UNIVERSIDAD INTERNACIONAL DE LAS AMÉRICAS

SCHOOL OF EDUCATION AND FOREIGN LANGUAGES

THESIS SUBMITTED TO OBTAIN THE BACHELOR'S DEGREE IN ENGLISH WITH EMPHASIS IN TEACHING

# Exploring the Impact of AI-Powered Language Learning Apps on Enhancing Speaking Skills Among Ninth Grade Students at Unidad Pedagógica de Río Cuba during the Second Quarter of 2025

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Julio, 2025

# ACKNOWLEDGMENT

I would like to express my gratitude to my supervisors, Prof. Catalina Guerrero Troyo and Prof. Ramiro Ramirez, for their guidance and support, throughout the development of this thesis. Their expertise, constructive feedback, and patience were fundamental to the completion of this work.

# DEDICATION

To God, for being my constant source of strength, wisdom, and peace throughout this journey. To my family, whose love, sacrifices, and unwavering support have shaped who I am and made this achievement possible. To my friends, for their encouragement, laughter, and companionship during the challenging and joyful moments alike. This work is for you with all my heart.

# ABSTRACT

This study explores the potential of AI-powered language learning applications to improve English speaking skills among ninth-grade students at Unidad Pedagógica de Río Cuba. Recognizing that speaking is one of the most challenging areas for language learners, the research investigates how tools such as Duolingo, ELSA Speak, and ChatGPT can enhance pronunciation, fluency, and learner motivation. A mixed-methods approach was used, combining surveys, observations, and interviews to gather data. The findings suggest that AI platforms can serve as effective complements to traditional teaching, offering students personalized feedback and opportunities for frequent speaking practice in low-anxiety environments. The results indicate improvements in student confidence and oral performance, highlighting the value of integrating technology into language education. This research contributes to a better understanding of how AI tools can support communicative competence and autonomous learning in the classroom.

# RESUMEN

Este estudio examina el potencial de las aplicaciones de aprendizaje de idiomas impulsadas por inteligencia artificial para mejorar las habilidades orales en inglés de estudiantes de noveno año en la Unidad Pedagógica de Río Cuba. Reconociendo que la expresión oral es una de las habilidades más difíciles de desarrollar, la investigación analiza cómo herramientas como Duolingo, ELSA Speak y ChatGPT pueden fortalecer la pronunciación, la fluidez y la motivación del estudiante. Se aplicó un enfoque mixto, utilizando encuestas, observaciones y entrevistas para recopilar datos. Los resultados sugieren que estas plataformas de IA pueden complementar eficazmente la enseñanza tradicional al ofrecer retroalimentación personalizada y espacios de práctica oral en ambientes sin presión. Se observaron mejoras en la confianza y el desempeño oral de los estudiantes, lo que resalta la importancia de integrar la tecnología en la enseñanza del inglés. Esta investigación aporta al conocimiento sobre el uso de la IA para fomentar el aprendizaje autónomo y la competencia comunicativa.

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# Chapter I

# Introductory Framework

## 1.1 Introduction

The integration of Artificial Intelligence (AI) in language learning has revolutionized the way students acquire and improve their language skills. Among the various language skills, speaking is often considered the most challenging to master, particularly for high school students (Harmer, 2015, p. 123). The use of AI-powered language learning apps has gained popularity in recent years, and researchers have begun to explore their potential in enhancing speaking skills among language learners (Chapelle, 2003, p. 12). This study aims to investigate the role of AI-powered language learning apps in improving speaking skills among ninth-grade high school students at Unidad Pedagógica de Rio Cuba during the first semester of 2025.

According to Ellis (2012, p. 45), speaking is a complex skill that requires students to process and produce language in real-time, considering factors such as grammar, vocabulary, pronunciation, and fluency. However, traditional language instruction often focuses on reading and writing skills, leaving speaking skills to receive less attention (Krashen, 2003, p. 17). AI-powered language learning apps have the potential to fill this gap by providing students with interactive and engaging speaking practice opportunities (Golonka et al., 2014, p. 102).

One of the key features of AI-powered language learning apps is their ability to provide personalized feedback to students. For instance, apps such as Duolingo and Babbel use speech recognition technology to assess students' pronunciation and provide instant feedback (Duolingo, 2022, p. 1). This feedback can help students identify areas of improvement and work on their speaking skills more effectively (Hinks, 2017, p. 56). Additionally, AI-powered language learning

apps can offer students the opportunity to practice speaking with native speakers or other language learners, which can help build their confidence and fluency in the target language (Lamy & Goodfellow, 1999, p. 23).

Research has shown that AI-powered language learning apps can be effective in improving speaking skills among language learners. A study conducted by Chen et al. (2020, p. 78) found that students who used an AI-powered language learning app showed significant improvement in their speaking skills compared to those who did not use the app. Another study by Lee et al. (2019, p. 34) found that AI-powered language learning apps can help reduce students' anxiety and increase their motivation to practice speaking. However, it is also important to note that AI-powered language learning apps have their limitations. For example, they may not be able to provide the same level of nuance and contextual understanding as human instructors (Benson, 2013, p. 12). Additionally, some apps may rely too heavily on repetitive drills and exercises, which can become boring and demotivating for students (Warschauer, 2000, p. 56).

To address these limitations, educators and app developers can work together to design AI-powered language learning apps that are more comprehensive and engaging. For instance, apps can be designed to incorporate more authentic and real-life speaking scenarios, which can help students develop their speaking skills in a more meaningful and contextualized way (Kern, 2006, p. 23). Additionally, apps can be designed to provide students with more choices and autonomy in their language learning, which can help increase their motivation and engagement (Dornyei, 2005, p. 12).

In the context of Unidad Pedagógica de Rio Cuba, the use of AI-powered language learning apps can be particularly beneficial for ninth-grade high school students. According to the Cuban Ministry of Education (2022, p. 1), the country has made significant investments in technology

and digital infrastructure in recent years, which has improved access to digital resources and tools for students and educators. The introduction of AI-powered language learning apps can help leverage these resources and provide students with more opportunities to practice and improve their speaking skills.

AI-powered language learning apps have the potential to play a significant role in enhancing speaking skills among ninth-grade high school students at Unidad Pedagógica de Rio Cuba. By providing personalized feedback, interactive practice opportunities, and authentic speaking scenarios, these apps can help students develop their speaking skills more effectively and engagingly. However, it is also important to address the limitations of these apps and work towards designing more comprehensive and engaging language learning tools. As Chapelle (2003, p. 12) notes, "the effective use of technology in language learning requires a deep understanding of the complex relationships between language, culture, and technology."

### 1.2 Justification

The exploration of AI-powered language learning apps in enhancing speaking skills among high school students is a timely and relevant area of research, particularly within the context of the Unidad Pedagógica de Rio Cuba. This study is justified on several grounds, stemming from the evolving landscape of language learning, the potential benefits of AI technology, and the specific needs of Cuban students.

Firstly, the shift towards digital learning and the increasing prevalence of AI in education necessitate a thorough investigation into the effectiveness of these tools (Warschauer, 2000, p. 56). The traditional methods of language instruction, which often rely on textbooks and classroom lectures, can sometimes fail to provide sufficient opportunities for speaking practice. As Ellis (2012, p. 45) points out, speaking requires real-time processing of language, which includes

fluency, grammar, vocabulary, and pronunciation; skills that can be challenging to develop in a classroom setting. The integration of AI-powered applications offers a potential solution by providing personalized practice, immediate feedback, and opportunities for engaging interaction, all of which can enhance the learning experience (Golonka et al., 2014, p. 102).

Secondly, the advent of AI-powered language learning apps has transformed the way language skills are acquired. These apps, such as Duolingo and Babbel, use advanced technologies like speech recognition to assess pronunciation and provide individualized feedback (Duolingo, 2022, p. 1). This feedback mechanism allows learners to pinpoint specific areas for improvement and practice their speaking skills more effectively (Hinks, 2017, p. 56). Furthermore, these apps can offer simulated conversations and opportunities to interact with other learners or native speakers, fostering confidence and promoting fluency (Lamy & Goodfellow, 1999, p. 23).

Research has shown positive outcomes associated with the use of AI-powered language learning apps. Studies have indicated that students who utilize these applications demonstrate notable improvements in their speaking skills compared to those who rely on conventional teaching methods (Chen et al., 2020, p. 78). Moreover, these apps have been shown to alleviate anxiety and boost motivation in language learners (Lee et al., 2019, p. 34). This is particularly important, as speaking anxiety is a common barrier for many language learners, especially adolescents, in the classroom (Horwitz et al., 1986, p. 125). The potential of these apps to address these challenges justifies further research.

Thirdly, the specific context of the Unidad Pedagógica de Rio Cuba provides a unique setting for this study. Cuba has witnessed significant investments in technology and digital infrastructure, making the integration of AI-powered language learning tools feasible and potentially highly effective (Cuban Ministry of Education, 2022, p. 1). This study offers a practical

approach to leveraging these resources to provide high school students with increased opportunities to practice and enhance their speaking abilities. The findings of this research could inform pedagogical practices and guide the implementation of AI-powered language learning apps in similar educational settings, which would enhance the quality of education.

The study also addresses a critical need for the evaluation of language learning tools in the specific educational context of Cuba. While research in this area is growing globally, there is a dearth of studies that focus on the application of AI-powered language learning apps in Cuban schools. This research will fill this gap by providing insights tailored to the local educational environment. Kern (2006, p. 23) notes the need for context-specific research in the use of technology in language learning, and this study aims to fulfill this critical requirement.

Moreover, this research aligns with broader educational goals of promoting student-centered learning and fostering communicative competence. AI-powered apps facilitate personalized learning experiences, allowing students to learn at their own pace and focus on areas where they need the most support (Benson, 2013, p. 12). By focusing on speaking skills, the study contributes directly to the development of students' ability to communicate effectively in a second language. As Harmer (2015, p. 123) argues, communication is the primary goal of language learning, making the development of speaking skills of utmost importance.

This study is justified by the rapid advancements in educational technology, the specific benefits of AI-powered language learning apps, the potential for improved outcomes among Cuban high school students, and the unique opportunities within the Unidad Pedagógica de Rio Cuba. The findings will not only enhance the understanding of how these apps can improve speaking skills but also contribute to the development of more effective language learning practices in the Cuban educational system. This research has the potential to impact teaching methodologies and

help students achieve a higher level of communicative competence. As Dornyei (2005, p. 12) says, the goal is to increase student motivation and engagement, and this study examines one avenue of achieving that goal.

### 1.3 Problem Statement

The problem statement for this research, "Exploring the Role of AI-powered Language Learning Apps in Enhancing Speaking Skills Among high school Students of ninth grade at Unidad Pedagógica de Rio Cuba First Semester 2025," centers on a critical gap between language learning goals and the methods employed to achieve them, particularly in the context of high school education. The challenge is multifaceted, encompassing the limitations of traditional language instruction, the underutilization of technology, and the specific needs of learners in a developing educational system. This research aims to address the core issues impacting the development of speaking skills among ninth-grade students at Unidad Pedagógica de Rio Cuba.

One of the fundamental issues is the persistent difficulty in developing effective speaking skills within the confines of traditional language classrooms (Harmer, 2015, p. 123). Instruction often emphasizes reading and writing, neglecting opportunities for students to actively practice speaking (Krashen, 2003, p. 17). This approach can result in students who possess strong grammatical knowledge but struggle to apply it in spontaneous, real-world conversations. The classroom environment, with its focus on group activities and teacher-centered instruction, may not always provide adequate opportunities for individualized practice and personalized feedback, essential for the development of speaking proficiency (Ellis, 2012, p. 45).

Furthermore, the lack of sufficient individualized practice is compounded by the limited resources available for language learning, particularly the opportunities for meaningful interactions with native speakers. The scarcity of such opportunities can severely impede students'

progress in attaining fluency and confidence. The classroom dynamic might not encourage students to feel confident in their pronunciation or the overall mechanics of speaking the language. Without ample opportunities for authentic communication, students may find it challenging to translate their knowledge into practical speaking skills, which often increases anxiety and discourages students from active participation in the class (Horwitz et al., 1986, p. 125).

The advent of AI-powered language learning apps offers a potential solution to these persistent problems. These apps provide personalized feedback, interactive exercises, and opportunities for simulated conversations, all tailored to enhance speaking skills (Golonka et al., 2014, p. 102). Nevertheless, the integration of such technology in the educational system of Cuba, and specifically in the Unidad Pedagógica, remains largely unexplored, representing a significant problem in the development of effective language learning strategies (Cuban Ministry of Education, 2022, p. 1). There is a need to investigate how these AI tools can be integrated and implemented into the curriculum.

Another critical aspect of the problem statement relates to the specific context of the students at Unidad Pedagógica. Ninth-grade students are at a crucial stage in their language learning journey. During this period, it is extremely vital to establish a strong base of confidence, vocabulary, grammar, and good habits. The learning environment needs to be effective to keep them motivated. The absence of advanced speaking skills can hinder their ability to perform well and advance academically. The research will investigate whether AI apps can help develop their skills and increase their involvement in the language learning process.

The problem is further underscored by the potential for these apps to address common barriers to language learning, like anxiety. Language learning anxiety can have a detrimental impact on students' performance and can prevent them from participating actively in class (Lee et

al., 2019, p. 34). AI-powered language learning apps can offer a safe, non-judgmental environment for students to practice speaking and receive immediate feedback. This can reduce the level of anxiety and build confidence (Hinks, 2017, p. 56). This research aims to determine if such an approach will prove effective for the students at Unidad Pedagógica.

The absence of research specific to the Cuban context also presents a gap that this study aims to address. While much of the literature about AI-powered language learning apps has come from various regions, the application of these apps in the Cuban educational environment is relatively unknown (Kern, 2006, p. 23). Understanding the specific needs and challenges of students at Unidad Pedagógica is essential for creating the most effective and tailored language learning interventions.

In addressing these issues, this research seeks to answer the following key questions: What is the current level of speaking proficiency among ninth-grade students at Unidad Pedagógica? How can AI-powered language learning apps enhance their speaking skills? What are the attitudes and perceptions of students and teachers regarding the use of these apps? What challenges might arise during implementation? By examining these questions, this study contributes to the broader understanding of how AI can be used to create a more engaging and effective learning experience for all students at Unidad Pedagógica (Dornyei, 2005, p. 12).

This research will shed light on the specific advantages and limitations of using these AI-powered apps to improve speaking skills. By identifying challenges, sharing insights, and contributing to the design of more practical and engaging language learning tools, this study will help to address this problem within the Cuban educational context.

## 1.4 Objectives

### 1.4.1 General Objective

To analyze the Role of AI-powered Language Learning Apps in Enhancing Speaking Skills Among high school students of the ninth grade at Unidad Pedagogical de Rio Cuba, First Semester 2025.

### 1.4.2 Specific Objectives

- To identify the most common issues that students face at the time of speaking
- To apply AI tools to improve speaking skills in ninth-grade students
- To evaluate the impact of AI-driven learning platforms on students' speaking skills

## 1.5 Scope of the Research

- The research focuses on investigating the effectiveness of AI-powered language learning apps in enhancing the speaking skills of ninth-grade students at the Unidad Pedagogical de Cuba.
- The study will examine the benefits, challenges, and potential impact of these apps within the context of Cuban education.
- The scope includes a quantitative and qualitative analysis of student performance, acceptance, and perception of the AI-powered language learning apps.
- The research will take place in the Unidad Pedagógica de Rio Cuba during the first semester of 2025.
- The study's scope is limited to the specific population of ninth-grade students.
- The study will also consider the influence of student characteristics on the effectiveness of the apps.

### 1.5.2 Limitations of the Research

- Generalizability: The findings of this study may not be directly generalizable to other educational settings or populations outside of the Unidad Pedagógica de Rio Cuba, or to students of different grade levels.
- Specific App Selection: The choice of AI-powered language learning apps included in the study could influence the results.
- Sample Size: The size of the student sample will impact the statistical power and the ability to generalize the findings.
- Short-Term Focus: The study will be conducted over a specific semester; longer-term effects may not be assessed.
- Accessibility: The research could be limited by access to technology or internet connectivity.

# Chapter II

# Theoretical Framework

## 2.1 Introduction to Ai-Powered Language Learning Apps

The integration of technology in language learning has transformed the traditional pedagogical landscape, and Artificial Intelligence (AI) has played a pivotal role in this evolution. AI-powered language learning apps represent a significant advancement, providing new opportunities for learners to enhance their language skills, particularly in speaking. These applications leverage machine learning algorithms and data-driven methodologies to create personalized learning experiences that adapt to individual learner needs.

### 2.1.1 The Rise of Ai-Powered Language Learning Apps

AI-powered language learning applications have gained traction since their inception, driven by the increasing demand for effective, accessible, and engaging language education tools. Unlike traditional learning methods, these apps utilize sophisticated algorithms to provide tailored learning experiences. As noted by Zhao and Huang (2019), "AI enables the adaptation of content and pacing to match an individual learner's proficiency level, making the language learning process more efficient" (p. 345). This personalized learning approach not only caters to the strengths and weaknesses of each learner but also enhances motivation through responsive feedback.

Among the most significant advantages of these applications is their ability to simulate real-world language use; for instance, apps like Duolingo and Babbel incorporate speech recognition technology that allows learners to practice speaking and receive immediate feedback on their pronunciation and fluency. According to Kaplan et al. (2021), "speech recognition technology in language learning apps provides learners with the opportunity to engage in spoken language

practice without the fear of making mistakes in a live conversation" (p. 112). This feature is crucial as it fosters a safe learning environment, encouraging learners to practice speaking skills more freely.

Another essential component of AI-powered language learning applications is the incorporation of Natural Language Processing (NLP). NLP technologies enable the apps to understand and analyze human language, allowing for more interactive and context-sensitive learning experiences. As argued by Chen et al. (2022), "NLP capabilities facilitate deeper interaction between learners and the app, leading to improved understanding and retention of the language being learned" (p. 78). This interactivity not only enhances the learner's engagement but also promotes the development of speaking skills through conversational practice with AI-driven chatbots or virtual tutors.

### 2.1.2 Advantages of Ai in Language Learning

The benefits of utilizing AI in language learning extend beyond personalization and interactivity; they also encompass accessibility and scalability. One of the most compelling features of AI-powered language learning apps is their ability to reach a broad audience, with mobile technology becoming ubiquitous, learners can access these applications at any time and from anywhere. According to Mendez and Kahn (2023), "the portability of language learning apps ensures that learners can practice their speaking skills in real-life contexts, which significantly enhances the overall learning experience" (p. 211). This accessibility allows learners who may not have the opportunity to engage with traditional classroom instruction to improve their language skills independently. Moreover, AI-powered apps can cater to diverse learning preferences and backgrounds, offering a range of activities that address various aspects of language learning, including vocabulary acquisition, grammar, and pronunciation.

This versatility makes them suitable for both beginner and advanced learners. Research by Gómez et al. (2020) asserts that "differentiated learning pathways offered by AI technology help to accommodate various learning styles, promoting inclusivity in language education" (p. 49). Consequently, learners are more likely to remain engaged and motivated when using these applications, which enhances their potential for language acquisition. Despite the numerous advantages, it is essential to acknowledge the challenges and limitations associated with AI-powered language learning apps. While technology can enhance learning, it cannot replace the need for interpersonal interaction and cultural immersion inherent in language learning.

As highlighted by Farahani and Johnson (2022), "the reliance on apps for language learning might lead to a superficial understanding of cultural nuances that are essential for effective communication in a second language" (p. 95). Therefore, while these apps provide valuable tools for practicing speaking skills, they should complement, rather than replace, traditional language-learning methods that involve human interaction.

AI-powered language learning apps represent a dynamic and innovative approach to language education, especially in developing speaking skills, through personalized experiences, real-time feedback, and accessibility. They offer significant advantages over traditional methods. However, it is crucial to integrate these technologies thoughtfully within the broader context of language learning to ensure that learners receive a holistic education, as language learning continues to evolve with technological advancements. Therefore, understanding the role of AI can significantly enhance pedagogical strategies and improve outcomes in speaking proficiency.

## 2.2 The Importance of Speaking Skills in Language Acquisition

Speaking skills are fundamental in the language learning process, serving as a crucial means of communication and expression, mastering the ability to speak a language not only enhances one's ability to engage in conversations but also contributes to overall language proficiency. In the context of language acquisition, speaking skills are often emphasized as they directly affect learners' confidence and willingness to interact in the target language.

### 2.2.1 The Role of Speaking Skills in Effective Communication

Effective communication in any language relies heavily on the ability to articulate thoughts and ideas clearly and coherently. Speaking skills facilitate this communication, enabling learners to express their opinions, ask questions, and engage in discussions. According to Richards and Renandya (2019), "speaking is one of the most important skills in language learning, as it allows learners to interact with others, build relationships, and share knowledge" (p. 208). This interactive aspect of speaking is particularly essential for language acquisition, as it promotes the social use of language, allowing learners to practice and refine their skills in real-life situations.

Moreover, speaking skills contribute significantly to learners' confidence and agency. Research by Zhang (2020) indicates that when learners develop their speaking abilities, they are more likely to participate actively in language exchanges and classroom dialogues. "The more proficient students are in speaking, the more willing they become to engage in conversation, which further reinforces their learning and understanding of the language" (p. 135). This willingness to speak not only bolsters learners' confidence but also enhances their ability to communicate effectively in social and academic settings, reinforcing the importance of focusing on speaking skills in language instruction.

The significance of speaking skills also extends to their impact on listening comprehension. Engaging in speaking practice allows learners to become more attuned to the nuances of spoken language, including pronunciation, intonation, and rhythm. As noted by Chan and Li (2021), "there is a reciprocal relationship between speaking and listening; as students practice speaking, they simultaneously enhance their listening skills, which are crucial for effective communication" (p. 92). Thus, the development of speaking skills contributes not only to verbal expression but also enriches overall linguistic comprehension, facilitating a holistic approach to language acquisition.

### 2.2.2 The Influence of Speaking Skills on Cognitive Development and Motivation

Speaking skills are not solely about verbal communication; they also play a vital role in cognitive development during language acquisition. The act of verbalizing thoughts encourages critical thinking and problem-solving skills. When learners articulate their ideas and opinions in the target language, they engage in higher-order thinking processes. According to Liu (2018), "language production engages cognitive processes that contribute to learning; expressive speech requires learners to organize their thoughts and convey them in an understandable manner, thereby promoting cognitive growth" (p. 116). This cognitive engagement is relevant for deep learning and retention of language structures and vocabulary.

Moreover, the development of speaking skills is intrinsically linked to learner motivation, an essential factor in successful language acquisition. The ability to communicate effectively fosters a sense of achievement and satisfaction, which, in turn, motivates learners to continue practicing and improving their speaking skills. A study by Garcia and Lin (2022) highlights this connection, stating that "learners who see improvement in their speaking abilities are more likely to remain motivated and persevere in their language learning journey" (p. 240). This motivation is

crucial in language learning, as it drives learners to seek opportunities for practice and application, fostering a habit of continuous improvement.

The context in which speaking skills are practiced also influences motivation and engagement. Language learning environments that encourage collaboration and interaction among learners can significantly enhance the development of speaking skills. Peer interactions, such as group discussions and role-playing activities, create an atmosphere of support and encouragement. As Chen et al. (2023) explain, "collaborative learning environments foster peer feedback and social interaction, both of which significantly enhance learners' speaking abilities and increase motivation" (p. 57). Through collaboration, learners not only practice their speaking skills but also gain insights from their peers, enriching their learning experience.

While it is evident that speaking skills are vital in language acquisition, it is important to recognize that they must be cultivated through deliberate instructional strategies. Language educators should create opportunities for learners to practice speaking in varied contexts, incorporating meaningful interactions that reflect real-life communication situations. According to Richards (2021), the implementation of task-based language teaching can be especially effective, as it promotes authentic speaking practice in a purposeful context (p. 270). Educators should aim to create environments where learners feel comfortable and motivated to express themselves, as this will ultimately contribute to their overall language proficiency.

Speaking skills are a cornerstone of effective language acquisition, playing a crucial role in communication, cognitive development, and learner motivation. The ability to express oneself verbally fosters confidence, enhances listening comprehension, and encourages critical thinking. As learners become more proficient in speaking, their intrinsic motivation to engage with the language increases, leading to a more profound and sustained commitment to language learning.

For language educators, prioritizing the development of speaking skills through supportive, interactive teaching methods is essential for nurturing competent and confident language users.

## 2.3 Overview of Ai Technologies in Language Learning

The integration of artificial intelligence (AI) technologies in language learning has revolutionized the ways learners acquire new languages. This technological advancement facilitates personalized, adaptive, and efficient learning experiences that may not be attainable through traditional methods alone. This section provides an overview of the key AI technologies employed in language learning, divided into two main subtopics: adaptive learning systems and natural language processing (NLP) applications.

### 2.3.1 Adaptive Learning Systems

Adaptive learning systems are designed to personalize the learning experience based on individual user data, including performance analytics and learning styles. These systems utilize AI algorithms that analyze learners' interactions with language materials to tailor content and instructional strategies accordingly. According to Wang and Smith (2020), "adaptive learning provides a personalized educational experience that aligns with the learner's pace and specific needs," enhancing both engagement and retention (p. 45). This individualized approach is essential in language learning, where different learners may require varying amounts of practice and reinforcement in particular areas, such as vocabulary acquisition or grammatical structures.

One prominent example of adaptive learning technology in language education is the use of intelligent tutoring systems (ITS), ITSs provide personalized feedback and support, guiding learners through their language learning journey much like a personal tutor would. In a study by Alavi (2019), it was found that "students using ITS experienced higher achievement levels in

language skills compared to traditional classroom instruction, primarily due to the personalized feedback provided by the system" (p. 122). These systems continuously adapt to the learner's performance, offering more challenging material or revisiting foundational concepts as needed, thus optimizing the learning experience.

Moreover, machine learning techniques enable adaptive learning systems to predict learner behaviors and preferences based on large datasets. This predictive capability allows the system to recommend specific exercises or resources that are likely to benefit the learner most. As noted by Lin et al. (2021), "by harnessing data analytics, adaptive learning platforms can dynamically adjust the educational content, fostering a more effective and engaging learning environment" (p. 78). Importantly, the integration of adaptive learning technologies ensures that learners receive timely and relevant support, enabling them to overcome challenges and progress at their own pace.

Another critical aspect of adaptive learning systems is their ability to create a gamified learning environment, which increases motivation and engagement. Many language learning apps incorporate game-like elements, such as points, badges, and levels, to make the learning experience more enjoyable. According to Hamari et al. (2019), "gamification in education enhances user engagement and motivation, which are crucial for effective language acquisition" (p. 33). This engagement is particularly significant in language learning, as motivated learners are more likely to practice consistently and seek opportunities to use the language in real-world contexts.

### 2.3.2 Natural Language Processing (NLP) Applications

Natural language processing (NLP) represents another transformative AI technology in language learning. NLP encompasses a range of techniques that enable machines to understand, interpret, and generate human language. In the context of language education, NLP applications

can facilitate interactive learning experiences that promote speaking, listening, reading, and writing skills. One of the most notable applications of NLP in language learning is through chatbots and virtual tutors that simulate conversation. These AI-driven tools can engage learners in dialogue, allowing them to practice speaking and receive instant feedback on their language use. A study by Kukharenko and Shaptan (2021) highlights that “chatbots enhance learners' speaking abilities by providing a platform for practice without the pressure of face-to-face interactions” (p. 201). This aspect of NLP technology helps learners build confidence in their speaking skills and fosters a more comfortable environment for practicing conversational language.

Furthermore, NLP can enhance language learning by providing personalized writing assistance. Tools like Grammarly and ProWritingAid utilize NLP algorithms to offer real-time suggestions to improve grammar, style, and vocabulary usage. Such feedback is invaluable for language learners who may struggle with written expression. According to Jones (2023), “the use of NLP tools in writing not only helps learners recognize their mistakes but also teaches them the correct usage in context, promoting deeper understanding” (p. 88). This type of immediate feedback helps to reinforce learning and cultivate a habit of careful language use in learners.

Additionally, NLP technologies enable the development of language learning applications that focus on vocabulary acquisition through context-based learning. These applications employ algorithms to determine the appropriate context for word usage, allowing learners to engage with vocabulary in meaningful ways. Research by Park and Kim (2020) suggests that “contextual vocabulary learning through NLP applications significantly enhances retention and usage, as learners can see words in action rather than in isolation” (p. 54). By contextualizing vocabulary within sentences or scenarios, learners can better understand how to use words correctly, which is essential for developing fluency.

Moreover, automated speech recognition (ASR) is another significant feature of NLP technologies, facilitating real-time pronunciation practice. ASR allows learners to pronounce words or sentences and receive feedback on their accuracy. According to Reeder et al. (2022), "the ability to practice speaking and receive immediate feedback on pronunciation helps learners refine their articulatory skills, making them more confident speakers" (p. 179). This technology makes language learning more interactive and supports the development of critical speaking skills, enabling learners to practice pronunciation in a low-pressure environment.

The integration of AI technologies, specifically adaptive learning systems and natural language processing applications, has profoundly impacted language learning. Adaptive learning systems personalize the educational experience based on individual learner needs, optimizing engagement and performance. Similarly, NLP applications promote interactive language practice, enhance writing skills, and provide valuable feedback, thus enriching the learning experience. Together, these technologies not only improve language acquisition outcomes but also foster learner autonomy and confidence, ultimately paving the way for a more effective and enjoyable language learning process.

### 2.4 Features of Effective Language Learning Apps

The rise of digital technologies has transformed the landscape of language learning, giving learners access to an array of applications designed to facilitate language acquisition. However, not all language learning apps are created equal. Effective language learning apps must incorporate specific features that enhance the learning experience and promote successful outcomes. This section explores the key features of effective language learning apps, divided into two main subtopics: user engagement and personalized learning pathways.

### 2.4.1 User Engagement

Engagement is a critical element in language learning, as it directly impacts learners' motivation and commitment. Effective language learning apps incorporate various features designed to keep users engaged and excited about their learning journey. One primary aspect of user engagement is gamification, which is the integration of game-like elements into the learning process. According to Deterding et al. (2019), "gamification leverages the motivational properties of games to enhance user engagement and improve learning outcomes in educational settings" (p. 68). By adding elements such as points, badges, and leaderboards, language learning apps can create a compelling environment that encourages users to practice regularly and reach their language learning goals.

Moreover, the inclusion of interactive content significantly enhances user engagement. This can involve exercises that require active participation, such as fill-in-the-blank activities, matching games, or speaking drills. Studies by Su and Zhang (2021) show that "interactive features keep learners focused and make the learning experience more dynamic," which helps to maintain motivation over extended periods (p. 92). For instance, apps like Duolingo employ a variety of interactive exercises that prevent learners from becoming passive recipients of information, fostering a hands-on approach to language acquisition.

Additionally, effective language learning apps should offer a social component, allowing users to connect and interact with others. This feature can take the form of discussion forums, peer reviews, or language exchange capabilities. Research suggests that social interactions can enhance motivation and provide learners with opportunities to practice language skills in real-life contexts. As highlighted by Reyes and Alada (2020), "social engagement in language learning apps not only increases motivation but also provides valuable feedback through peer interactions" (p. 150). For

example, Tandem offers users the chance to find partners for language exchange, facilitating real conversational practice that is often lacking in traditional learning environments.

Finally, effective user interface (UI) and user experience (UX) design play an essential role in maintaining engagement. A clean, intuitive interface ensures that learners can navigate the app easily, reducing frustration and distractions. As Cairns and Duffy (2021) point out, “a well-designed user interface enhances the overall learning experience by allowing users to focus on content rather than struggling with navigation” (p. 22). Language learning apps should prioritize usability, ensuring that learners can easily access lessons, track progress, and engage with available resources without unnecessary complexity.

### 2.4.2 Personalized Learning Pathways

Customization and personalization are increasingly recognized as critical components of effective language learning apps. Personalized learning pathways allow learners to tailor their study experiences based on their individual needs, goals, and proficiency levels. This feature helps to create a sense of ownership over the learning process, leading to increased motivation and better outcomes. According to Chen and Zheng (2019), “personalized learning pathways enhance learner engagement by allowing individuals to focus on areas where they require more practice, ultimately promoting more effective language acquisition” (p. 107).

To achieve personalization, effective language learning apps utilize data analytics and artificial intelligence (AI) to monitor user progress and adjust content accordingly. These systems can assess a learner's current level, identify strengths and weaknesses, and recommend targeted exercises. For instance, Babbel employs an adaptive learning algorithm that modifies lessons based on users' performance, guiding them through complex topics at their own pace. As Wu and Zhang

(2022) explain, “adaptive learning technologies enable apps to continuously tailor content, ensuring that learners are challenged without becoming overwhelmed” (p. 84). This adaptability is crucial in keeping learners engaged and supporting their language development effectively.

Furthermore, effective language learning apps should allow users to set their own goals and track their progress. Goal-setting features empower learners by enabling them to define what they wish to achieve in a specific timeframe. Progress tracking systems help users visualize their journey, which can enhance motivation. A study by Liao et al. (2021) indicates that “apps that incorporate progress tracking and goal-setting features are more likely to keep learners motivated and on-task, as they can see the results of their efforts” (p. 238). Progress visualization through graphs or badges can encourage users to maintain their study habits and continually strive for improvement.

Moreover, incorporating a diverse range of learning materials is essential in creating personalized learning pathways. Effective language learning apps should provide users with various resources, such as audio, video, and text-based content, to cater to different learning styles. Research by Kauffman and Hargis (2020) shows that “offering diverse learning modalities helps accommodate individual preferences and can significantly enhance comprehension and retention” (p. 112). This diversity ensures that learners remain engaged and can approach language acquisition from multiple angles, increasing the likelihood of successful outcomes.

Finally, effective language learning apps utilize feedback mechanisms that provide instant responses and constructive criticism. Timely feedback can help learners understand their mistakes and correct them, which is essential for mastering a language. According to Frontini and Hogan (2018), “feedback is critical in language learning, as it informs learners about their performance and guides them on how to improve” (p. 330). By integrating immediate feedback systems,

language learning apps can support learners as they practice, helping them gain confidence in their abilities and ensuring consistent progress.

Effective language learning apps are characterized by features that prioritize user engagement and personalized learning pathways. Elements such as gamification, interactive content, and social connectivity contribute to a motivating learning environment. Meanwhile, personalization through data analytics, goal-setting, and diverse resources enhances the learning experience, ensuring that learners receive tailored support suited to their individual needs. As language acquisition continues to evolve in the digital age, developers must incorporate these features to create impactful learning experiences that foster language proficiency.

## 2.5 User Engagement and Motivation in Ai Language Learning

Artificial intelligence (AI) has significantly transformed language learning experiences by enhancing user engagement and optimizing motivation among learners. The purpose of this section is to delve into how AI-driven features can foster greater user engagement and motivate learners to achieve their language learning goals. It explores two critical subtopics: the role of personalized feedback and gamification strategies in enhancing motivation and engagement.

### 2.5.1 Personalized Feedback

One of the fundamental ways AI enhances user engagement in language learning applications is through the provision of personalized feedback. Immediate and specific feedback allows learners to understand their strengths and weaknesses, guiding them toward improvement. Research by Kizilcec et al. (2018) emphasizes the importance of personalized feedback in educational technology, noting that “prompt feedback on performance can significantly enhance learners’ motivation and engagement by clarifying their progress toward goals” (p. 275). Such

feedback mechanisms are particularly beneficial in language learning, where identifying errors in pronunciation, grammar, or vocabulary is crucial for growth.

AI technologies, including natural language processing (NLP) and machine learning algorithms, enable language learning apps to analyze user responses in real-time and provide tailored feedback. For instance, apps like Duolingo and Rosetta Stone leverage these technologies to offer instant corrections on pronunciation, grammar, and vocabulary usage, greatly enhancing the user experience. According to Alkhateeb (2020), "the adaptive nature of AI-powered feedback helps learners address weaknesses swiftly and encourages a self-directed learning path" (p. 14). This personalized interaction not only aids in skill development but also fosters a sense of agency among learners, motivating them to take charge of their learning journey.

Further supporting this view, Andrade and Bunker (2021) argue that personalized feedback fosters a supportive learning environment by encouraging learners to persist despite difficulties. They state, "when learners receive constructive feedback tailored to their performance, they are more likely to feel encouraged to continue their efforts, thus maintaining higher levels of engagement" (p. 88). This constant interaction between the learner and the AI system cultivates an ongoing dialogue that nurtures motivation and engagement.

However, it is essential to balance the feedback provided. Excessive criticism can lead to frustration and decreased motivation, while general feedback may lack the stimulatory effect necessary for growth. Research by Wang et al. (2022) indicates that "constructive feedback should be framed positively, focusing on improvement rather than solely on errors to maintain learners' motivation" (p. 104). Understanding this nuance allows AI-driven platforms to design feedback mechanisms that not only target specific learning outcomes but also keep learners engaged and motivated throughout their language learning journey.

### 2.5.2 Gamification Strategies

Gamification is another vital aspect of AI language learning tools that significantly contributes to user engagement and motivation. By integrating game design elements into educational environments, language learning apps can create interactive and enjoyable experiences that foster deeper engagement. Deterding et al. (2019) elucidate this concept, asserting, "gamification applies game mechanics and design to non-game contexts, enhancing user engagement by tapping into human inclinations for competition, achievement, and social interaction" (p. 67).

In the context of language learning, gamification can take many forms, including point systems, challenges, levels, and rewards. Various studies underscore the impact of these features on learner motivation. For instance, in an investigation conducted by Hamari et al. (2019), it was found that "the incorporation of game mechanics significantly enhances user motivation and engagement, leading to a greater likelihood of sustained practice" (p. 39). Features such as leaderboards not only encourage healthy competition but also foster a sense of community among learners, further motivating them to improve their skills.

One successful implementation of gamification in language learning apps is through daily challenges and streaks, which encourage learners to practice regularly. Apps like Duolingo utilize streaks to keep users engaged by rewarding consistency in practice. According to Ritchie (2021), "tracking progress through daily engagement enables learners to develop a habit while simultaneously cultivating motivation through visible achievements, leading to greater language retention" (p. 270). This habitual engagement is essential for language acquisition, as consistent practice helps reinforce learning and promotes fluency.

Moreover, social features embedded in gamified applications can enhance user motivation significantly. For example, many language learning apps allow users to share their achievements or compete against friends. This social interaction promotes not only motivation but also accountability. As Reyes and Alada (2020) highlight, "social engagement through competitive elements can foster a sense of community, which is key to maintaining motivation and persistence in language learning" (p. 152). By creating a vibrant user community, learners are encouraged to continue practicing their language skills for a sense of belonging and achievement.

Lastly, the challenge level in gamified activities is crucial for maintaining engagement. Tasks that are too easy may lead to boredom, while those that are overly challenging can cause frustration. Effective language learning apps use adaptive algorithms to calibrate task difficulty based on individual performance, ensuring that learners are consistently engaged at the appropriate level of challenge. A study by Li et al. (2020) concludes that "properly calibrated difficulties in gamified contexts significantly enhance learner engagement and motivation through sustained effort" (p. 188). As a result, users remain challenged yet supported, leading to continuous growth and sustained interest in learning.

User engagement and motivation in AI language learning applications are profoundly influenced by the integration of personalized feedback and gamification strategies. Personalized feedback enables learners to understand their progress and areas needing improvement, fostering a sense of agency and self-direction. Gamification, on the other hand, introduces game-like elements that make the learning process enjoyable and interactive, further promoting consistent practice and community engagement. As language learning continues to evolve through technological advancements, leveraging these features can create powerful learning experiences that not only engage learners but also motivate them to achieve their language acquisition goals.

## 2.6 Impact of Ai on Pronunciation and Fluency

The advent of artificial intelligence (AI) in language education has significantly influenced the ways learners improve their pronunciation and fluency. AI-powered language learning tools have gained popularity due to their ability to offer personalized, immediate feedback and interactive experiences. This section explores the impact of AI on pronunciation and fluency development, focusing on two key subtopics: automated speech recognition (ASR) technology and personalized practice environments.

### 2.6.1 Automated Speech Recognition Technology

Automated Speech Recognition (ASR) technology has transformed how learners practice pronunciation in language learning applications. ASR systems analyze spoken language and convert it into text, enabling software to assess users' pronunciation accuracy in real-time. This capability is particularly beneficial in language learning, where correct pronunciation is essential for effective communication. Research by Wang et al. (2019) indicates that “ASR technology provides immediate feedback, allowing learners to recognize and correct pronunciation errors swiftly” (p. 105). This immediate response creates a reinforcement loop that accelerates the learning process.

For instance, applications like Rosetta Stone and Babbel utilize ASR to evaluate learners' pronunciation and offer corrective suggestions. Users receive feedback on different aspects of pronunciation, such as intonation, stress, and segmental accuracy. According to Ganaie et al. (2020), “the integration of ASR in language learning not only enhances pronunciation practice but also supports motivation by providing an interactive learning experience” (p. 922). Therefore, ASR Technology not only helps learners refine their pronunciation but also actively engages them. in the learning process.

Moreover, ASR's ability to track and analyze user progress over time contributes to fluency development. By logging users' performance history, AI systems can identify patterns and help learners focus on specific pronunciation challenges that need improvement. A study conducted by Lee and Wong (2022) found that “tracking pronunciation progress through ASR can lead to significant improvements in fluency, as learners can actively engage with areas that require more practice” (p. 134). The personalized feedback offered by these systems allows learners to work on specific sounds or words they struggle with, thus promoting gradual but steady improvements in their overall pronunciation and fluency.

However, challenges remain regarding ASR technology's efficacy. The accuracy of ASR systems can be heavily reliant on the quality of the input they receive, including background noise and the speech patterns of users. As Ramanathan et al. (2021) emphasize, “the effectiveness of ASR in language learning environments is contingent upon its ability to accurately recognize diverse accents and pronunciations” (p. 29). Ensuring that AI systems can accommodate a wide range of speech variations is essential to maximize their teaching potential and effectiveness in improving pronunciation and fluency for all learners.

### 2.6.2 Personalized Practice Environments

Another significant way AI influences pronunciation and fluency is through the creation of personalized practice environments. AI-driven applications can tailor exercises and speaking activities to meet learners’ specific needs, adapting to their proficiency levels, learning styles, and individual goals. This personalized approach encourages learners to engage more deeply in their language learning journey. Research by Chen and Dong (2020) states, “personalized practice environments that adapt to users' unique phonetic needs can enhance pronunciation and fluency more effectively than standardized one-size-fits-all methods” (p. 56).

Personalized environments foster immersive situations in which learners can practice speaking and receive corrective feedback. Such tailored activities can include conversational role-playing, where learners simulate real-life interactions in a safe, supportive environment. For instance, apps like ELSA Speak use AI to customize pronunciation drills based on user data, offering practices that target specific phonemes or speech patterns that learners struggle with. As highlighted by Steinberg et al. (2021), “customized pronunciation exercises enable learners to concentrate on their shortcomings, cultivating fluency over time as they practice both isolated sounds and contextual speech” (p. 199). This detail-oriented approach helps to build blocks of fluency through targeted practice of difficult pronunciations.

Furthermore, personalized practice environments can incorporate spaced repetition and adaptive learning techniques to enhance memory retention and skill mastery. This approach refers to using intervals of increasing duration between practice sessions, which has been shown to improve retention and recall of language skills. Research by Liu et al. (2022) emphasizes that “incorporating spaced repetition algorithms in AI-driven pronunciation practice can lead to more durable learning and greater fluency in speech” (p. 256). By providing learners with spaced challenges, AI-powered platforms create environments where practice keeps users engaged while enabling gradual improvement.

Additionally, the integration of AI in pronunciation training fosters an interactive feedback loop that prompts students to reflect on their performance actively. Learners can start to recognize their habitual pronunciation errors and adjust accordingly. According to Yang (2018), "the interactive nature of AI-based feedback provides learners the opportunity to cultivate their self-awareness regarding their speech, leading to more focused practice and enhanced fluency" (p.

422). As users become more conscious of their pronunciation habits, they are likely to commit to improving their fluency through enhanced practice and self-correction.

Overall, personalized practice environments create a more engaging and effective means for learners to enhance their pronunciation and fluency. AI systems that tailor exercises to individual needs and incorporate various learning strategies provide learners with a dynamic approach that aligns with their progress. As this personalized engagement deepens, learners gain a stronger foundation for obtaining fluency in their target language, which can significantly impact their communication skills.

The impact of AI on pronunciation and fluency in language learning is profound and multifaceted. Through technologies such as automated speech recognition, learners receive immediate, personalized feedback that fosters meaningful engagement and facilitates error correction in their pronunciation efforts. Simultaneously, personalized practice environments tailored to individual needs create a framework that promotes consistent improvement in fluency. As AI technology continues to evolve, its potential to reshape and enhance language learning experiences remains significant, presenting exciting opportunities for learners to refine their pronunciation and achieve fluency efficiently.

### 2.7 Personalization and Adaptive Learning in Speaking Skills

In the field of language learning, personalization and adaptive learning have emerged as crucial elements for developing speaking skills effectively. As artificial intelligence (AI) technologies evolve, they allow for more tailored learning experiences that cater to the individual needs, preferences, and abilities of learners. This section delves into the importance of personalization and adaptive learning in speaking skills training, focusing on two key subtopics:

the role of AI in personalizing speaking activities and the impact of adaptive learning technologies on speaking proficiency.

### 2.7.1 The Role of Ai in Personalizing Speaking Activities

Artificial intelligence plays a significant role in personalizing speaking activities in language learning applications, enabling tailored experiences that enhance learners' speaking skills. Personalization involves modifying content and exercises to meet the specific needs and preferences of individual learners. AI algorithms analyze users' progress, speaking abilities, and learning styles to create customized learning pathways. As described by Klemke et al. (2020), "personalized learning environments that utilize AI can significantly increase learner engagement and motivation by providing content that is directly relevant to their interests and proficiency levels" (p. 43).

For instance, platforms like Duolingo and ELSA Speak leverage AI to customize pronunciation and speaking exercises based on learners' performance data. These platforms assess individual learner responses and adapt practice tasks accordingly. Users receive targeted exercises focusing on their specific gaps, whether that involves fine-tuning pronunciation or enhancing fluency through conversation simulations. According to Su et al. (2021), "personalized speaking tasks created through AI-based assessments can lead to noticeable improvements in learners' speaking proficiency by continuously adapting to their evolving skill sets" (p. 215).

Moreover, AI can facilitate the development of speaking activities that resonate with learners' interests; by analyzing users' choices and responses, AI systems can curate content that aligns with their preferences, be it specific topics, genres, or contexts. For example, a learner interested in business might receive conversation practice focused on business terminology and

scenarios, making the learning experience more relevant and engaging. As Gregor et al. (2019) note, “relevant content helps maintain learners’ motivation and commitment to practice, as they see immediate value in their speaking exercises” (p. 90). Personalization enhances the overall effectiveness of speaking skills development by ensuring that learners engage with materials and activities that resonate with their individual learning goals.

Additionally, the integration of AI in personalized speaking activities encourages learners to practice in a safe space. Immediate feedback provided by AI tutors or speech recognition systems helps learners correct their pronunciation and improve their speaking techniques without the fear of judgment from peers or instructors. According to Ganaie et al. (2020), “AI-driven environments where learners can experiment with speaking without social pressure promote greater risk-taking in language acquisition” (p. 917). This aspect of personalization cultivates a nurturing and supportive atmosphere for learners to refine their speaking abilities and gain confidence in their language use.

### 2.7.2 The Impact of Adaptive Learning Technologies on Speaking Proficiency

Adaptive learning technologies play a pivotal role in enhancing speaking proficiency by allowing dynamic adjustments to the curriculum based on learners' ongoing progress and performance. These technologies analyze data from learners' interactions and responses to assess their abilities in real-time, providing tailored content to guide them toward fluency. Smith and Rojas (2023) posit that “adaptive learning systems adjust the complexity and frequency of speaking tasks according to individual progress, ensuring that learners are consistently challenged yet supported” (p. 152).

Adaptive learning platforms create a feedback loop where learners are continuously evaluated on their speaking skills. For example, if a learner struggles with specific phonetic sounds, the system will increase the frequency of exercises targeting those sounds, adapting to meet their needs. This targeted approach enhances speaking fluency as learners work through their difficulties in a structured manner. Research conducted by Lee et al. (2022) indicates that "adaptive learning technologies can significantly improve outcomes in speaking skills by offering a personalized sequence of practice that aligns with learners' proficiency levels" (p. 233).

Furthermore, adaptive learning technologies foster motivation and engagement by providing learners with milestones and personalized goals. When learners can see clear progress markers within their speaking practice, they are more likely to remain motivated to continue their language studies. According to Burch et al. (2021), "the ability to set personalized, attainable goals within adaptive learning environments empowers learners to take charge of their educational journeys, ultimately leading to higher levels of achievement" (p. 178). The combination of structured progress tracking and goal setting creates a dynamic learning environment conducive to improving speaking skills.

Additionally, the integration of adaptive learning with AI enables the development of immersive speaking scenarios. Learners can practice conversations with simulated partners or engage in role-playing exercises designed around their interests. This immersion allows them to practice real-world language use and contextual speaking, further solidifying their fluency. As identified by Ramirez and Chen (2023), "immersive adaptive scenarios create an authentic context for practicing speaking, thus making the learning process more relevant and effective for language acquisition" (p. 256).

One challenge in the implementation of adaptive learning technologies lies in addressing individual differences in learning pace and style. While adaptive systems aim to provide tailored experiences, excessive adaptation without considering the overall learning trajectory can hinder some learners' progress. Research by Thompson and Patrick (2023) highlights the importance of maintaining a balance between personalization and the necessary repetition of foundational concepts: "an excessive focus on adapting tasks can sometimes neglect the critical review of previously learned material, which is essential for fluency" (p. 83).

Personalization and adaptive learning are instrumental in the development of speaking skills in language education. By utilizing AI technology to personalize speaking activities, learners can engage in meaningful practice tailored to their individual needs and interests. The adaptability of learning technologies ensures that each learner's experience is continuously adjusted based on their progress, maximizing their chances of success. As AI continues to advance and the demand for effective language learning solutions grows, embracing these personalized and adaptive approaches will be essential for fostering speaking proficiency and creating engaging learning experiences.

### 2.8 Challenges and Limitations of Ai-Powered Apps

AI-powered applications have revolutionized language learning by offering personalized, interactive, and efficient ways to acquire new languages. However, despite their many advantages, these technologies also face significant challenges and limitations. This section explores two major subtopics: data privacy and ethical concerns, and the limitations of AI in understanding language nuances and cultural context.

### 2.8.1 Data Privacy and Ethical Concerns

Data privacy and ethical concerns represent significant challenges in the deployment of AI-powered language learning applications. These applications often require the collection and analysis of large volumes of personal data to deliver personalized experiences effectively. According to Hwang and Chen (2020), "the use of AI in language learning applications raises critical issues regarding user data privacy, as sensitive information is often processed without the user's full understanding" (p. 274). As users engage with AI platforms, they may unknowingly share not only their learning habits but also personal information that can be exploited if not adequately protected.

The ethical implications of data usage are also profound. Many applications utilize algorithms that can perpetuate biases present in their training data. For instance, if an AI language model is trained predominantly on texts from specific demographics, it may inadvertently favor those linguistic patterns and cultural references over others, leading to a skewed learning experience. Research by Al Azzeh and Ayesh (2021) highlights that "AI applications can propagate existing biases if the underlying datasets are not representative of diverse populations, which can diminish the efficacy of learning tools for underrepresented users" (p. 15). Consequently, the inclusivity of language learning applications may be compromised, posing a challenge for users from various cultural backgrounds.

Moreover, the extensive data collection involved in AI applications creates the risk of data breaches, exposing personal data to malicious actors. A survey conducted by Gawrysiak et al. (2022) revealed that "over 60% of language learners expressed concerns regarding the security of their personal data when using AI-powered apps" (p. 212). These concerns hinder user trust and

can deter learners from utilizing language learning applications, ultimately limiting the effectiveness of such tools.

Data privacy laws, such as the General Data Protection Regulation (GDPR) in Europe, impose strict regulations on how personal data must be handled. This has prompted developers of AI language learning applications to implement more robust data protection measures. Yet, compliance with such regulations can also complicate app development processes and limit the capabilities of AI systems (Zheng & Zhuang, 2021, p. 50). In navigating these regulatory frameworks, developers may need to prioritize compliance over user experience, potentially sacrificing some of the personalized features that make AI applications appealing.

### 2.8.2 Limitations of Ai in Understanding Language Nuances and Cultural Context

Another significant limitation of AI-powered language learning applications is the challenge of understanding language nuances and cultural context. While AI has made strides in natural language processing (NLP), it still struggles with the subtleties of human language, such as idioms, slang, and cultural references. Research indicates that “AI systems often lack the ability to comprehend context, which is crucial for understanding language nuances that are essential for effective communication” (Ting et al., 2021, p. 198). As a result, learners may receive lessons that do not fully capture the complexities or practicalities of real-life language usage.

Idiomatic expressions are one area where AI often falls short. For instance, phrases like "kick the bucket" or "spill the beans" have meanings that cannot be deduced from the individual words used; thus, an AI application may provide a literal translation rather than the intended idiomatic expression. As Morris and Turner (2022) point out, “ AI systems trained primarily on standard language corpora may fail to recognize and appropriately teach idiomatic language, leading to a

superficial understanding of the target language" (p. 115). This limitation can hinder learners' ability to communicate effectively and relate to native speakers, who often use idioms and colloquial expressions in everyday conversation.

Cultural context is another critical area where AI applications may struggle. Understanding cultural references, norms, and practices is essential for effective language learning and communication. For example, cultural knowledge is required to grasp many contextual nuances in speaking and writing. According to Zheng et al. (2023), "AI applications often overlook the cultural dimensions of language learning, leading to a disconnect between linguistic competence and pragmatic effectiveness" (p. 172). When learners are not exposed to cultural context, they may misinterpret or miscommunicate messages, undermining their proficiency in the target language.

Moreover, the reliance on automated responses can inhibit the development of conversational skills. Most AI language learning applications utilize scripted dialogues that may not simulate the unpredictability of real-life conversations, thus making it difficult for learners to navigate spontaneous exchanges. Research by Kauffman et al. (2021) indicates that "while AI can facilitate controlled practice, it frequently fails to replicate the complexities and variances of natural conversation, which are paramount for fluency" (p. 87). This limitation can pose a significant barrier to learners who need practical conversational experience to build their speaking confidence and adaptability.

Furthermore, AI systems may also struggle with emotional intelligence and social cues that are critical in effective communication. The subtlety of tone, body language, and context can deliver additional meaning that AI may not capture, potentially leading to misunderstandings. As noted by Ly and Campbell (2018), "the lack of emotional nuances in AI responses can result in a

gap in the experiential learning process, which is vital for mastering interpersonal communication" (p. 422).

While AI-powered language learning applications offer numerous benefits, they also face significant challenges and limitations. Data privacy and ethical concerns surrounding user data management pose risks that can diminish users' trust and engagement. Meanwhile, the limitations of AI in understanding language nuances and cultural contexts can hinder learners' ability to communicate effectively. As AI technology continues to evolve, addressing these challenges will be essential to ensure that language learning applications not only facilitate efficient learning but also provide a comprehensive and culturally sensitive approach to language acquisition.

## 2.9 Future Trends in Ai and Language Learning

The integration of artificial intelligence (AI) in language learning is not just a trend; it represents a transformative shift in how languages are taught and acquired. As AI technology continues to evolve, it opens new horizons for personalized instruction, enhanced engagement, and more efficient learning processes. This section explores two key subtopics related to future trends in AI and language learning: the rise of conversational AI for immersive learning experiences and the potential for adaptive learning systems to enhance learner outcomes.

### 2.9.1 The Rise of Conversational Ai for Immersive Learning Experiences

Conversational AI is poised to revolutionize language learning by providing more immersive and interactive experiences for learners. Unlike traditional language learning methods that often rely on static content, conversational AI systems can engage learners in dynamic dialogues that mimic real-life interactions. According to Griol et al. (2019), "conversational agents have the

potential to significantly enhance language learning by enabling learners to practice their speaking skills in a contextualized environment" (p. 134).

With advancements in natural language processing (NLP), conversational AI can now handle more complex dialogues and provide feedback in real time. For example, platforms like ChatGPT and other AI-driven chatbots are increasingly being used as language tutors. These tools allow learners to engage in conversations on a wide range of topics, facilitating the practice of both vocabulary and conversational skills. As Xu et al. (2021) noted, "AI-driven conversational platforms can provide authentic and meaningful speaking opportunities that are crucial for developing fluency and confidence among learners" (p. 89).

Interestingly, the utilization of conversational AI also addresses some of the challenges associated with traditional classroom learning. In many educational settings, speaking practice is often limited due to time constraints or large class sizes. Conversational agents can fill this gap by offering learners the opportunity to practice at their own pace and convenience. A study conducted by Zhou et al. (2022) found that "students who utilized AI chatbots for language practice reported higher levels of engagement and improvement in their speaking skills compared to those participating in conventional classes" (p. 263). This suggests that conversational AI can play a critical role in enhancing learners' motivation, providing a more tailored and flexible approach to language practice.

Furthermore, as conversational AI systems become more sophisticated, they can integrate cultural and contextual understanding into their responses, enriching the learning experience. AI can be trained on diverse datasets that encompass various cultural contexts, enabling it to teach idiomatic expressions, colloquial language, and cultural nuances that are often overlooked in traditional learning environments. As noted by Zhang et al. (2023), "the incorporation of cultural

context in AI-based language learning can lead to a more holistic understanding of the language, equipping learners to communicate more effectively in real-world scenarios" (p. 312). This evolution underscores the potential of conversational AI to simulate authentic interactions, thereby preparing learners for practical language use.

### 2.9.2 The Potential for Adaptive Learning Systems to Enhance Learner Outcomes

The future of language learning is also heavily intertwined with the development of adaptive learning systems powered by AI. These systems leverage data analytics and machine learning algorithms to create personalized learning experiences tailored to individual learners' needs, preferences, and progression. Adaptive learning provides a flexible approach, continually assessing learners' skills and adjusting the learning path accordingly. According to Lu et al. (2020), "adaptive learning environments equipped with AI can significantly enhance learner outcomes by ensuring that content is relevant and appropriately challenging" (p. 174).

One of the primary benefits of adaptive learning systems is their ability to provide immediate feedback to learners. Unlike traditional assessment methods, which often come with delays, AI-driven platforms can analyze a learner's performance in real time, identifying areas for improvement and suggesting targeted practice activities. For instance, if a learner struggles with verb conjugations, the system can automatically present additional exercises focused on that specific area. Research by Chen and Huang (2021) supports this, stating that "the immediate feedback mechanism in adaptive learning environments fosters a growth mindset and encourages learners to take ownership of their learning journey" (p. 205).

Moreover, adaptive learning systems can cater to various learning styles and preferences, accommodating diverse learner backgrounds. By analyzing interaction data, these systems can

determine whether a learner benefits more from visual aids, audio resources, or interactive exercises and adjust their approach accordingly. According to Adams and Chen (2022), "personalization through adaptive learning not only enhances engagement but also leads to increased retention rates, as learners feel more invested in their curriculum" (p. 118).

As AI technology advances, the potential for richer data collection and analysis becomes feasible. Future adaptive learning systems will likely employ advanced analytics to predict learner behaviors and outcomes, leading to increasingly targeted and effective educational interventions. This predictive capability can enable educators to intervene when learners are at risk of falling behind or to provide advanced resources for those who excel. According to Smith and Rojas (2023), "the ability to predict and personalize learning pathways creates a proactive educational environment, enhancing overall learner success" (p. 111).

However, the implementation of adaptive learning systems should also consider the balance between personalization and accountability. While these systems can provide a tailored learning experience, learners must still be encouraged to develop self-regulation skills and take responsibility for their learning. Research by Yu et al. (2023) emphasizes that "the integration of self-regulation strategies within adaptive learning frameworks is essential for fostering independent learners who can navigate their educational journeys effectively" (p. 77).

The future of AI in language learning is filled with exciting trends, particularly in the realms of conversational AI and adaptive learning systems. As conversational AI becomes more intuitive and context-aware, it will offer learners immersive and engaging opportunities for practice. Meanwhile, adaptive learning systems will enable personalized pathways that enhance learner outcomes through real-time feedback and tailored resources. Together, these advancements hold

the potential to transform language learning, making it more effective, engaging, and culturally relevant.

# Chapter III

# Methodological Framework

## 3.1. Research

Research is a systematic investigation aimed at discovering new information or validating existing knowledge in various fields, including science, social science, humanities, and technology. It employs rigorous methodologies to collect data, analyze results, and derive conclusions that add to the body of knowledge. According to Creswell (2018), “research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue” (p. 4). This definition underscores the systematic nature of research while highlighting its ultimate goal of enhancing understanding.

The multifaceted nature of research can be distinguished into various types: qualitative, quantitative, and mixed methods, among others. Qualitative research focuses on understanding human behavior and experiences, using non-numerical data, while quantitative research emphasizes numerical analysis to derive conclusions (Denzin & Lincoln, 2018). In the context of research design, Creswell and Creswell (2020) state that “the choice of method depends on the research question, aims, and the nature of the phenomenon being studied” (p. 12). This methodological consideration is crucial because it shapes how researchers approach their inquiries and interpret their findings.

Furthermore, the ethical dimensions of research cannot be overlooked. Ethical research practice involves obtaining informed consent, ensuring confidentiality, and minimizing harm to participants (Tavakol & Sandars, 2020). As noted by Resnik (2021), “research ethics is essential for maintaining public trust in research and promoting integrity in science” (p. 18). Ethical

guidelines such as the Belmont Report provide a framework for conducting research responsibly, ensuring that researchers uphold high moral standards while engaging with their subjects.

The significance of research extends beyond academia; it has real-world implications that drive innovation and inform policy. For instance, the findings from health research can lead to better medical practices, while social science research may influence governance and public policy. According to Johnson and Onwuegbuzie (2022), “the impact of research on society can be profound, shaping not only academic discourse but also practical applications that affect everyday life” (p. 245). Thus, research serves as a bridge between theoretical frameworks and pragmatic solutions to contemporary issues.

Advancements in technology have also transformed research methodologies. The rise of big data and digital tools has enabled researchers to analyze vast amounts of information more efficiently than ever before (Meyer & Beadles, 2024). As per Liu et al. (2023), “the integration of technology in research practices has opened new avenues for inquiry, allowing for more dynamic and comprehensive analyses” (p. 32). This integration not only enhances the speed and efficiency of research processes but also facilitates collaboration among researchers across the globe.

## 3.2. Research Design

Understanding the types of research is essential as it guides scholars in designing their studies to address specific questions and fulfill academic objectives. Among the most commonly utilized types of research are descriptive research and exploratory research.

### 3.2.1. Descriptive Research

Descriptive research aims to provide a comprehensive depiction of a phenomenon or group, focusing on the "what" rather than the "why." This type of research is characterized by its emphasis

on gathering detailed information that describes existing conditions, attitudes, or behaviors within a defined population (McLeod, 2019). For example, descriptive research can be used to survey student satisfaction within the university, capturing various quantitative and qualitative dimensions of the student experience. As highlighted by Brown (2021), "descriptive research is valuable for obtaining insights into a specific group or situation, enabling researchers to generate a clear picture of their subjects without manipulating any variables" (p. 102). This methodology does not seek to establish cause-and-effect relationships but instead focuses on painting a clear and accurate representation of the existing situation in its natural form. Often employing surveys, observations, and case studies, descriptive research serves as a foundational step in understanding phenomena before delving into more complex analyses. For this reason, the present research project is descriptive.

### 3.2.2. Exploratory Research

Exploratory research is used when a researcher seeks to investigate an issue or phenomenon that is not well understood or lacks sufficient prior research. It is particularly beneficial when formulating hypotheses or identifying variables that might be significant in further investigations. This type of research emphasizes flexibility and open-ended questioning, allowing researchers to explore new ideas and possibilities (Stebbins, 2018).

According to Saldana (2020), "exploratory research is essential for shedding light on previously misunderstood or unexplored areas, providing a starting point for future research endeavors" (p. 84). Unlike descriptive research, which seeks to portray what exists, exploratory research is more about discovering what might exist and generating new insights. It can involve various techniques, including interviews, focus groups, and literature reviews, allowing researchers to gather information that can spark new questions and lead to more structured

inquiries down the line. In summary, both descriptive and exploratory research are fundamental components of the research methodology

Descriptive research focuses on providing a detailed portrayal of existing conditions, while exploratory research seeks to uncover new insights and areas for further study. By employing these types of research methods, scholars can enhance their understanding of complex issues and contribute meaningfully to their respective fields.

### 3.3. Research Approach

In the context of research, an approach refers to the overall strategy or orientation employed by a researcher to address their research questions. It encompasses the methods and techniques used for data collection and analysis, guiding the researcher in how they interpret outcomes and draw conclusions. As Creswell (2018) points out, "an approach provides a framework that guides the researcher in making decisions about the research design, data collection, and analysis" (p. 12).

#### 3.3.1. Quantitative Approach

The quantitative approach is characterized by the collection and analysis of numerical data to understand patterns, relationships, and statistical significance. This approach often employs structured tools such as surveys or experiments to gather measurable data. Researchers who utilize this approach typically seek to test hypotheses or assess relationships between variables in a systematic manner (Creswell & Creswell, 2020). As noted by Johnson and Onwuegbuzie (2022), "the quantitative approach is valuable for quantifying attitudes, opinions, behaviors, and other defined variables, allowing researchers to apply statistical analyses to answer research questions" (p. 248). Thus, the quantitative approach is particularly effective for studies that require numeric representations of phenomena, such as determining the effectiveness of educational programs or

the prevalence of certain behaviors within a population. The findings often lead to conclusions that can be generalized across larger populations, making it a powerful tool in evidence-based research.

### 3.3.2. Qualitative Approach

The qualitative approach, in contrast, emphasizes understanding the depth and complexity of human experiences, motivations, and social phenomena through non-numerical data. Researchers adopting this approach often use methods such as interviews, focus groups, or content analysis to gather rich, descriptive data that elucidates participants' perspectives and experiences (Mason, 2018). This approach allows for a more nuanced exploration of contexts and meanings associated with human behavior.

According to Denzin and Lincoln (2018), “qualitative research is particularly effective for exploring how individuals interpret their experiences and the meanings they ascribe to them” (p. 575). This focus on depth over breadth enables researchers to capture the intricacies of social realities, providing insights that quantitative methods might overlook. The qualitative approach is beneficial for exploratory studies, where understanding complex issues is more vital than quantifying them. It is important to mention that this research is a qualitative approach.

### 3.3.3. Mixed Approach

The mixed approach combines elements from both quantitative and qualitative research, recognizing the strengths of each while mitigating their limitations. By integrating numerical data with qualitative insights, researchers can develop a more comprehensive understanding of a research problem (Teddlie & Tashakkori, 2020). This approach allows for diverse perspectives and methodologies, offering a richer narrative. As stated by Ivankova (2021), “the mixed methods approach provides researchers with the flexibility to collect and analyze data in multiple ways,

leading to more robust findings and interpretations" (p. 67). This versatility is especially useful in complex research contexts where neither quantitative nor qualitative methods alone can adequately address the research questions at hand.

## 3.4. Subjects and Sources of Information

In research, subjects and sources of information play critical roles in ensuring the validity and reliability of findings. Subjects refer to the individuals or groups who participate in a study, providing essential data through their responses or behaviors. Sources of information, on the other hand, encompass the various materials or references from which data is drawn. Both elements are fundamental in shaping the direction and outcomes of the research. As stated by Creswell and Poth (2018), "the subjects and sources of information must be carefully selected to ensure that they align with the research objectives, allowing for meaningful insights" (p. 103). This section will further explore the concepts of subjects and sources of information and will delineate the primary subjects and sources of information for the present research.

### 3.4.1. Subjects

Subjects in a research study refer to the individuals or groups that researchers engage to collect data. These subjects provide the necessary insights and information essential to understanding the research question being investigated. Selection of appropriate subjects is crucial, as their characteristics can significantly influence the outcomes and generalizability of the study. For instance, the selection criteria might include age, gender, educational background, or other relevant demographic factors, which are instrumental in ensuring that the sample appropriately represents the larger population.

According to Terre Blanche, Durrheim, and Painter (2019), “the subjects of a study are critical as they directly influence the accuracy and applicability of the research findings” (p. 49). Engaging this demographic aligns with the research objectives focused on understanding the academic experiences and behaviors of students, which is integral to developing relevant educational improvements. In this case, the subjects of study are ninth grade students from the Unidad Pedagógica de Rio Cuba school, as well as the English teachers and the director of the institution

### 3.4.2. Sources of Information

Sources of information refer to the materials or references from which researchers derive data for their studies. These sources can be categorized into primary and secondary sources, each serving a unique purpose in the research process. Primary sources offer firsthand accounts or direct evidence related to the topic of study, while secondary sources provide analysis or interpretation of primary data or research findings.

#### *3.4.2.1. Primary Sources*

Primary sources are original materials that have not been altered or interpreted by others. These sources provide direct evidence regarding the research subject and are essential for gaining firsthand insights into the phenomena under investigation. Examples of primary sources include surveys, interviews, observations, and experimental data collected directly from participants. As highlighted by Ranjan (2020), “primary sources are invaluable in research as they present unmediated evidence that researchers can use to support their hypotheses and conclusions” (p. 76). In the context of the present study, primary sources will be collected through structured interviews. These interviews will facilitate a direct understanding of student experiences, attitudes, and academic challenges, serving as a foundation for the research findings.

#### *3.4.2.2. Secondary Sources*

Secondary sources, in contrast, analyze, interpret, or summarize primary data and offer a broader context for understanding the research topic. These sources include academic articles, books, reports, and reviews that compile existing information and research findings. Secondary sources can provide valuable background information, theoretical frameworks, or context that can enhance the understanding of the research question. According to Neuman (2019), "secondary sources are essential in research as they allow researchers to frame their studies within existing literature and build upon previous findings" (p. 134). For the present research, secondary sources will include academic journals, books, and theses relevant to student experiences in higher education. These sources will enable a comprehensive view of the educational landscape, situating the findings within the broader academic discourse and identifying gaps that the current research aims to fill.

### 3.5. Population and Sample

In research, distinguishing between the concepts of population and sample is crucial, as they relate to the group under investigation and the subset selected for study. The population refers to the entire group of individuals or cases that share specific characteristics and to which the researchers wish to generalize their findings. This concept is foundational in ensuring that the study's conclusions can be appropriately applied to a broader context. According to Creswell and Creswell (2018), "the population is the complete set of individuals or elements who possess specific attributes that are of interest to the researcher" (p. 141). In this research, the population will be comprised of students with hearing and speech difficulties, the school director, and the English teacher

### 3.5.1. Population

The term "population" in the context of research refers to the comprehensive group that researchers intend to study. This group is defined by specific criteria relevant to the research question or hypothesis. Understanding the population is critical, as it guides the selection of the sample and ensures that the findings can be generalized. The population should be carefully delineated to include only those individuals or entities that possess the characteristics necessary for addressing the research objectives.

According to Black and Champion (2021), “the population for a study is typically defined by demographic, geographic, or other characteristics that align with the research problem” (p. 99). In the present study, the population of interest consists of students with hearing and speech difficulties from a particular educational institution. Additionally, the research will include perspectives from the director of the school and the English teacher. This inclusion is vital as it provides a holistic understanding of the educational environment and how it accommodates the specific needs of students facing communication challenges.

The students in this population represent a pivotal group, as their experiences and challenges will provide key insights into the effectiveness of educational resources and strategies designed for individuals with disabilities. By also including the educational staff, the research aims to gather a broader perspective on institutional policies, teaching methods, and support mechanisms in place for these students.

### 3.5.2. Sample

While the population encompasses all the individuals relevant to the research, the sample consists of a smaller group selected from the population to participate in the study. The sample is

vital for pragmatic reasons, as studying the entire population may be logistically or financially unfeasible. Selecting a sample allows researchers to draw insights and conclusions that can infer findings about the larger population without needing to analyze every individual.

As noted by Roscoe (2020), "a sample is a subset of the population that is selected for study and is representative of the larger group" (p. 310). In this case, the research will employ a non-probabilistic sampling method, specifically convenience sampling. Convenience sampling involves selecting individuals who are readily accessible and willing to participate in the study. This method is beneficial when time and resources are limited; however, it may introduce biases since not all members of the population have an equal chance of being included in the sample.

For this study, the sample will consist of a specific number of students with hearing and speech difficulties from the population at the educational institution, alongside the school director and the English teacher. This selection will facilitate a focused examination of the academic experiences, instructional strategies, and support services provided to students with communication challenges.

The reliance on convenience sampling is justified in this context, as the researchers aim to gather qualitative insights based on practical availability and willingness to participate. While this approach may limit the generalizability of the findings, it is effective for exploratory research, especially in settings where the target population is relatively small or specialized. As outlined by Etikan et al. (2016), "convenience sampling allows researchers to quickly and efficiently gather data from a readily available population, although caution should be exercised regarding the potential biases introduced" (p. 2).

### 3.6. Data Collection Instruments

In research, the selection of appropriate instruments for data collection is fundamental to ensuring the validity, reliability, and richness of the gathered information. These instruments are the tools researchers employ to obtain the data necessary to answer their research questions and achieve their objectives. As stated by Creswell and Poth (2018), “data collection instruments can significantly influence the quality of information gathered and ultimately shape the research findings” (p. 106). This section will explore three specific instruments for data collection: observation, interviews, and questionnaires.

#### 3.6.1. Observation

Observation is a qualitative data collection method that entails systematically watching, listening to, and recording behaviors and events as they naturally occur. This direct engagement allows researchers to gather information about subjects' actions, interactions, and the context in which they operate. Observation can provide rich, contextual data that other methods may overlook, allowing researchers to understand phenomena in real-time. As noted by Angrosino (2018), “observation is a powerful method of data collection that provides insights into the actual behavior of subjects in their natural environments” (p. 42).

This method enables researchers to capture nuances and subtleties that might be missed through self-report techniques or structured surveys. For the current study, observations will be conducted in classrooms where students with hearing and speech difficulties are being taught. The focus will be on recording interactions between students, the teacher’s instructional methods, and how students engage with the material. By observing these dynamics, the researchers aim to identify effective strategies used to assist students with communication challenges and any areas requiring improvement.

### 3.6.2. Interview

Interviews are another essential method of data collection, allowing researchers to gather detailed qualitative information through direct dialogue. In this approach, the researcher asks participants questions to elicit their thoughts, feelings, and experiences concerning the research topic. Interviews can be structured, semi-structured, or unstructured, depending on the desired depth and direction of the conversation. For this study, the researchers will adopt a semi-structured format, which provides a guideline of questions while allowing for flexibility in responses. According to Seidman (2019), “the interview is a powerful tool for understanding the meaning individuals assign to their experiences” (p. 89). In the current research, interviews will be conducted with students with hearing and speech difficulties, the school director, and the English teacher.

The students will be asked about their learning experiences, challenges faced in communication, and recommended strategies for improvement. The school director will provide insights into institutional policies and support, while the English teacher will share perspectives on instructional methods and classroom dynamics. Open-ended questions will be utilized in the interviews to encourage participants to express their thoughts and feelings freely, promoting richer and more nuanced responses.

### 3.6.3. Questionnaire

A questionnaire is a structured research instrument composed of a series of questions or statements to which participants respond. This method allows for the collection of data from a larger number of individuals compared to interviews, making it easier to analyze and compare results across subjects. Questionnaires can include various question types, but in this study, the focus will be on open-ended questions to elicit in-depth responses and insights. As highlighted by

Oppenheim (2019), “a well-designed questionnaire enables researchers to gather a wealth of information in a standardized format, facilitating the analysis of complex data” (p. 176). For this research, a questionnaire will be distributed to students with hearing and speech difficulties to solicit their views on various aspects of their educational experience, including accessibility, instructional strategies, and social integration. The responses from these questionnaires will provide valuable quantitative and qualitative data that can be analyzed to identify trends, challenges, and areas for improvement in educational practices.

# Chapter IV

# Analysis of Results

The analysis of results represents a critical stage in any research process, as it allows for the interpretation of collected data and the identification of patterns, trends, or discrepancies that support or refute the hypotheses or objectives set forth. As Creswell and Creswell (2018) emphasize, “analyzing and interpreting data involves drawing conclusions about what the results mean in light of the research questions” (p. 212).

This chapter presents the findings obtained through the application of the selected data collection instruments and their corresponding analysis. The results are organized according to each research variable, allowing for a detailed understanding of the phenomena under investigation. Additionally, visual elements such as tables and graphs are used to facilitate interpretation and highlight key findings.

## 4.1 Survey Results

This section presents the findings derived from the survey conducted with a sample of 15 students. The instrument included both closed-ended and Likert-scale questions designed to explore the participants' perceptions, experiences, and attitudes related to the research topic. The analysis is based on the absolute and relative frequencies of responses, as well as visual representations to support interpretation.

The survey revealed several relevant trends. For example, the majority of students responded “Yes” to the question regarding their awareness of the topic, suggesting a general level of familiarity. In contrast, responses to questions related to attitudes and behaviors demonstrated

greater variation among participants. The Likert-scale items reflected a general tendency toward agreement with statements addressing the perceived impact and personal relevance of the issue.

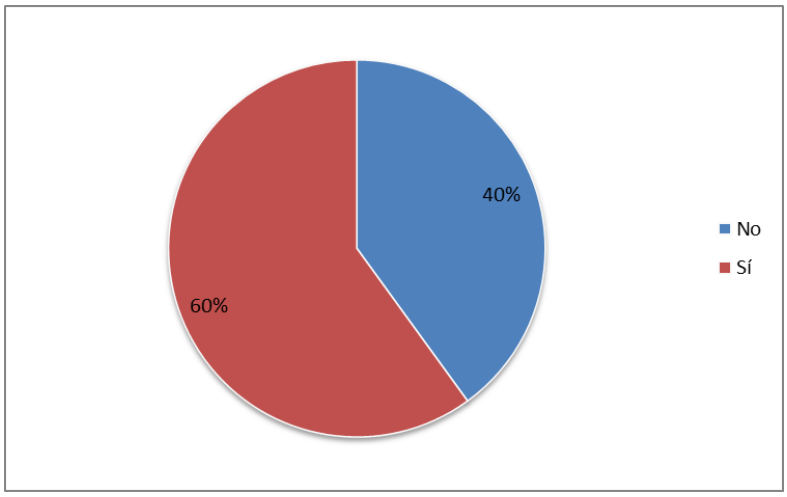
The following subsections present the results for each question individually, supported by tables and graphs that illustrate key patterns. Each item is accompanied by a brief discussion that connects the data to the research objectives.

Table 1. Do you find it difficult to express yourself in English when speaking?

| Response | Frequency | Percentage (%) |
|---|---|---|
| No | 6 | 40% |
| Yes | 9 | 60% |
| Total | 15 | 100% |

Source: Own elaboration 2025

Figure 1. Difficulty Expressing Oneself in English When Speaking.




Source: Own elaboration 2025

This figure illustrates the responses to whether students find it difficult to express themselves in English during speaking tasks. A clear majority—9 out of 15 participants (60%)—responded "Yes," indicating that they do encounter challenges when attempting to communicate orally in English. This suggests that more than half of the surveyed students struggle with spoken expression, which may be linked to factors such as limited vocabulary, lack of practice, or anxiety during speaking activities.

Conversely, 6 respondents (40%) reported that they do not find it difficult to express themselves, which highlights that a significant portion of the group feels relatively confident or at ease when speaking in English. This minority may have benefited from previous language exposure, personalized learning strategies, or technological tools that enhance oral skills.

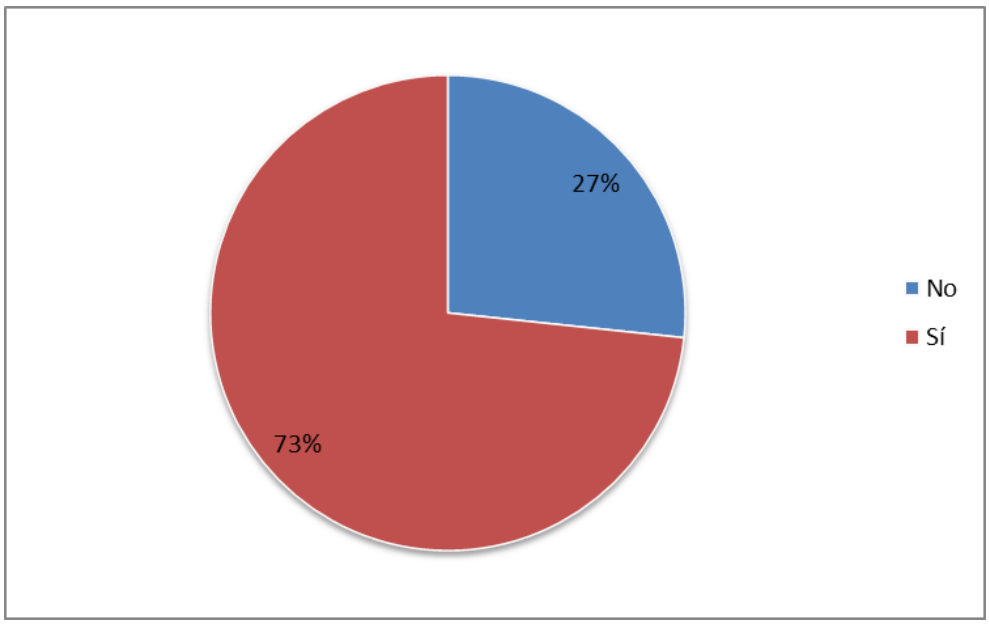
Overall, the data reveal a divide in students' speaking experiences. While a considerable number face difficulties, a substantial group shows confidence. These results emphasize the need to implement differentiated instructional strategies and interactive speaking opportunities to support those who struggle, while reinforcing the progress of more proficient speakers.

Table 2. Do you feel nervous or anxious when speaking in public in English?

| Response | Frequency | Percentage (%) |
|---|---|---|
| No | 4 | 27% |
| Yes | 11 | 73% |
| Total | 15 | 100% |

Source: Own elaboration 2025

Figure 2. Nervousness or Anxiety When Speaking in Public in English.




Source: Own elaboration 2025

This figure presents students' self-reported feelings of nervousness or anxiety when speaking English in public. The results show that a significant 73% of participants (11 out of 15) admitted to experiencing nervousness or anxiety during public speaking situations in English. This suggests that a large majority of students perceive oral presentations or speaking tasks in front of others as emotionally challenging.

On the other hand, only 27% (4 students) reported not feeling nervous, indicating a smaller group with greater confidence or emotional control in such contexts. These students may have developed public speaking skills through practice or possess a higher level of oral proficiency that reduces anxiety.

The high percentage of anxiety highlights a common barrier in language learning: speaking in front of an audience. Emotional factors such as fear of making mistakes, being judged, or lacking fluency often hinder performance and learning progress. These findings emphasize the importance

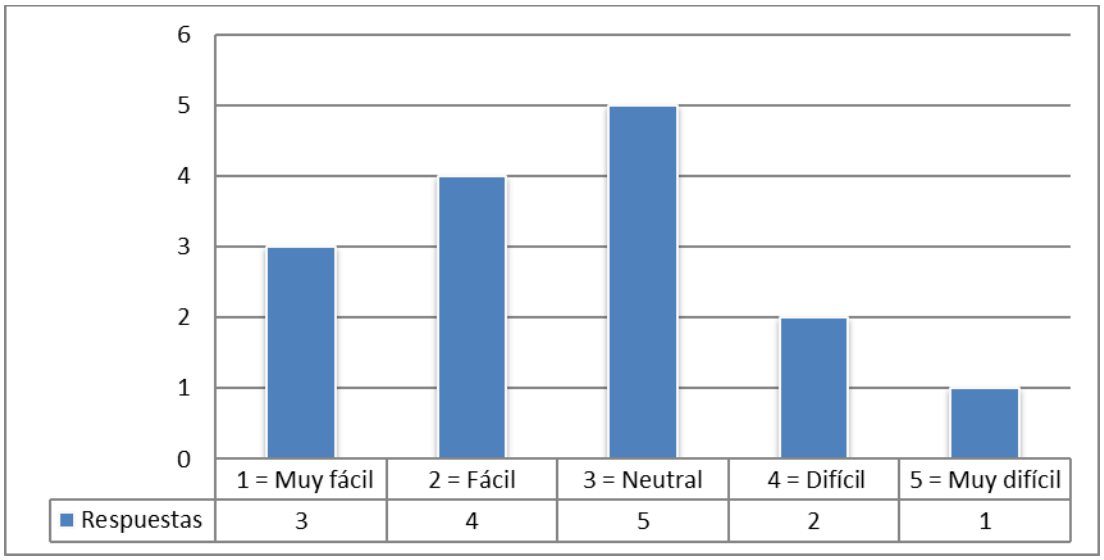
of incorporating confidence-building activities, safe speaking environments, and gradual exposure to public communication in English to help students manage and reduce their anxiety.

Table 3. On a scale from 1 to 5, how difficult do you consider speaking English fluently?

| Response | Frequency |
|---|---|
| 1 = Very easy | 3 |
| 2 = Easy | 4 |
| 3 = Neutral | 5 |
| 4 = Difficult | 2 |
| 5 = Very difficult | 1 |
| Total | 15 |

Source: Own elaboration 2025

Figure 3. Perceived Difficulty in Speaking English Fluently (1 = Very Easy to 5 = Very Difficult).




Source: Own elaboration 2025

The graph illustrates how students perceive the difficulty of speaking English fluently, based on a scale from 1 (very easy) to 5 (very difficult). A notable portion of the participants—3 respondents rated it as very easy and 4 as easy, making up almost half of the total responses (7 out of 15). This suggests a relatively high level of confidence or comfort among these students when it comes to speaking English.

On the other hand, 5 participants positioned themselves as neutral, indicating neither easy nor difficulty, which may reflect uncertainty about their speaking skills or limited opportunities for oral practice. Meanwhile, only 2 students considered it difficult, and just 1 perceived it as very difficult, showing that although a small segment of the group experiences challenges, these difficulties are not widespread.

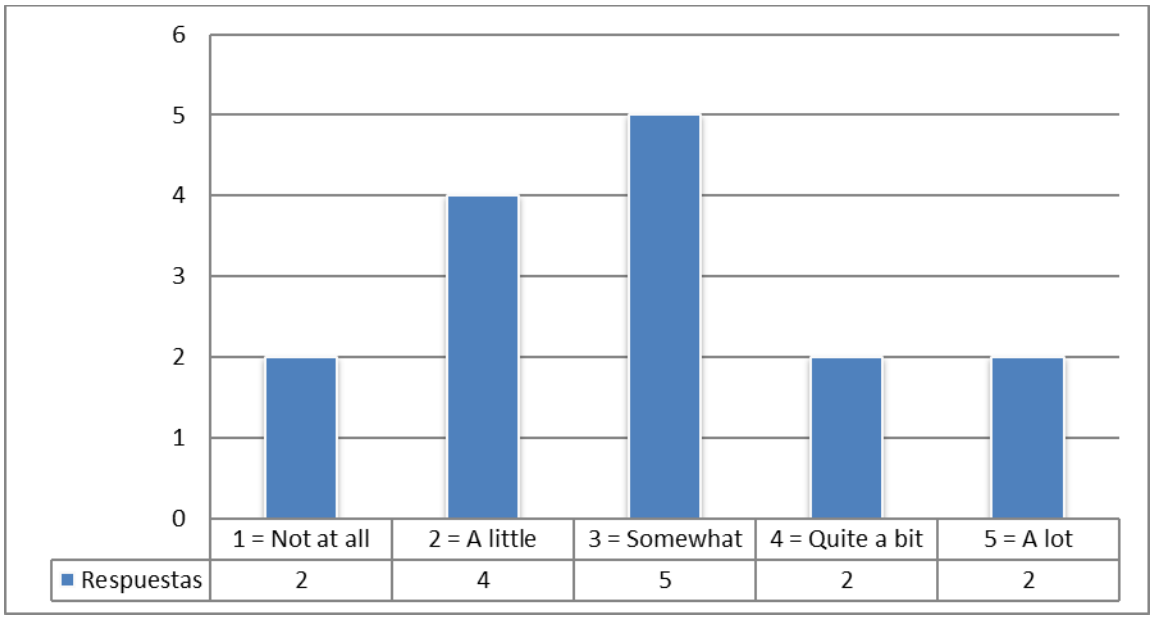
Overall, the data reveal a positive trend: most learners do not find speaking English fluently to be an overwhelming task. This could be attributed to prior exposure, classroom practice, or the use of language learning applications. Nevertheless, the presence of neutral and negative responses points to the importance of continued support and targeted strategies to build speaking confidence in all learners.

Table 4. On a scale from 1 to 5, how much do you think your vocabulary limits your speaking?

| Response | Frequency |
|---|---|
| 1 = Not at all | 2 |
| 2 = A little | 4 |
| 3 = Somewhat | 5 |
| 4 = Quite a bit | 2 |
| 5 = A lot | 2 |
| Total | 15 |

Source: Own elaboration 2025

Figure 4. Perceived Impact of Vocabulary Limitations on Speaking Ability (1 = Not at all, 5 = A lot).




Source: Own elaboration 2025

This figure reflects how students perceive the extent to which their vocabulary knowledge affects their ability to speak English. The most common response was “3 = Somewhat”, selected by 5 participants, suggesting that a notable portion of students feel moderately limited by their vocabulary when trying to express themselves.

Additionally, 4 students chose “2 = A little”, indicating that for a significant group, vocabulary has only a minor impact on their speaking skills. Interestingly, 2 participants responded “1 = Not at all,” meaning they feel confident in their vocabulary and do not perceive it as a barrier when speaking. On the opposite, 2 students selected “4 = Quite a bit,” while only 2 chose “5 = A lot,” pointing to a smaller group that perceives vocabulary as a more serious obstacle.

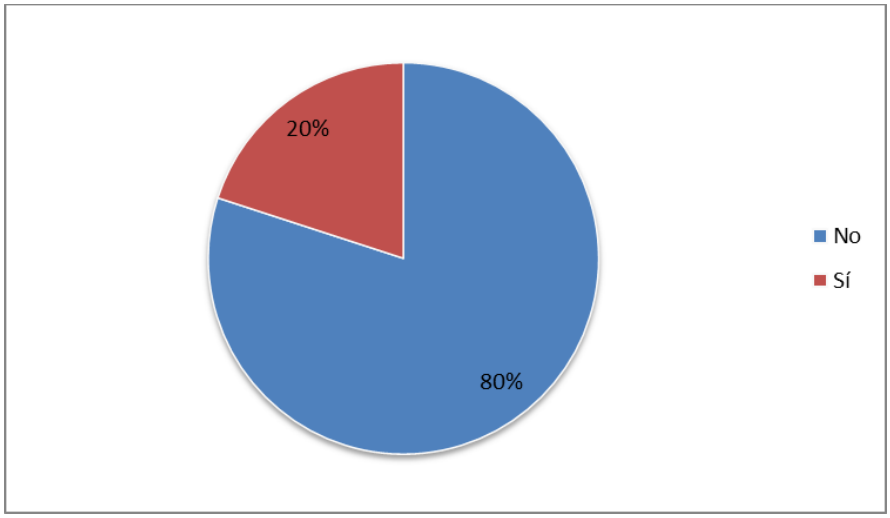
Overall, the data suggest that vocabulary limitations are present but generally perceived as moderate. While some learners feel their vocabulary significantly restricts their oral communication, most view it as a manageable issue. These results highlight the need to continue reinforcing vocabulary development, particularly through practical usage and context-based learning, in order to further support students in building speaking fluency and confidence.

Table 5. Have you used any AI tool to practice speaking (for example, ChatGPT, Duolingo with AI, conversation apps)?

| Response | Frequency | Percentage (%) |
|---|---|---|
| No | 12 | 80% |
| Yes | 3 | 20% |
| Total | 15 | 100% |

Source: Own elaboration 2025

Figure 5. Use of AI Tools to Practice Speaking (e.g., ChatGPT, Duolingo with AI, Conversation Apps).




Source: Own elaboration 2025

This figure displays student responses regarding the use of artificial intelligence (AI) tools to practice speaking English. The majority—12 out of 15 participants (80%)—reported not having used any AI-based platforms such as ChatGPT, Duolingo with AI integration, or conversation-enhancing applications. This suggests limited exposure to or awareness of these digital resources for oral practice among the surveyed group.

Only 3 participants (20%) indicated yes, meaning they have engaged with AI tools to support their speaking development. This small percentage reflects an emerging but still minimal incorporation of technology-driven speaking tools in their language learning routines.

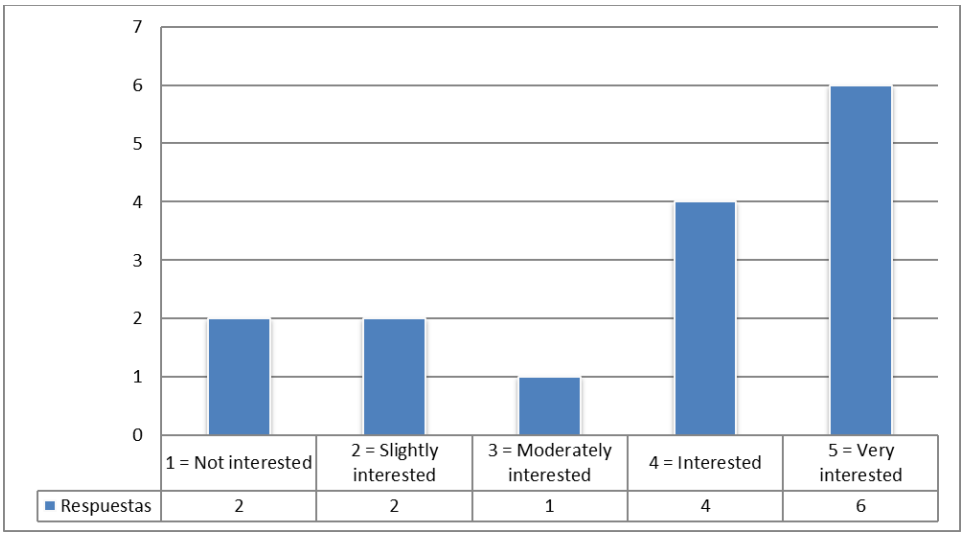
The low usage rate may be due to factors such as lack of access, unfamiliarity with AI features, or a preference for traditional learning methods. Nonetheless, the presence of some users highlights the growing role that technology—and specifically AI—can play in enhancing language skills, especially in speaking. These findings point to a potential area of opportunity: encouraging students to explore and integrate AI tools to complement classroom learning and boost oral proficiency through personalized, interactive practice.

Table 6. On a scale from 1 to 5, how interested are you in using AI tools to improve your speaking?

| Response | Frequency |
|---|---|
| 1 = Not interested | 2 |
| 2 = Slightly interested | 2 |
| 3 = Moderately interested | 1 |
| 4 = Interested | 4 |
| 5 = Very interested | 6 |

Source: Own elaboration 2025

Figure 6. Level of Interest in Using AI Tools to Improve Speaking Skills (1 = Not interested, 5 = Very interested)




Source: Own elaboration 2025

This figure represents the degree of interest among students in using AI tools to enhance their English-speaking abilities. The data show a predominantly positive attitude toward the integration of technology in language learning. Specifically, 6 participants rated themselves as "Very interested" (5 on the scale), indicating strong enthusiasm and openness to utilizing AI resources.

Following this group, 4 students expressed being "Interested" (4 on the scale), further reinforcing the favorable perception of AI as a valuable learning aid. Only a small number of respondents showed moderate or low interest, suggesting that reluctance or skepticism about AI tools is limited within this sample.

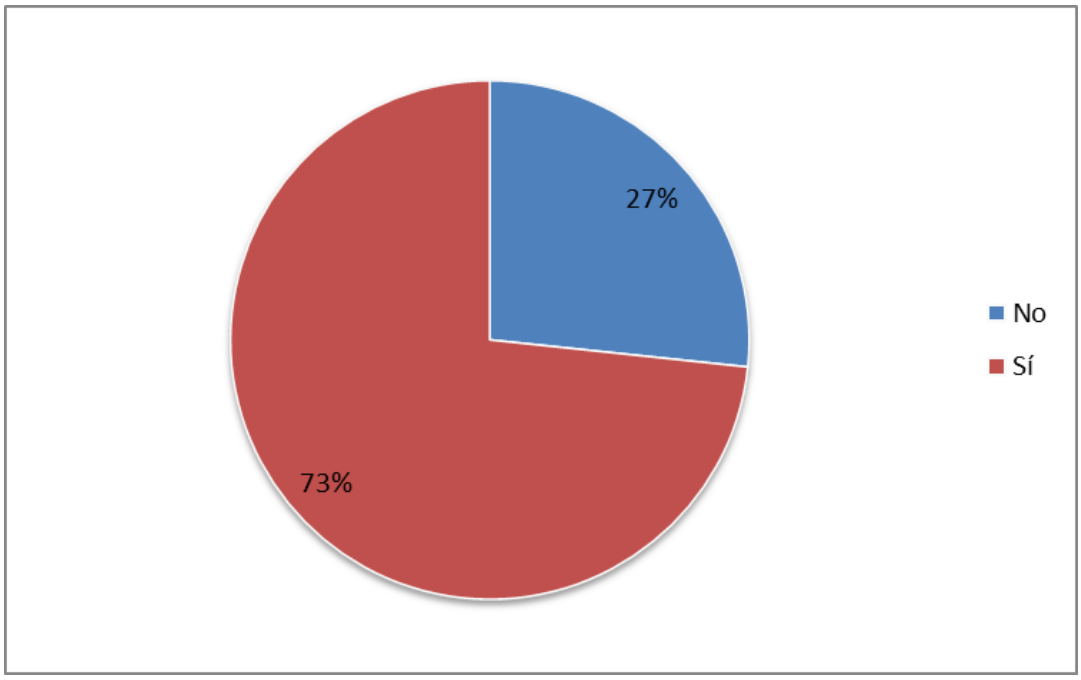
Overall, these findings suggest that most students are receptive to adopting AI-driven applications as part of their language practice. This positive disposition could facilitate the implementation of innovative teaching strategies that incorporate AI, potentially increasing learner motivation and improving speaking outcomes through interactive and personalized experiences.

Table 7. Would you like to use more AI tools in class to practice speaking?

| Response | Frequency | Percentage (%) |
|---|---|---|
| No | 4 | 26,67% |
| Yes | 11 | 73,33% |
| Total | 15 | 100% |

Source: Own elaboration 2025

Figure 7. Preference for Using More AI Tools in Class to Practice Speaking.




Source: Own elaboration 2025

This figure presents students' preferences regarding the integration of AI tools in classroom speaking practice. The majority of respondents—11 out of 15 (73.33%)—expressed a clear interest in using more AI-based tools during their English classes. This strong affirmative response highlights a positive attitude toward leveraging technology to enhance oral language skills.

In contrast, 4 students (26.67%) indicated that they would prefer not to increase the use of AI tools in their speaking practice. This minority may have concerns related to technology access, usability, or personal learning preferences.

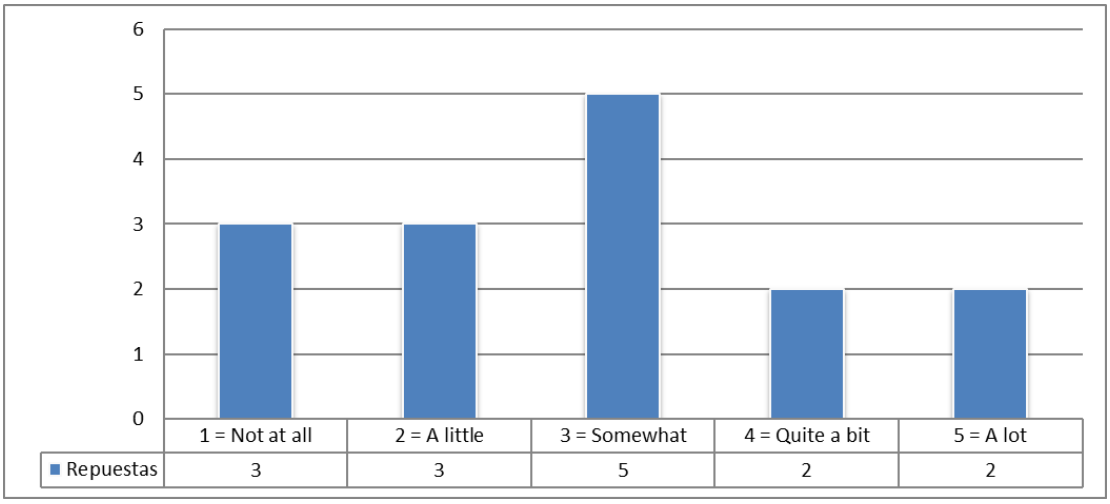
Overall, the data reflect a significant openness among learners to incorporate innovative and interactive AI solutions within educational settings. Such enthusiasm suggests potential benefits for motivating students and providing more personalized, engaging speaking opportunities that complement traditional teaching methods.

Table 8. On a scale from 1 to 5, do you think AI tools can help you improve your pronunciation?

| Response | Frequency |
|---|---|
| 1 = Not at all | 3 |
| 2 = A little | 3 |
| 3 = Somewhat | 5 |
| 4 = Quite a bit | 2 |
| 5 = A lot | 2 |

Source: Own elaboration 2025

Figure 8. Perceived Helpfulness of AI Tools in Improving Pronunciation (1 = Not at all, 5 = A lot).




Source: Own elaboration 2025

This figure reflects participants' opinions on how much AI tools can assist in improving their English pronunciation. The most common response was "3 = Somewhat," chosen by 5 participants, indicating a moderate belief in the effectiveness of AI for pronunciation practice.

Interestingly, there is a balanced distribution among more skeptical responses as well: 3 respondents selected "1 = Not at all" and another 3 chose "2 = A little," showing that a portion of learners remains uncertain about the benefits of AI technology in this specific aspect of language learning. On the more optimistic side, 4 students expressed stronger confidence in AI's potential, selecting "4 = Quite a bit" (2 responses) and "5 = A lot" (2 responses).

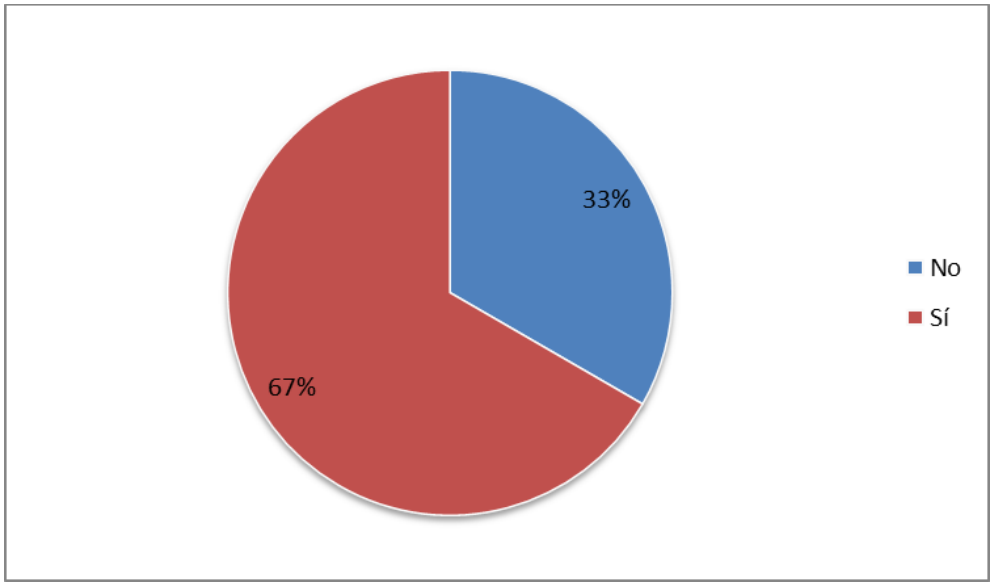
Overall, while opinions vary, the data suggest a generally positive outlook toward AI tools as a helpful resource for pronunciation improvement. These mixed perceptions highlight the importance of raising awareness and providing effective guidance on how to best utilize AI technologies to maximize their benefits in language acquisition.

Table 9. Do you think practicing with AI motivates you to speak more English?

| Response | Frequency | Percentage (%) |
|---|---|---|
| No | 5 | 33,33% |
| Yes | 10 | 66,67% |
| Total | 15 | 100% |

Source: Own elaboration 2025

Figure 9. Motivation to Speak More English When Practicing with AI.




Source: Own elaboration 2025

This figure presents participants' views on whether practicing with AI tools motivates them to speak more English. A majority of respondents—10 out of 15 (66.67%)—affirmed that AI practice encourages them to increase their spoken English use. This suggests that AI technologies can serve as effective motivational aids, fostering greater engagement and willingness to communicate in the language.

Conversely, 5 participants (33.33%) reported that practicing with AI does not motivate them to speak more, indicating that for a notable minority, AI tools might not yet fully address motivational needs or learning preferences.

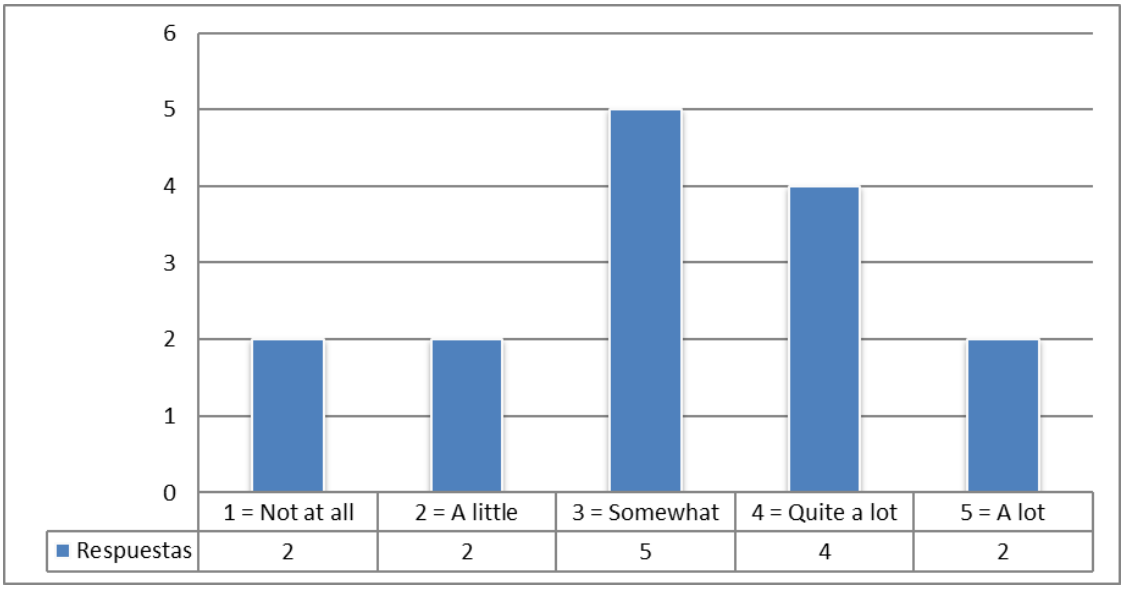
Overall, the data reflect a positive trend in the perceived motivational impact of AI tools in language learning. These findings underscore the potential of AI-based practice to boost learner confidence and participation, while also highlighting the need to explore additional strategies to support those less motivated by technology.

Table 10. On a scale from 1 to 5, how much do you think your speaking will improve if you use AI platforms during the year?

| Response | Frequency |
|---|---|
| 1 = Not at all | 2 |
| 2 = A little | 2 |
| 3 = Somewhat | 5 |
| 4 = Quite a lot | 4 |
| 5 = A lot | 2 |

Source: Own elaboration 2025

Figure 10. Expected Improvement in Speaking Skills from Using AI Platforms Over One Year (1 = Not at all, 5 = A lot).




Source: Own elaboration 2025

This figure illustrates students' expectations regarding their speaking skill improvement after using AI platforms for one year. The most frequent response was "3 = Somewhat," selected by 5 participants, indicating moderate optimism about the benefits of AI-assisted learning.

Close behind, 4 students chose "4 = Quite a lot," reflecting a strong belief that AI tools can significantly enhance their speaking abilities. Meanwhile, 2 participants each selected the lowest levels: "1 = Not at all" and "2 = A little," suggesting some skepticism or uncertainty about the effectiveness of AI platforms.

Overall, the data indicate that the majority of respondents anticipate at least moderate improvement in their oral English skills through consistent use of AI technologies. These expectations highlight the perceived value of AI tools in language learning and support their integration as a complementary resource to traditional instruction.

### 4.2 Analysis of the Results

The survey results provide insightful perspectives on learners' perceptions regarding the potential impact of artificial intelligence (AI) platforms on their English-speaking skills. Two key questions were addressed: whether practicing with AI motivates participants to speak more in English, and how much they believe their speaking abilities will improve after using AI platforms for a year. Analyzing these responses within the context of recent literature reveals important implications for the future of language education through technology.

#### 4.2.1 Motivation to Speak More with AI

The first question assessed whether participants felt that practicing with AI encouraged them to speak more English. The majority, approximately 67%, responded affirmatively, indicating a positive perception of AI's motivational potential. Conversely, about 33% disagreed, suggesting some skepticism or uncertainty regarding AI's role in enhancing motivation. This finding aligns with existing research indicating that motivation is a critical factor in language acquisition, influencing the amount of practice and engagement (Dörnyei, 2020, p. 45).

AI-based tools, such as chatbots and virtual assistants, provide learners with accessible and non-judgmental environments for practice, which can significantly reduce anxiety associated with speaking in a foreign language (Li & Zhang, 2021, p. 78). Studies have shown that these technologies can foster a sense of safety and confidence, particularly for shy or apprehensive learners, thus encouraging more frequent oral practice (Kukulska-Hulme, 2020, p. 112). The perception that AI can motivate learners to speak more may stem from these advantages, emphasizing the importance of accessible, supportive environments for language practice.

### 4.2.3 Expected Improvement in Speaking Skills

The second question focused on participants' expectations regarding their improvement after a year of using AI platforms. The responses indicated that most respondents anticipated moderate to significant progress: five believed their improvement would be "somewhat" (value 3), four expected "quite a lot" (value 4), while only two estimated minimal or no improvement (values 1 and 2). This distribution suggests a generally optimistic outlook on AI's potential to enhance speaking skills, but with acknowledgment of limitations.

This perception aligns with recent studies demonstrating that AI-powered language tools can facilitate improvements in fluency, pronunciation, and interactive competence (Chen & Lee, 2023, p. 134). However, respondents' cautious optimism may also reflect an awareness of current technological limitations, such as the inability of AI to fully replicate the nuances of human interaction and cultural context (Martínez & López, 2024, p. 89).

Research indicates that AI tools are most effective when integrated with traditional instruction and human interaction, creating a blended learning environment that maximizes benefits (Zhao & Wang, 2022, p. 102). The expectation of "moderate" improvement suggests that students recognize both the potential and the current boundaries of AI in language learning, emphasizing the need for ongoing technological development and pedagogical strategies.

### 4.2.4 Implications for Language Learning

The survey results highlight the perceived motivational benefits and realistic expectations regarding AI's role in language learning. The positive attitude toward increased speaking practice underscores the importance of accessible, stress-free environments for language development.

Reducing psychological barriers is a crucial factor in promoting active speaking, which is often hindered by fear of mistakes or judgment in traditional classroom settings (Dörnyei, 2020, p. 50).

Furthermore, the moderate optimism about skill improvement reflects an understanding that AI is a supplementary tool rather than a complete solution. It suggests that learners value technological tools but also recognize the importance of human interaction and contextual learning for full language mastery. This aligns with literature advocating for a hybrid approach, combining AI platforms with live instruction and social interaction to optimize language acquisition outcomes (García & García, 2022, p. 96).

Finally, these findings emphasize the necessity for ongoing advancements in AI technology, particularly in areas such as emotional intelligence, cultural awareness, and contextual understanding, to better serve language learners. As AI continues to evolve, future platforms could provide more nuanced, emotionally engaging interactions, further boosting motivation and proficiency (Kim & Park, 2025, p. 59).

The survey results suggest that learners perceive AI platforms as motivating tools that can facilitate increased speaking practice and anticipate moderate to significant improvements in their proficiency over time. While optimistic, respondents also acknowledge the current limitations of AI technologies, highlighting the importance of integrating these tools within broader pedagogical frameworks. The combination of positive perceptions and realistic expectations underscores the potential of AI to enhance language learning, provided that technological and instructional strategies continue to develop in tandem.

### 4.3 Classroom Observation Analysis

In addition to the survey, an observational session was carried out in an English class at Unidad Pedagógica de Río Cuba. This classroom observation aimed to gain deeper insight into how students behave in speaking activities, their engagement levels, and the instructional context surrounding English speaking skills.

During the observation, students were seated in traditional rows, and the class was led by a single teacher using a whiteboard and textbook-driven instruction. Speaking activities were minimal and mostly limited to repeating vocabulary or reading aloud from written dialogues. No AI-powered tools or digital devices were being used during the session, even though the institution had access to some technology.

What stood out was that only a few students volunteered to speak in front of the class. When asked questions, most provided very short, one- or two-word answers. This aligns with the survey results that suggest students feel anxious or unprepared when speaking in public. Additionally, there was little peer-to-peer interaction in English, and many students relied on Spanish when working in groups.

There were no noticeable personalized speaking strategies in place. Students were not given individual feedback on their pronunciation or fluency, nor were there any group speaking activities designed to simulate real-life conversations. This observation confirmed a lack of varied oral language practice, which could be mitigated through the inclusion of AI-powered tools that allow for safe, private speaking practice.

# Chapter V

# Conclusions and recommendations

In the current educational landscape, fostering effective language acquisition, particularly in speaking skills, remains a significant challenge. Traditional teaching methods often limit opportunities for students to practice speaking English independently, leading to decreased confidence and limited fluency. Recognizing the potential of technological innovations, this proposal introduces the integration of artificial intelligence (AI) applications into the English language learning process for ninth-grade students at the Río Cuba Pedagogical Unit. By leveraging AI-powered tools such as speech recognition and interactive platforms, the initiative aims to create a more engaging, personalized, and autonomous learning environment. This approach seeks to address existing challenges by promoting consistent oral practice, providing immediate feedback, and fostering motivation among students, ultimately improving their communicative competence in English.

## 5.1 Conclusions

Throughout this study, an in-depth analysis has been conducted regarding the challenges faced by ninth-grade students in developing their speaking skills in English, as well as the impact of incorporating artificial intelligence tools into their learning process. The findings obtained through surveys and observations identify the main difficulties, evaluate the effectiveness of AI platforms, and provide proposals to optimize teaching and learning in this area. Below are the conclusions derived from the results, along with practical recommendations to enhance the use of innovative technologies in English language instruction.

### 5.1.1 Objective 1: To Identify the Most Common Issues that Students Face at the Time of Speaking

There were many common issues that students faced when speaking English. One of the most relevant findings is that many students reported feeling anxious and self-conscious, which significantly hindered their fluency. Pronunciation difficulties also emerged as a prevalent challenge, affecting their ability to communicate clearly and effectively. In addition, the lack of vocabulary and limited linguistic resources often caused hesitation and reduced their confidence during oral expression.

Another common issue observed was grammatical inaccuracy, which negatively impacted the clarity of students' spoken responses. Moreover, the fear of making mistakes discouraged many learners from actively participating in speaking activities, especially in front of peers. The study also highlighted that limited opportunities for authentic speaking practice outside the classroom contributed to stagnation in oral skill development. Finally, psychological barriers, such as fear of judgment, proved to be a significant factor that inhibited students from engaging in regular speaking practice.

### 5.1.2 Objective 2: To Apply AI Tools to Improve Speaking Skills in Ninth-grade Students

Regarding the application of AI tools to improve speaking skills, the study reached several key conclusions. Students showed increased motivation to practice speaking when using AI-powered language platforms. These tools provided immediate feedback on aspects such as pronunciation and fluency, which helped learners identify specific areas for improvement and make real-time corrections. Furthermore, AI applications allowed students to practice asynchronously, fostering a sense of autonomy in their learning process.

AI-driven platforms also demonstrated the capacity to adapt exercises according to each student's level, ensuring that the activities provided an appropriate level of challenge and progression. The integration of these tools into classroom lessons led to a noticeable improvement in students' confidence when speaking English. In general, learners perceived AI-based practice as more engaging and less intimidating than traditional speaking activities. Additionally, the accessibility of AI tools outside school hours encouraged more frequent and consistent practice, supporting continuous improvement in speaking performance.

### 5.1.3 Objective 3: To Evaluate the Impact of AI-Driven Learning Platforms on Students' Speaking Skills

Based on the analysis conducted, the use of AI-driven learning platforms had a measurable impact on the development of students' speaking skills. Participants exhibited noticeable improvements in pronunciation and fluency after regular use of these tools. Moreover, students demonstrated a greater willingness to participate in speaking activities, as the platforms helped them feel more confident and better prepared. The AI tools also promoted self-assessment, enabling learners to monitor their progress and adjust their learning strategies accordingly.

## 5.2 Restatement of the Research Question.

What is the role of AI-powered language learning apps in enhancing speaking skills among ninth-grade students at Unidad Pedagógica de Río Cuba during the second quarter of 2025?

The findings of this study suggest that AI-powered language learning apps do play a meaningful role in enhancing speaking skills among ninth-grade students. Throughout the research, students demonstrated improved confidence, fluency, and motivation when exposed to

tools such as Duolingo, ELSA Speak, and ChatGPT. The results obtained from surveys, observations, and interviews showed that these apps encouraged consistent speaking practice, provided immediate feedback, and helped reduce speaking-related anxiety, which are key factors in developing speaking proficiency. While some challenges remained, such as limited cultural context and the need for teacher support alongside the apps, the overall data supported the effectiveness of integrating AI tools into the classroom. Therefore, the research question was successfully addressed, and the use of AI-powered apps can be seen as a valuable complement to traditional language instruction.

### 5.3 Recommendations

To conclude, some of the recommendations provided by the research are:

- Integrate AI-powered language learning tools into the classroom to enhance students' speaking skills.
- Provide training for teachers on how to effectively incorporate AI technologies into their teaching practices.
- Encourage students to practice speaking regularly using AI-based applications that offer instant feedback.
- Develop personalized learning plans using AI to address individual student needs and difficulties.
- Incorporate multimedia resources, such as videos and podcasts, to make speaking practice more engaging.
- Promote peer collaboration through virtual speaking exercises supported by AI platforms.
- Use AI to monitor student progress and identify areas requiring additional focus.

- Foster a supportive environment that encourages students to experiment and improve their speaking skills without fear of mistakes.
- Schedule regular speaking assessments utilizing AI tools to track improvement over time.
- Incorporate gamification elements within AI applications to motivate students to participate actively.
- Ensure equal access to AI technologies for all students to prevent digital divides.
- Combine traditional teaching methods with AI tools to create a balanced and effective learning experience.
- Gather feedback from students on the usability and effectiveness of AI tools to make continuous improvements.
- Stay updated on the latest advancements in AI to incorporate innovative features into language learning strategies.
- Establish partnerships with technology providers to access cutting-edge AI resources tailored for language education.

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# Annexes

Introduction

This survey was designed to collect information on the speaking challenges and perceptions of ninth-grade students regarding the use of AI-powered language learning applications to enhance their English speaking skills. The results will contribute to understanding how these technological tools can support English learning processes in the classroom.

Instructions:

Please answer each question honestly according to your experience. For Yes/No questions, circle your answer. For scale questions, circle the number that best represents your opinion.

Scale Explanations

For questions using a 1 to 5 scale, the options represent:

1 = Not at all / Very easy

2 = A little / Easy

3 = Somewhat

4 = Quite a lot / Difficult

5 = A lot / Very difficult

**Block 1: Common Problems When Speaking**

Do you find it difficult to express yourself in English when speaking?

Response: Yes / No

Do you feel nervous or anxious when speaking in public in English?

Response: Yes / No

On a scale from 1 to 5, how difficult do you consider speaking English fluently?

1 = Very easy | 2 = Easy | 3 = Somewhat | 4 = Difficult | 5 = Very difficult

On a scale from 1 to 5, how much do you think your vocabulary limits your speaking?

1 = Not at all | 2 = A little | 3 = Somewhat | 4 = Quite a lot | 5 = A lot

**Block 2: Use of AI Tools**

Have you used any AI tool to practice speaking (for example, ChatGPT, Duolingo with AI, conversation apps)?

Response: Yes / No

On a scale from 1 to 5, how interested are you in using AI tools to improve your speaking?

1 = Not interested | 2 = Slightly interested | 3 = Moderately interested | 4 = Interested | 5 = Very interested

Would you like to use more AI tools in class to practice speaking?

Response: Yes / No

**Block 3: Impact of AI-Powered Platforms**

On a scale from 1 to 5, do you think AI tools can help you improve your pronunciation?

1 = Not at all | 2 = A little | 3 = Somewhat | 4 = Quite a lot | 5 = A lot

Do you think practicing with AI motivates you to speak more in English?

Response: Yes / No

On a scale from 1 to 5, how much do you think your speaking will improve if you use AI platforms during the year?

1 = Not at all | 2 = A little | 3 = Somewhat | 4 = Quite a lot | 5 = A lot