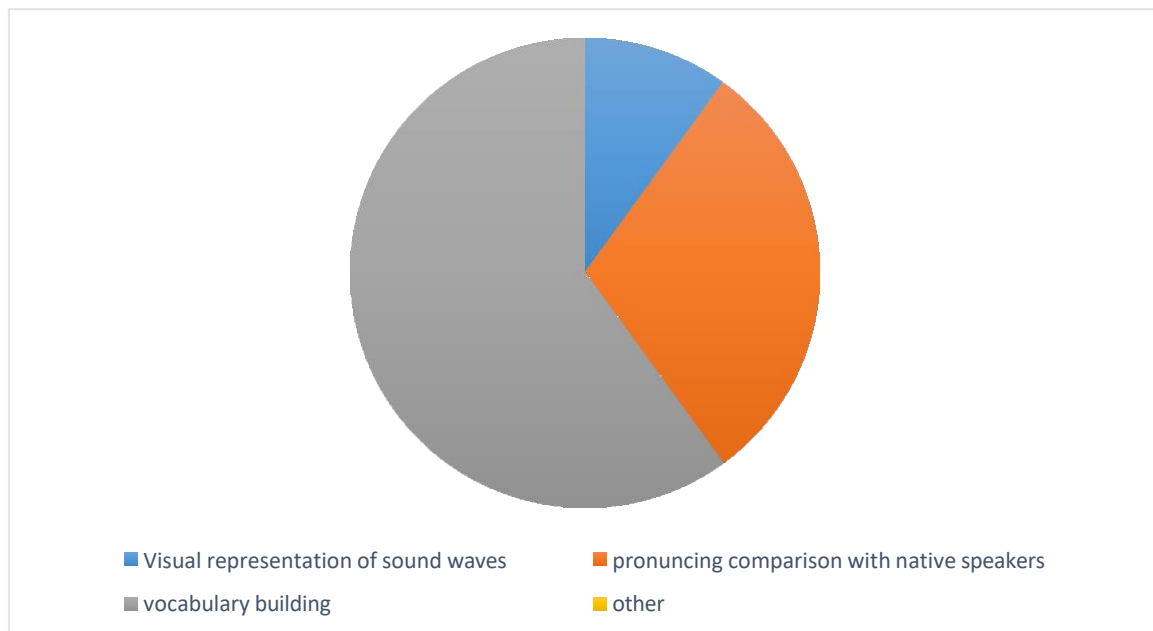
The tools that are mostly used by the participants are Duolingo with a percentage of 53%, while 27% of the participants used Google Pronunciation Tool, and the rest of the participants, with a percentage of 20%, depend on Elsa Speak as a tool for checking and improving their pronunciation.

**7- What features of AI pronunciation tools you find most useful?**

- Visual representation of sound waves
- Pronouncing comparison with native speakers
- Vocabulary building
- Other.....

Figure 4

*Participants' Preferences for AI Pronunciation Tool Features*



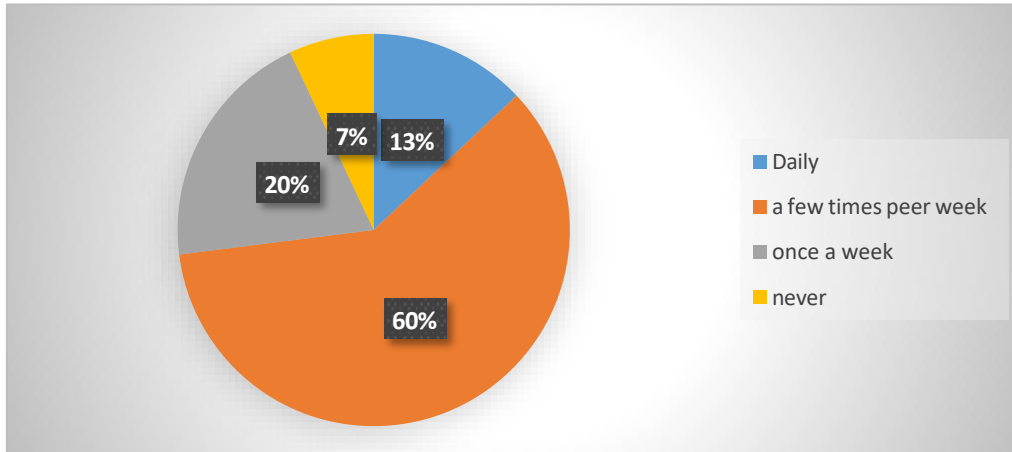
According to the figure, we can see that the most commonly used feature by the participants is vocabulary building, with a percentage of 60%, while 30% of the participants use AI tools for visual pronunciation comparison with native speakers. The rest of them, with a percentage of 10%, use it for visual representation of sound waves.

#### **8-How often do you use AI driven pronunciation tools ?**

- Daily
- A few times per week
- Once a week
- Never

**Figure 5**

*The Frequency of Using AI Tools for Pronunciation Practice*



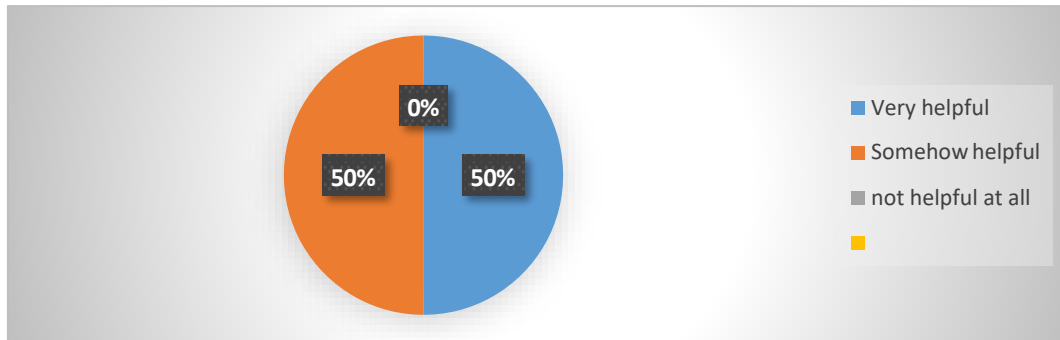
According to the figure, it is showed that 60% of the respondents claimed they use AI tools a few times per week, while 20% stated that they use it once a week, and only 13% of the participants use it daily, while two 2 participants with 7% did not use it at all.

**9-How helpful do you find AI pronunciation tools in improving your English pronunciation?**

- Very helpful
- Some how helpful
- Not helpful at all

**Figure 6**

*The Effectiveness of AI Pronunciation Tools in Improving English Pronunciation*



Fifty percent (50%) of the learners stated that AI tools are very helpful, while the other 50% indicated that AI tools are somewhat helpful. No participants reported that AI tools are not helpful at all.

**10-Do you feel more comfortable in your pronunciation after using AI driven pronunciation tools ?**

- Yes
- No
- Unsure

Table 4

*The impact of AI tools on the pronunciation of the students after using it*

Option	Participants	Percentage
Yes	25	83%
No	5	17%
Unsure	0	0%

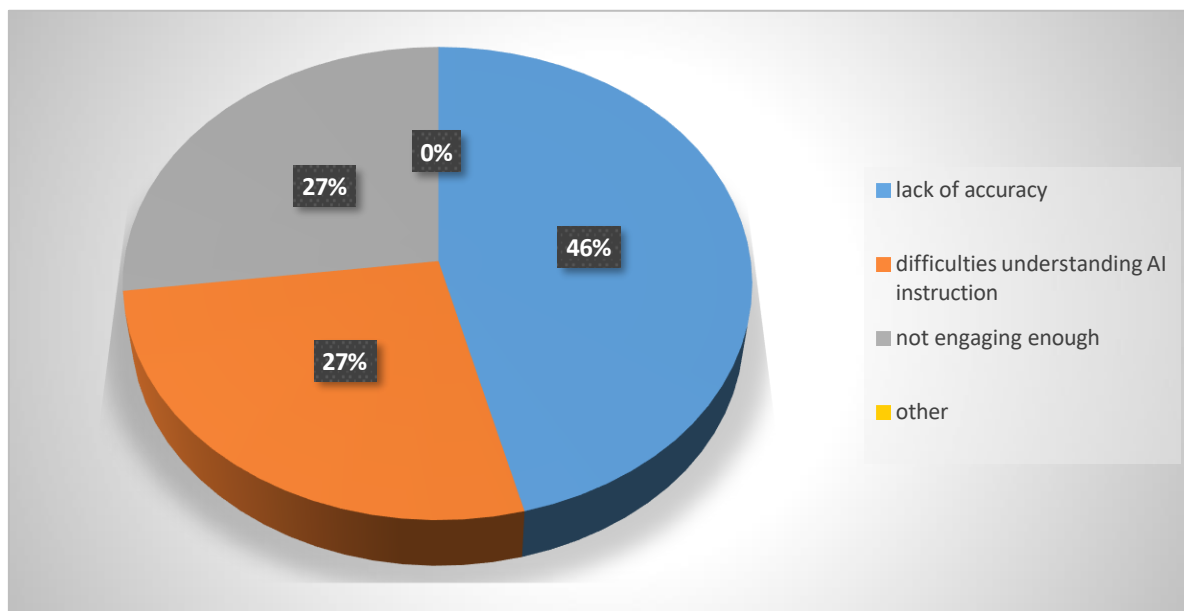
The majority of students (83%) reported feeling more comfortable with their pronunciation after using AI tools. In contrast, 17% of the participants stated that they do not feel comfortable with their pronunciation despite using AI tools. Notably, no participants (0%) were unsure about whether they felt comfortable or not.

### 11- What are the main challenges you face when using AI pronunciation tools ?

- Lack of accuracy in feedback
- Difficulties in understanding AI instruction
- Not engaging enough
- Other .....

**Figure 7**

*Participants' Challenges in Using AI Learning Applications*



A considerable number of participants (46%) reported that they are facing challenges when using AI tools, particularly due to a lack of accuracy in feedback. Additionally, 27% of

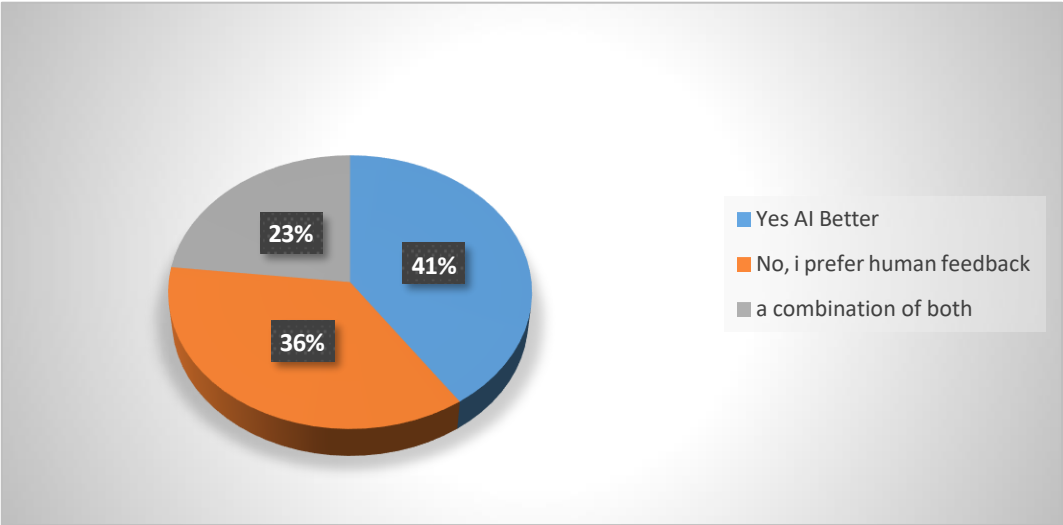
the participants struggled with difficulties in understanding AI instructions, while another 27% found the tools not engaging enough.

**12- Do you prefer AI driven pronunciation tools over human feedback from teachers or peers ?**

- Yes, AI better
- No, I prefer human feedback
- A combination of both

**Figure 8**

*Participants' Preferences Between AI Tools and Human Guidance*



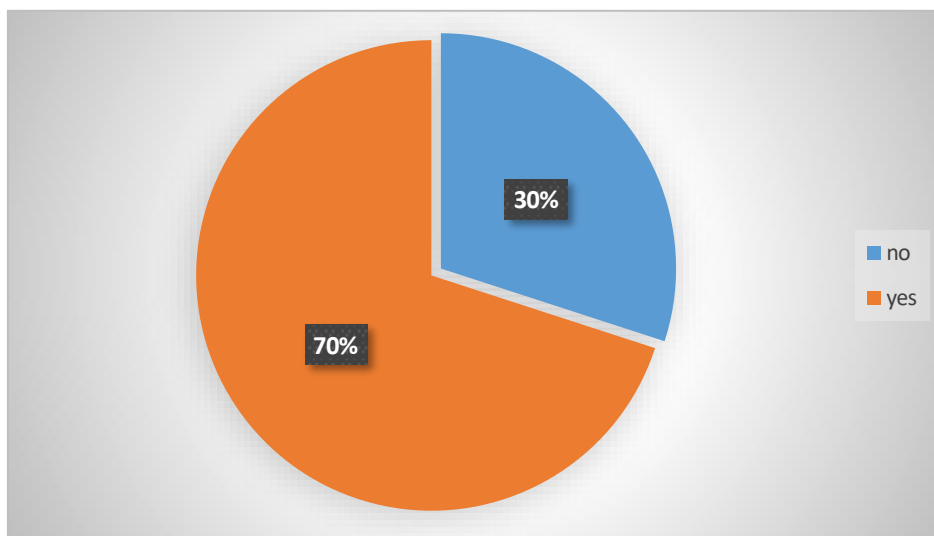
Most of the participants (40%) prefer using AI over teacher instruction, while 36% believe that human feedback is more effective than AI. Meanwhile, 23% of the participants stated that using both AI and teacher feedback simultaneously ensures a more effective pronunciation practice.

### 13- Can AI pronunciation tools adapt to different accents and speech patterns?

- Yes
- No

**Figure 9**

*Participants' Opinions on AI Pronunciation Tools' Ability to Adapt to Different Accents and Speech Patterns*

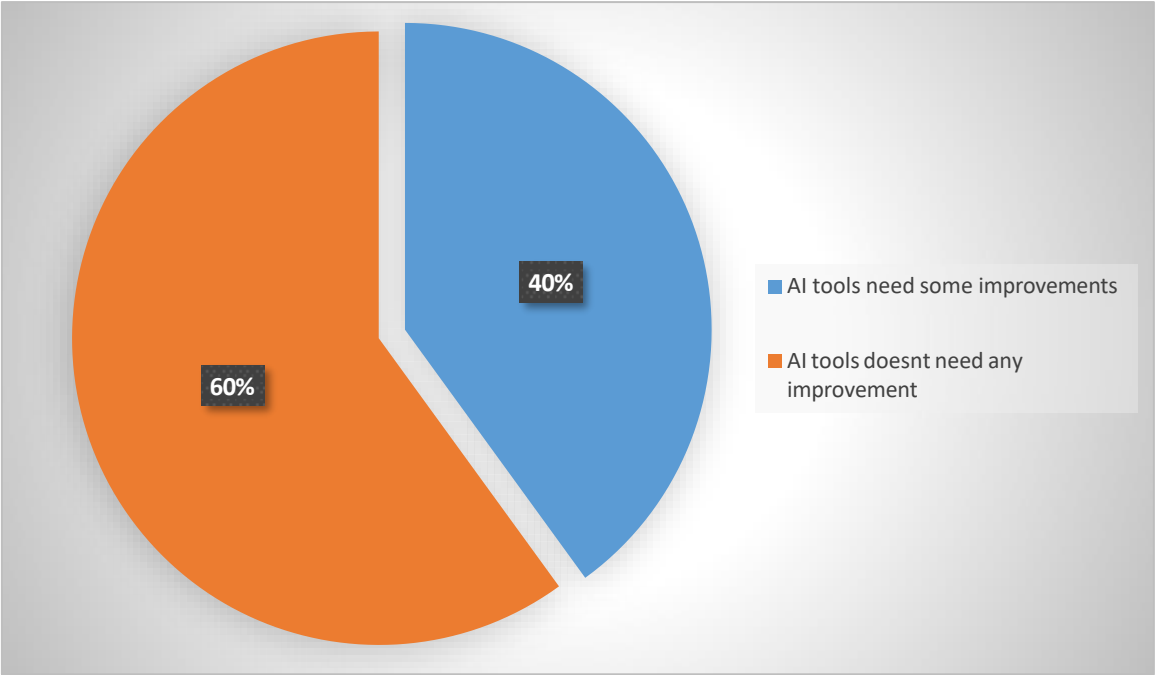


The majority of the participants (70%) stated that it can; i.e., the AI pronunciation tools could adopt to different accents and speech pattern while the (30 %) of the participants claimed that the AI pronunciation tools cannot adopt to different accents and speech pattern.

### 14- What improvement would you like to some AI pronunciation tools ?

**Figure 10**

*Students' suggestions about the improvement to some AI pronunciation tools*

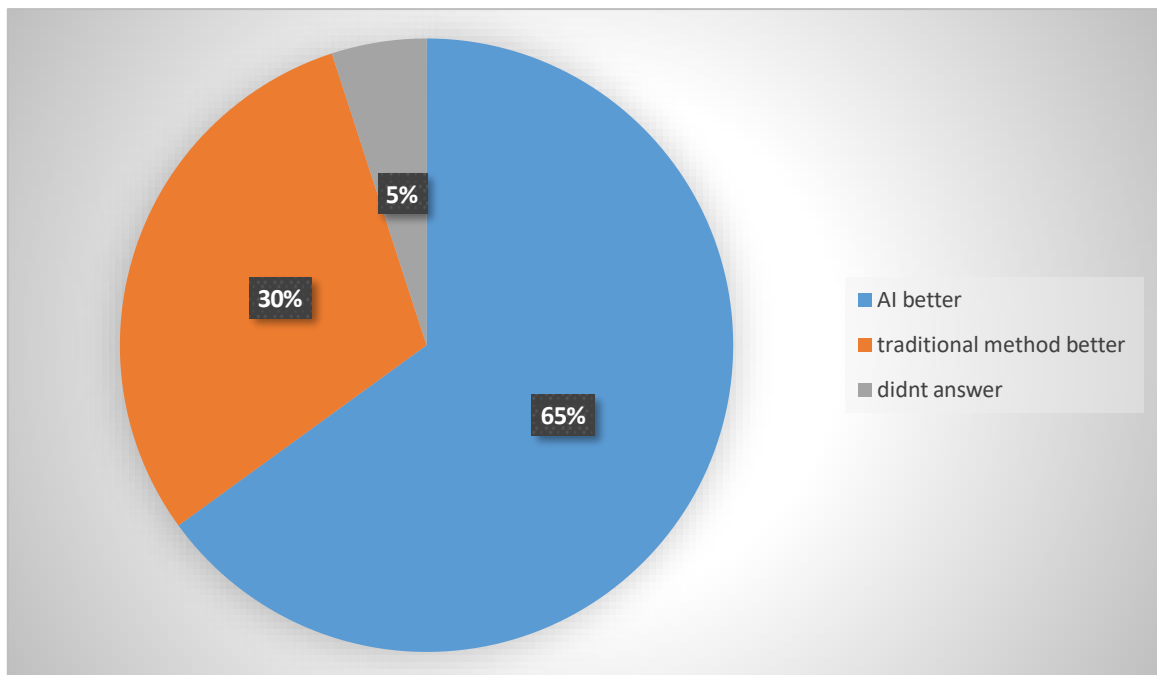


Most of the participants 60%, stated that AI pronunciation tools do not need any improvement due to the development of technological tools. AI pronunciation tools improve automatically without any additional efforts, while 40% of the students claim that although AI tools are developed, they need some improvement to help students engage in their pronunciation practice effectively because they have some gaps, like the lack of emotion in speech training and misinterpretation.

**15-How do you compare AI driven pronunciation tools with traditional pronunciation method?**

**Figure 11**

*Students' comparison between AI tools and traditional pronunciation tools method*

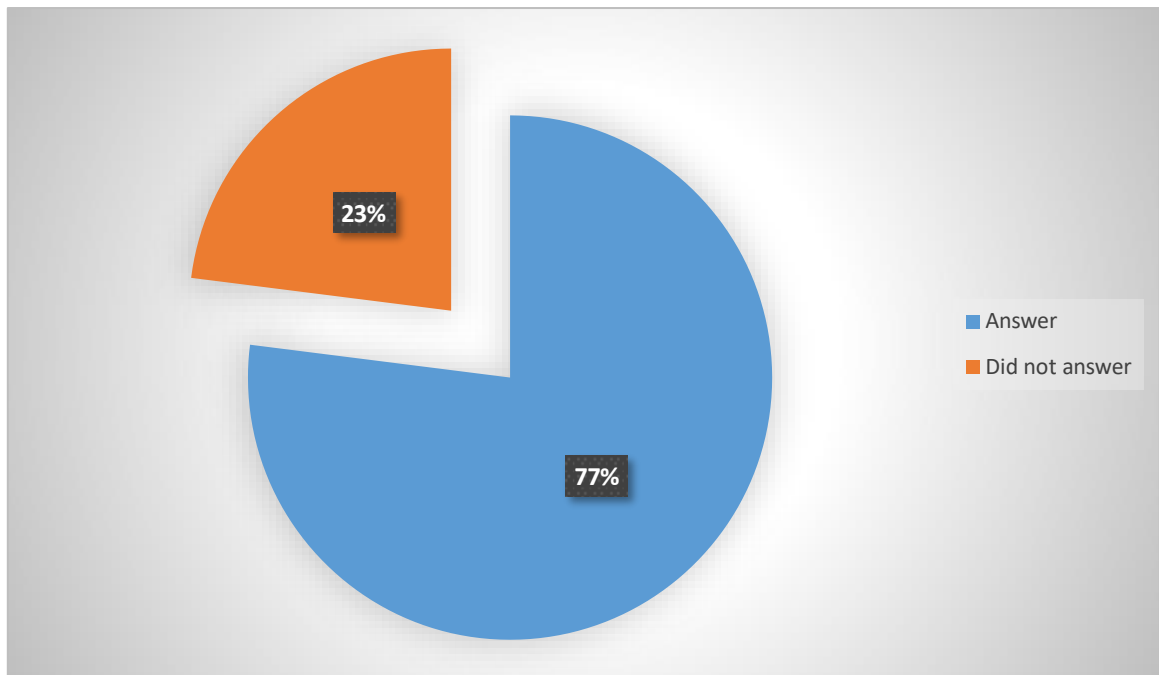


According to the suggestions of the participants, 65% of the participants stated that AI is better than the traditional method for multiple reasons, which are that AI is better because it is helpful, AI is faster to get results, analyzes the pronunciation in real time, it is accessible anytime, and it provides personalized learning. The traditional method leads to some mistakes during the pronunciation practice. Unlike AI, which offers the opportunity to use it without wondering if the result is wrong. AI also offers instant feedback using speech recognition, while the traditional method offers interactive learning. Whereas, 30% of the participants claimed that the traditional pronunciation method is better than AI because it offers real feedback, which means that the teacher addresses not just a sound but also how the speaker uses their voice in multiple social contexts, fosters a more personal connection between the teacher and their students, and provides encouragement, and sets challenges in a way that an AI tool cannot offer. Whereas, 5% of the participants did not answer this question.

**16- What role do you think AI pronunciation tools should play in English language classroom ?**

**Figure 12**

*Students' suggestions about the role of AI tools during classroom*



The suggestions of 77% of the participants are helping students' productivity, helping the teacher to engage the lesson in an effective way, creating a comfortable environment for the students to participate. AI offers instant feedback, fosters confidence in the students, and provides an opportunity to engage in pronunciation practice without hesitation, whereas 23% of the participants did not answer this question.

## 2.6 Discussion of the Findings

The results of the questionnaire indicated that most participants depended on AI tools during their pronunciation practice, such as Duolingo or Google pronunciation tools like Elsa speak. Duolingo, was the most commonly used tool due to its significance in enhancing participants' speaking skills by providing instant and personalized feedback. Moreover, Google pronunciation and Elsa Speak tools, which are considered important and useful tools as well, were chosen by the participants for specific purposes. For example, Google Pronunciation provides phonetic feedback to help learners pronounce words correctly . On the other hand, Elsa Speak offers interactive exercises to enable the students to engage in their pronunciation in an effective way.

Based on the analysis of the findings, we found that most participants used the tools for various purposes, not only for pronunciation but also for vocabulary building. Their goal was to achieve a productive level in both vocabulary and pronunciation, enabling them to construct their speech correctly in all areas. On the other hand, pronouncing in comparison with native speakers led the participants to extract the gap and face challenges during the process. Thus, we can say from the above that the first formulated hypothesis is confirmed.

Despite the number of users of AI tools, there is still a category of students unfamiliar with certain AI tools such as Elsa Speak, Duolingo, and Google pronunciation tool, which led to some students not answering the rest of the questions due to the lack of experience in using AI tools.

The participants had differing views on their pronunciation level after using AI applications. Some stated that their pronunciation became excellent, and that they felt more comfortable after using them, while others claimed that there was no change compared to before using them. The findings show that some participants chose to combine AI tools with human instruction, resulting in more effective conversation, skills, and improved real-life communication proficiency. It also improves and enhances participants' psychological factors, which boost confidence, increase motivation, and enhance self-efficacy, which bolsters students' beliefs in their ability to achieve better pronunciation, receiving AI feedback, while also gaining encouragement from teachers. Accordingly, on the basis of the aforementioned findings, the second hypothesis is also confirmed.

The perspective of certain participants matches the idea that human instruction serves as an essential component that works in tandem with AI tools because each enhances the other's function, such as the teacher's ability to communicate with the students, and the students' ability to learn from the teacher. The teacher shows students how AI tools can improve their pronunciation practice while also advancing their speaking abilities in the right way. Language learning results demonstrate improvement when this method is applied.

## **2.7 Practical Implications**

Depending on the results that we have obtained about the impact of AI pronunciation tools among EFL students, some practical implications can be suggested.

- Many students are unaware of how to utilize AI tools in an effective way. AI tools help students engage in conversation effectively.

- Integrating AI tools in class under the guidance of teachers helps learners use them confidently.
- A combination of AI tools, pronunciation practice, and teacher guidance is necessary for the best results.
- Integrating AI tools into learning programs enhances pronunciation learning.
- The use of AI tools over time may reduce the usefulness of the traditional method.
- Using AI tools enables students to practise speaking in real-life conversations.
- The use of AI tools yields rapid results compared to traditional methods. The regular use of AI tools creates a comfortable environment for real-life conversation.

## **2.8. Recommendations**

In order to improve the pronunciation practice by the use of AI tools, some suggestions can be addressed to both teachers and learners.

1. Students could use AI tools regularly to enhance their pronunciation accuracy.
2. Students could incorporate AI tools with human interaction.
3. AI tools can be integrated into class under the guidance of the teacher on how to use AI tools effectively.
4. Encourage learners to track their pronunciation improvements through AI reports.
5. Students should not neglect AI feedback, such as intonation and stress, and just focus on the pronunciation of single words.
6. Providing reinforcement tasks related to pronunciation by including AI tools, for example, in phonetic training and minimal pairs practice.

7. The teacher can highlight the importance of using AI tools during pronunciation practice and their effectiveness.
8. Students can distinguish the features of AI tools to use the one that suits their needs.
9. Enhance AI-based language learning programs.
10. Universities could integrate AI tools into English courses to support pronunciation practice.
11. Some students are unaware of and struggle to use AI tools effectively, so teachers could provide a session for training on how to foster their benefits.
12. Students could integrate AI tools into daily life, which provides access to pronunciation practice in various situations.
13. Students can engage in a conversation with AI tools to evaluate their pronunciation and identify their mistakes in pronunciation.

## **Conclusion**

This chapter outlined the methodology employed in the study, detailed the selection of the sample population and the data collection tools used. It included a description and analysis of the questionnaire that was distributed to students, followed by a discussion of the findings and concluded with practical recommendations.

## General Conclusion

The aim of the current study is to explore how second-year EFL students at Chadli Bendjedid University perceive the use of AI pronunciation tools such as Duolingo, ELSA Speak, and Google Pronunciation Tool, and how these tools impact their spoken English performance. A questionnaire was carefully developed for second-year EFL students during the 2024–2025 academic year. To address the research questions, the collected data was analyzed using both qualitative and quantitative methods, offering a comprehensive view of the students' experiences and perceptions of these applications.

According to the study's findings, Chadli Bendjedid University's second-year EFL students actively utilized AI-based resources to enhance their pronunciation skills. Students reported using applications such as Duolingo, ELSA Speak, and Google Pronunciation Tool to improve their pronunciation accuracy, intonation, and fluency. These tools encouraged learners to identify their individual pronunciation errors, monitor their progress, and work on correcting those errors through interactive and engaging methods. Each application contributed to students' learning which suits to their unique needs. For instance, ELSA Speak (English Language Speech Assistant) actively used in detecting subtle pronunciation errors and providing detailed, phoneme-level feedback. It also helped students become more aware about the significance of pronunciation features such as stress, rhythm, and intonation patterns. Through real-time corrective feedback and personalized practice, students were able to better understand the mechanics of English pronunciation which lead them to engage effectively.

Similarly, Duolingo offered pronunciation support through a variety of engaging features, including voice-based quizzes, interactive dialogues, and gamified exercises that provide repetition and practice which encourage the students during pronunciation training without fear

of making mistakes. This not only helped improve students' pronunciation but also made the learning process more enjoyable and motivating.

The Google Pronunciation Tool also played a significant role by allowing students to listen to native speaker models, record their own speech, and receive immediate feedback. The ability to visualize how words are correctly pronounced and instantly correct mistakes enhanced their self-awareness and self-correction abilities. These technologies improved students' confidence in speaking English. They established a low-anxiety, self-paced learning atmosphere where students felt safe making mistakes and developing gradually. By integrating these AI pronunciation tools into their language-learning routine, students demonstrated noticeable improvement in their spoken communication, fluency, and intelligibility.

The findings of this research also led to the suggestion of several useful applications and pedagogical suggestions for EFL students and instructors. These recommendations are designed to promote the effective and meaningful integration of modern technology into English language learning. By using AI-based tools, EFL students can receive personalized instruction, develop autonomy in learning, and achieve better outcomes in pronunciation and oral communication.

This study indicates that AI pronunciation tools have a positive impact on second-year EFL students' speaking proficiency. These technologies offer learners targeted support, immediate feedback, and consistent practice, all of which contribute to improved pronunciation and increased confidence in today's digital era. While these findings highlight the effectiveness of AI in pronunciation practice, they also open the door for further research into how these tools influence other language skills—such as listening comprehension, vocabulary acquisition, and overall communicative competence—across diverse EFL learning contexts.

## List of References

- Alhalangy, A. G. I., & AbdAlgane, M. (2023). Exploring the impact of AI on the EFL context: A case of study of Saudi Universities. *Journal of Intercultural Communication*, 23(2), 41–49. <https://doi.org/10.36923/jicc.v23i2.125>
- Almelhes, S. A. (2023). A review of artificial intelligence adoption in second-language learning. *Theory and Practice in Language Studies*, 13(5), 1259–1269.
- Amin, S. N. (2021). Gamification of duolingo in rising students' English language learning motivation. *Journal Bahasa Lingua Scientia*, 13(2), 191–213. <https://doi.org/10.21274/lis.2021.13.2.191-213>
- Bouchhioua, N. (2024). Fostering the interplay between acoustic phonetics and AI-powered pronunciation learning: A teacher-action research. *Teaching English with Technology*, 24(3), 41–67. <https://doi.org/10.56297/vaca6841/BFFO7057/YGDQ5334>
- Brazil, D., Coulthard, R. M., & Johns, C. (1980). *Discourse intonation and language teaching*. Longman.
- Burns, A., & Claire, S. (2003). *Clearly speaking: Pronunciation in action for teachers*. National Centre for English Language Teaching and Research, Macquarie University, Sydney.
- Cambridge Dictionary. (n.d.). *Pronunciation*. Retrieved April 10, 2025, from <https://dictionary.cambridge.org/us/dictionary/english/pronunciation>
- Celce-Murcia, M. (1996). *Teaching pronunciation: A course book and reference guide*. Cambridge University Press.
- Celce-Murcia, M., Brinton, D. M., & Goodwin, J. M. (1996). *Teaching pronunciation: A reference for teachers of English to speakers of other languages*. Cambridge University

Press.

Dennis, N. K. (2024). Using AI-powered speech recognition technology to improve English pronunciation and speaking skills. *IAFOR Journal of Education: Technology in Education*, 12(2), 108–123.

Fitria, A., Dwimaulidiyanti, A., & Sapitri, S. N. M. (2021). *The implementation of CAKE application in learning English speaking skills*. In *Proceedings of the International Conference on Education of Suryakencana (IConnects)* (pp. 118–123).

[https://doi.org/10.35194/cp.v0i0.1326:contentReference\[oaicite:1\]{index=1}](https://doi.org/10.35194/cp.v0i0.1326:contentReference[oaicite:1]{index=1}).

Fraser, H. (2000a). *Coordinating improvements in pronunciation teaching for adult learners of English as a second language*. Department of Education, Training and Youth Affairs.

<https://www.ameprc.mq.edu.au/resources/professional-development/pronunciation>

Fraser, H. (2000b). *Teaching pronunciation: A handbook for teachers and trainers*. Oxford University Press.

Gutama, M. (2020). The effect of using English songs on the pronunciation of students at Woldia College of Teacher Education. *International Journal of English Literature and Social Sciences*, 5(4), 926–934. <https://doi.org/10.22161/ijels.54.31>

Hirata, Y. (2021). ELSA Speak: Artificial Intelligence and English Pronunciation. *International Journal of Language Learning Technology*, 12(4), 225–238.

Hornby, A. S. (Ed.). (1948). *Oxford advanced learner's dictionary of current English* (1st ed.). Clarendon Press.

Inada, T. (2021). Teachers' strategies for decreasing students' anxiety levels to improve their communicative skills. *English Language Teaching*, 14(3), 32–39.

<https://doi.org/10.5539/elt.v14n3p32>

- Istiara, F., Hastomo, T., & Indriyanta, W. A. (2023). A study of students' engagement and students' speaking skill: A correlational research. *TEKNOSASTIK*, 21(1), 1–7.  
<https://doi.org/10.33365/TS.V21I1.2198>
- Jaskova, V. (2014). *Duolingo as a New Language-Learning Website and Its Contribution to E-Learning Education*. Masaryk University, Brno.
- John, P., Cardoso, W., & Johnson, C. (2022). Evaluating automatic speech recognition for L2 pronunciation feedback: A focus on Google Translate. In B. Arnbjörnsdóttir et al. (Eds.), *Intelligent CALL, granular systems, and learner data: Short papers from EUROCALL 2022* (pp. 197–202). Research-publishing.net.  
<https://doi.org/10.14705/rpnet.2022.61.1458>
- Liu, X., Xu, M., Li, M., Han, M., Chen, Z., Mo, Y., Chen, X., & Liu, M. (2019). *Improving English pronunciation via automatic speech recognition technology*. *International Journal of Innovation and Learning*, 25(2), 126–140.  
[https://doi.org/10.1504/IJIL.2019.097674:contentReference\[oaicite:0\]{index=0}.](https://doi.org/10.1504/IJIL.2019.097674:contentReference[oaicite:0]{index=0}.)
- Munday, P. (2016). The case for using Duolingo as part of the language classroom experience.
- Ngo, T. T.-N., Chen, H. H.-J., & Lai, K. K.-W. (2024). The effectiveness of automatic speech recognition in ESL/EFL pronunciation: A meta-analysis. *ReCALL*, 36(1), 4–21.  
<https://doi.org/10.1017/S0958344023000113>
- Pilar, R.-A. (2013). The use of current mobile learning applications in EFL. *Procedia - Social and Behavioral Sciences*, 103, 1189–1196.

- Gilakjani, A. (2012). A study of factors affecting EFL learners' English pronunciation learning and the strategies for instruction. *International Journal of Humanities and Social Science*, 2(3), 119–128.
- Qiao, H., & Zhao, A. (2023). Artificial intelligence-based language learning: Illuminating the impact on speaking skills and self-regulation in Chinese EFL context. *Frontiers in Psychology*, 14, 1255594. <https://doi.org/10.3389/fpsyg.2023.1255594>
- Roche, T. (2009). *Introducing English pronunciation*. Garnet Education.
- Samad, I. S., & Aminullah, A. (2019). Applying ELSA Speak software in the pronunciation class: Students' perception. *Edumaspul – Journal Pendidikan*, 3(1), 56–63. <https://doi.org/10.33487/edumaspul.v3i1.85>
- Seidlhofer, B. (2001a). Pronunciation. In D. Nunan & R. Carter (Eds.). <http://ijdri.com/me/wp-content/uploads/2020/07/30.pdf>
- Seidlhofer, B. (2001b). Pronunciation and identity. In J. K. Hall & L. V. Firth (Eds.), *Language and identity: A reader* (pp. 80–96). Edinburgh University Press.
- Sun, W., Li, Y., & Ni, H. (2023). The impact of automatic speech recognition technology on second language pronunciation and speaking skills of EFL learners: A mixed methods investigation. *Frontiers in Psychology*, 14, Article 1210187. <https://doi.org/10.3389/fpsyg.2023.1210187>
- Tsai, P.-H. (2015). Computer-assisted pronunciation learning in a collaborative context: A case study in Taiwan. *Turkish Online Journal of Educational Technology*, 14(4), 1–13. (ERIC Document No. EJ1077659).
- Tsiplakides, I., & Keramida, A. (2009). Helping students overcome foreign language speaking anxiety in the English classroom: Theoretical issues and practical recommendations. *International Education Studies*, 2(4), 39–44. <https://doi.org/10.5539/ies.v2n4p39>

Vančová, H. (2023). AI and AI-powered tools for pronunciation training. *Journal of Language and Cultural Education*, 11(3), 12–24. <https://doi.org/10.2478/jolace-2023-0022>

Vera, F. (2023). Integrating Artificial Intelligence (AI) in the EFL Classroom: Benefits and Challenges. *Revista Electrónica Transformar*, 4(2), 66–77.

Yates, L., & Zielinski, B. (2009). *Give it a go: Teaching pronunciation to adults*. Sydney, Australia: AMEP Research Centre, Macquarie University.

## **Appendix:**

### **Student's Questionnaire**

**Dear Students , this questionnaire is designed to get data about the role of AI driven pronunciation tools in enhancing EFL students pronunciation. To answer the question, please, put a tick to indicate the chosen option, and justify your answers when needed. Be sure that any information you will provide us within this questionnaire will remain strictly anonymous.**

**Thank you in advance for your time and effort!**

#### **1-What is your age ?**

- 18-20
- 21-23
- 24 or older

#### **2-Did you find the English language easy to learn ?**

- Yes
- No

#### **3-How would rate you current pronunciation in English language ?**

- Good
- Very good
- Average
- Very poor

#### **4-What are the most common pronunciation mistakes made by EFL learners ?**

- Difficulty pronouncing certain words
- Misplacing word stress
- Incorrect intonation patterns
- Pronouncing silent letters
- All of the above

#### **5-Have you use any AI driven tools to practise pronunciation ?**

- Yes
- No

**6-If yes which AI driven pronunciation tools have you used ?**

- Elsa speak
- Duolingo
- Google pronunciation tool
  
- Other .....

**7-What features of AI pronunciation tools you find most useful ?**

- Visual representation of sound waves
- Pronouncing comparison with native speakers
- Vocabulary building
  
- Other.....

**8-How often do you use AI driven pronunciation tools ?**

- Daily
- A few times per week
- Once a week
- Never

**9-How helpful do you find AI pronunciation tools in improving your English pronunciation ?**

- Very helpful
- Some how helpful
- Not helpful at all

**10-Do you feel more comfortable in your pronunciation after using AI driven pronunciation tools ?**

- Yes
- No
- Unsure

**11-What are the main challenges you face when using AI pronunciation tools ?**

- Lack of accuracy in feedback
- Difficulties understanding AI instruction
- Not engaging enough
- Other .....

**12- Do you prefer AI driven pronunciation tools over human feedback from teachers or peers ?**

- Yes, AI better
- No, I prefer human feedback
- A combination of both

**13- What improvement would you like to some AI pronunciation tools ?**

- .....
- .....
- .....

**14- How do you compare AI driven pronunciation tools with traditional pronunciation tools method ?**

- .....
- .....
- .....

**15- What role do you think AI pronunciation tools should play in English language classroom ?**

- .....
- .....
- .....

**16- Can AI pronunciation tools adapt to different accents and speech patterns ?**

- .....

.....  
.....

*Thank you for your collaboration !*