



**UNIVERSIDAD
BOLIVARIANA
DEL ECUADOR**

**USE OF DUOLINGO AS A TOOL IMPROVE
PRONUNCIATION FOR STUDENTS OF A1
LEVEL**



UNIVERSIDAD BOLIVARIANA DE ECUADOR

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**USE OF DUOLINGO AS A TOOL IMPROVE PRONUNCIATION FOR STUDENTS OF A1
LEVEL**

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Dedication

This research is dedicated to God, my whole family, especially my mom and sister, who support me every single day during this important study. Thanks to God to give me perseverance and patient to finish this project.

By Rosa Amalia Ramón Lanchi



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By Rosa Ramón Lanchi



Resumen

En los niveles iniciales del aprendizaje del idioma inglés, la pronunciación constituye uno de los mayores retos que enfrentan los estudiantes, debido a limitantes para la práctica y mejora individual, así como los modelos tradicionales de enseñanza-aprendizaje. En ese sentido, la presente investigación tiene como objetivo investigar la efectividad de Duolingo como herramienta digital para mejorar las habilidades de pronunciación de los estudiantes del nivel A1, con un enfoque en los ejercicios interactivos y el entorno de aprendizaje gamificado de la aplicación. Para ello, se ha utilizado una metodología con un enfoque mixto, diseño cuasiexperimental, de corte longitudinal, aplicando las técnicas de la encuesta, pretest y posttest a 27 estudiantes que cursan el nivel A1 de inglés en el periodo 2024-2025 de la Universidad de Cuenca. Como resultados se obtuvo que tras la implementación de la aplicación Duolingo, la calificación promedio pasó de 7.72 a 9.13, lo que señala que la aplicación produjo una mejora significativa en la pronunciación de los estudiantes participantes del estudio.

Palabras clave: Duolingo, gamificación, presente simple, estudiantes de nivel A1, pronunciación.



Abstract

At the initial levels of English language learning, pronunciation is one of the greatest challenges faced by students due to limitations on individual practice and improvement as well as traditional teaching-learning models. In this sense, the present research aims to investigate the effectiveness of Duolingo as a digital tool to improve the pronunciation skills of A1 students, with a focus on interactive exercises and gamified learning environment of the application. For this purpose, a methodology with a mixed approach, quasi-experimental design, was used, applying the survey techniques, pretest and posttest to 27 students who are studying the level A1 of English in the period 2024-2025 of the University of Cuenca. The results showed that after the implementation of the Duolingo application, the average score went from 7.72 to 9.13, indicating that the application produced a significant improvement in the pronunciation of the students participating in the study.

Keywords: Duolingo, gamification, simple present, students at A1 level, pronunciation.



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Introduction

Use of Duolingo as a tool to improve pronunciation among students of A1 level

By 2020, English is considered a global language that people speak worldwide. A quarter of the world's population speaks English for education, business, employability, and other purposes. In addition, English is the most essential language in the world because a person who speaks English gets better job opportunities and goals, and it creates opportunities to improve individuals' lives (English First, 2024).

According to English First (2024), English constitutes the predominant language of communication on the Internet, with approximately one billion users employing it for written interaction and online discourse. You can read world news, take part in forum discussions, access, and appreciate more online resources if you can read and comprehend English. You will be able to use many more resources and interact with more people online if you can comprehend English. There are countless options. You will get access to a whole new world of entertainment if you learn English (Ilyosovna,2020).

According to Rodriguez-Weil, freedom must be the one term that best describes the English language. Freedom to interact with others, discover different cultures, access information, pursue career goals, and reside in a place that enjoys speaking English has allowed people to expand their horizons in every way (Mark, 2013).

English First (2024), shows that Ecuador is in the 82nd position on English Proficiency Index 2024, Ranking of Countries and Regions. It indicates that Ecuador is at a lower proficiency level. Also, Ecuador is considered a country where English is not taught or developed effectively, suggesting that something may be going wrong within the educational system to produce these global results. Despite the fact that teachers must



consider socio-cultural identity and emotional aspects of both students' and teachers' lives in order to provide equal opportunities for all students, not just a select group of people, Ecuador is regarded as one of the worst countries in Latin America for learning English. (Angelis, 2022).

Standardized examinations known as large-scale international assessments are used in many nations to gauge student performance and compare the caliber of educational systems both within and across nations and with regard to international norms. Over the past 20 years, they have become more and more prevalent worldwide, and they have a significant influence on how we think about education policy (Angelis, 2022).

However, Common European Framework of Reference Languages (CEFR) establishes that all countries in the world must have to measure their linguistics skills from A1 to C2 level to define language proficiency. It explains in detail what language learners must learn to do in order to communicate in a language, as well as the information and abilities they must acquire in order to act appropriately. The cultural setting in which language is used is also covered in the description. In order to measure learners' development at every learning stage and throughout their lives, the Framework also establishes levels of proficiency (Cambridge University Press, 2001).

The goal of the Common European Framework is to remove the communication obstacles that arise between experts in modern languages due to Europe's disparate educational systems. In order to place and coordinate their efforts and make sure they are meeting the actual needs of the students for whom they are responsible, it gives educational administrators, course designers, teachers, teacher trainers, examining bodies, etc. the opportunity to reflect on their current practice (Cambridge University Press, 2001).



Pronunciation is an essential part of mastering a second language as a lingua franca. Communicating using the correct sounds, phonetics patterns, and speech flow are all elements of effective communication through a second language (Dennis, 2024). Pronunciation is an important part of working in teaching a Second Language in Ecuador.

According to Dennis (2024) and Thomson (2018), enhancing speech pronunciation requires phonetic training and specific teaching approaches, both of which are necessary for effective language instruction. According to studies, learners frequently struggle with new word pronunciation, which causes stress and worry, especially when they are not properly motivated. Effective pronunciation instruction must cover speech flow, stress, intonation, and sound qualities. However, there is some controversy concerning the efficacy of these strategies in various learning situations and student demands. Academics urge for greater pronunciation training for teachers, as well as the need of supportive learning environments. Incorporating pronunciation into curricula necessitates careful consideration of syllabus design, instructional tools, and institutional techniques, underlining the logistical and learner-related problems associated with teaching pronunciation.

The present study is delimited to examining the impact of Duolingo on the pronunciation skills of A1-level university students. It focuses exclusively on pronunciation as the dependent variable, specifically analyzing aspects such as phoneme recognition, word stress, and intonation. Other language skills, such as grammar, vocabulary acquisition, or overall fluency, are beyond the scope of this research. The study is conducted within a controlled academic setting over a fixed period, using a pretest-posttest design to assess students' pronunciation improvement. Duolingo is the sole digital learning tool examined,



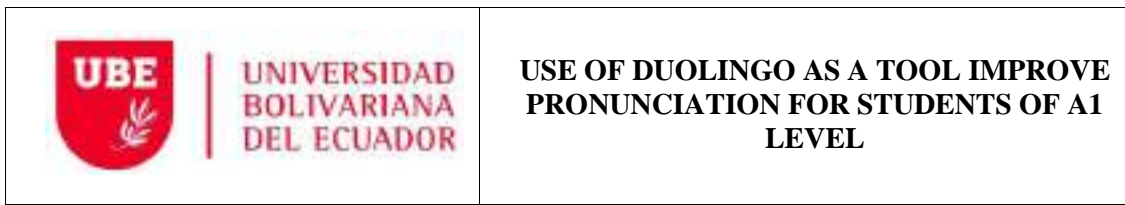
excluding other language-learning applications or traditional pronunciation training methods. The findings are intended to provide insights into the effectiveness of Duolingo for pronunciation development within the A1-level context, but they may not be generalized to learners of different proficiency levels or educational backgrounds.

Research questions

- **Q1:** How significant is the improvement of pronunciation by using Duolingo as a complement to learning EFL in A1 level learners?
- **Q2:** What is the effectiveness of using Duolingo as a tool to improve the pronunciation among students of A1 level?

In the universities of Ecuador, speaking skills present some problems regarding pronunciation, for this reason, the purpose of this study is to investigate the effectiveness of Duolingo as a digital tool for improving the pronunciation skills of A1-level students. Specifically, this research aims to examine how Duolingo's speech recognition features, interactive exercises, and gamified learning environment contribute to students' pronunciation development. Additionally, the study seeks to identify students' engagement levels and perceptions regarding the use of Duolingo for pronunciation practice. By analyzing these aspects, the study will provide insights into the potential benefits and limitations of using Duolingo in A1-level language learning contexts, ultimately informing educators about its suitability as a supplementary tool for pronunciation instruction.

The role of technology has changed the field of education. Giving people the opportunity to learn a second language thanks (TALL), “Technology Assisted Language” numerous merits of computer-assisted learning abound, such as the availability of authentic materials, experimental learning opportunities, high motivation, improved interaction



opportunities, and global understanding, (CALL) computer-assisted language learning which is a method of instruction in which students use computers to practice and improve their language learning skills (such as speaking, writing, reading, and listening), and (MALL), mobile-assisted language learning, this term "MALL" describes any learning that is supported by a portable electronic device, like an MP3 player. Podcasting, eBook readers, and tablets (Buddha, H. et al., 2024).

The Importance of technology in language learning. Introduction to Duolingo as a pronunciation improvement tool

This research is focused on using Duolingo as a tool to improve pronunciation in students of A1 level at the University of Cuenca, this public institution is located in Cuenca, Azuay Province, The Instituto Universitario de Idiomas at the University of Cuenca offers the PASLE Program (Programa Académico de Suficiencia en Lengua Extranjera) to students enrolled in the university's redesigned curricula. This program provides structured language instruction across four proficiency levels—A1, A2, B1, and B2—aligned with the Common European Framework of Reference for Languages (CEFR). As a compulsory component of the curriculum for students across all academic disciplines, the program ensures broad participation. The group selected for this research consists of 27 learners enrolled in the A1 course, ranging in age from 18 to 35 years. The majority of participants represent diverse faculties within the university, reflecting a heterogeneous academic background. Figure 1 presents an image of one of the university's campuses, specifically the Yanuncay, Campus.

Figure 1 Universidad de Cuenca, Departamento Universitario de Idiomas, Campus Yanuncay



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Note. Elaborated by Rosa Ramón.

The Duolingo application is aligned with the research lines of Universidad de Cuenca, supporting the learning of a second language process to benefit students' learning. For this reason, the object is focused on the teaching-learning process of pronunciation skills in A1 level – university students of Universidad de Cuenca. The proposal integrates computer-assisted language learning to enhance pronunciation skills through strategies that Duolingo offers to engage students to participate and practice pronunciation.

The general objective of this study is to determine the improvement in the pronunciation level of first-level English students at the Instituto Universitario de Idiomas of the University of Cuenca, following the use of the Duolingo application. The evaluation will be carried out through a rubric applied as both a pre-test and a post-test. The University of Cuenca is located in Cuenca, Azuay Province

Specific objectives

To achieve the aim, it has been determined specific objectives as:

1. To design and implement Duolingo techniques to improve pronunciation in students of the first level of English.



2. To measure the effectiveness of using Duolingo as a tool to improve the pronunciation among students of A1 level.
3. To evaluate the efficacy of Duolingo in developing the pronunciation skills of A1-level English students at the University of Cuenca.

In this study, the independent variable is the use of the Duolingo application as a learning tool for improving students' pronunciation skills. Students have to use this application during seven weeks, then it consists on students practice vocabulary and some grammatical lessons during a week and also, they find different lessons according their English proficiency, each lesson corresponds to beginners or A1 level. Furthermore, the time for the lessons is approximately from 7 to 10 minutes per day, in which students practice the pronunciation: first they listen to the word, repeat, in some cases they can record themselves and translate some expressions.

Individual Learning

This study examines how students use Duolingo for self-directed language learning (SDLL) outside of the traditional classroom. Ten Duolingo users participated in semi-structured interviews for the study, which reveals that students successfully handle a variety of materials and depend on Duolingo's features to track and strengthen their learning. The results highlight the value of intrinsic motivation and how technology may support SDLL (Li & Bonk, 2023).

The Self-Determination Theory highlights competence, autonomy, and intrinsic motivation as important learning motivators. This hypothesis is supported by Duolingo's gamified approach, which gives users control over their learning process and increases motivation through the use of points, levels, and self-paced learning. Given that motivated



learners are more involved and persistent in their practice, this sense of accomplishment and autonomy probably influenced the EG's higher vocabulary and grammatical scores. The incentives and feedback systems offered by Duolingo provide a positive and encouraging atmosphere that maintains learners' motivation and interest, both of which are critical for successful language acquisition (Li & Bonk, 2023).

Social and Collaborative learning

According to Vygotsky's Zone of Proximal Development (ZPD) theory, students can advance their comprehension with the help of knowledgeable teachers or peers. In addition, scaffold learning features Duolingo's adaptive system through the gamified tools in which people motivate to develop the language learning (Kazu, et al., 2025).

Accessibility and Usability

A study found that Duolingo's focus on addressing social inequalities in education by offering free language learning courses on its website has played a significant role in its widespread adoption and popularity among a diverse user base (Kazu, et al., 2025).

Effectiveness in Language Learning

Mayer's Cognitive Theory of Multimedia Learning suggests that integrating visual and auditory content helps learners better process and retain information. Duolingo's multimodal approach leverages visual cues, audio elements, and interactive feedback, creating an enriched environment that supports vocabulary and grammar acquisition. The app's design aligns with Mayer's theory by helping learners engage with and internalize new language concepts more effectively, likely contributing to the EG's improved performance. By combining audio with visuals and interactive responses, Duolingo aids



memory retention and supports language acquisition through diverse sensory inputs (Aliabedi et al., 2025).

Independent variable

The Duolingo application is a Mobile-Assisted Language Learning (MALL) platform designed for language education. It delivers gamified, personalized language instruction, typically focusing on vocabulary, grammar, reading, listening, speaking, and writing skills (Fitriani, 2024). Some studies highlight Duolingo's key features:

- Interactive, bite-sized lessons suitable for various schedules (Raj et al., 2024).
- Gamification elements (leaderboards, rewards, progress tracking) to enhance motivation and engagement (Fitriani, 2024; Fathi et al., 2024; Li & O'Rourke, 2022).
- Spaced repetition techniques for improved retention (Raj et al., 2024).
- Voice recognition software for pronunciation practice (though feedback may be limited) (Aliabedi et al., 2025; Taylor, 2022).
- Delivery: Delivered via mobile application or website, providing accessibility and flexibility (Smith et al., 2024; Fathi et al., 2024).
- Observed Effects: Research indicates that using Duolingo can lead to:
- Increased motivation in language learning (Fitriani & Mokodompit, 2024).
- Improved vocabulary acquisition and grammar comprehension (Fitriani & Mokodompit, 2024).
- Enhanced reading and listening comprehension, particularly at beginner levels (Fitriani, 2024).
- Potential improvements in speaking skills, including fluency, accuracy, and pronunciation (though this is a more complex area) (Agustina et al., 2024).

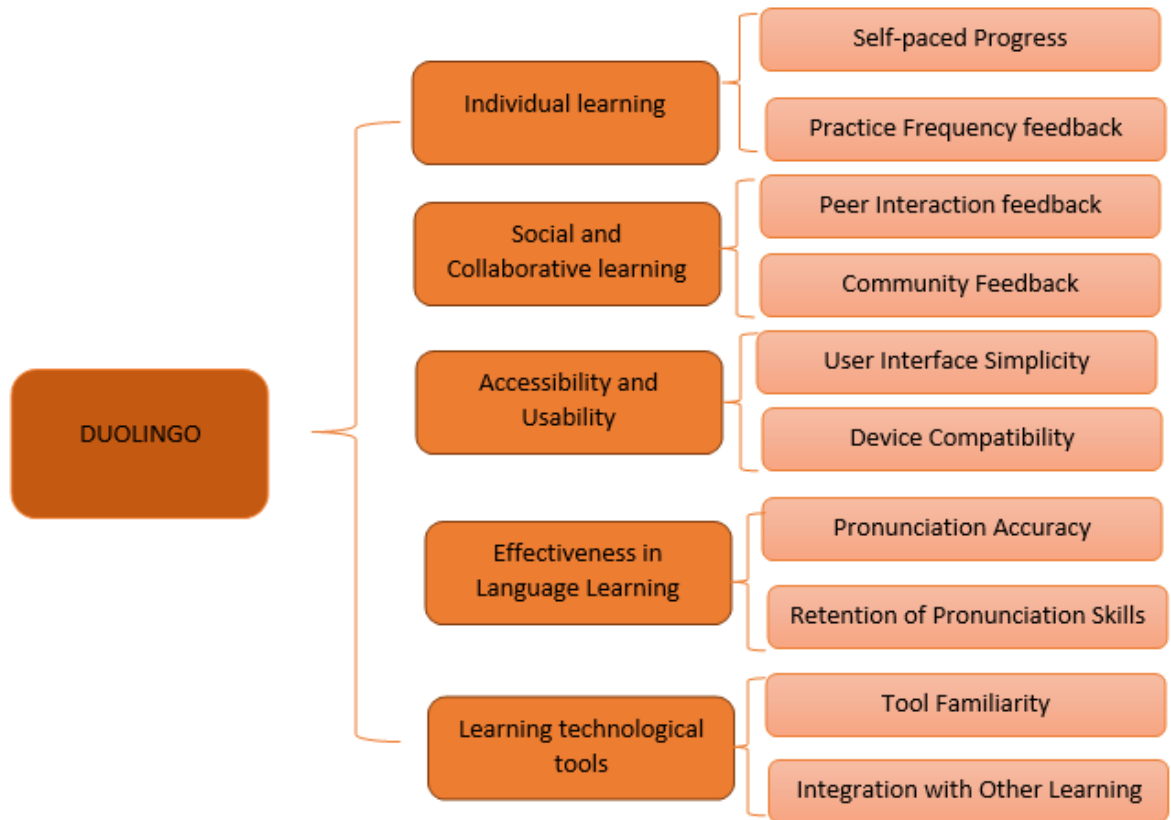


Dependent variable

Pronunciation skill refers to the ability to produce speech sounds of a target language accurately and intelligibly (Munro & Derwing, 1995, as cited in Taylor, 2022). It encompasses various aspects, including:

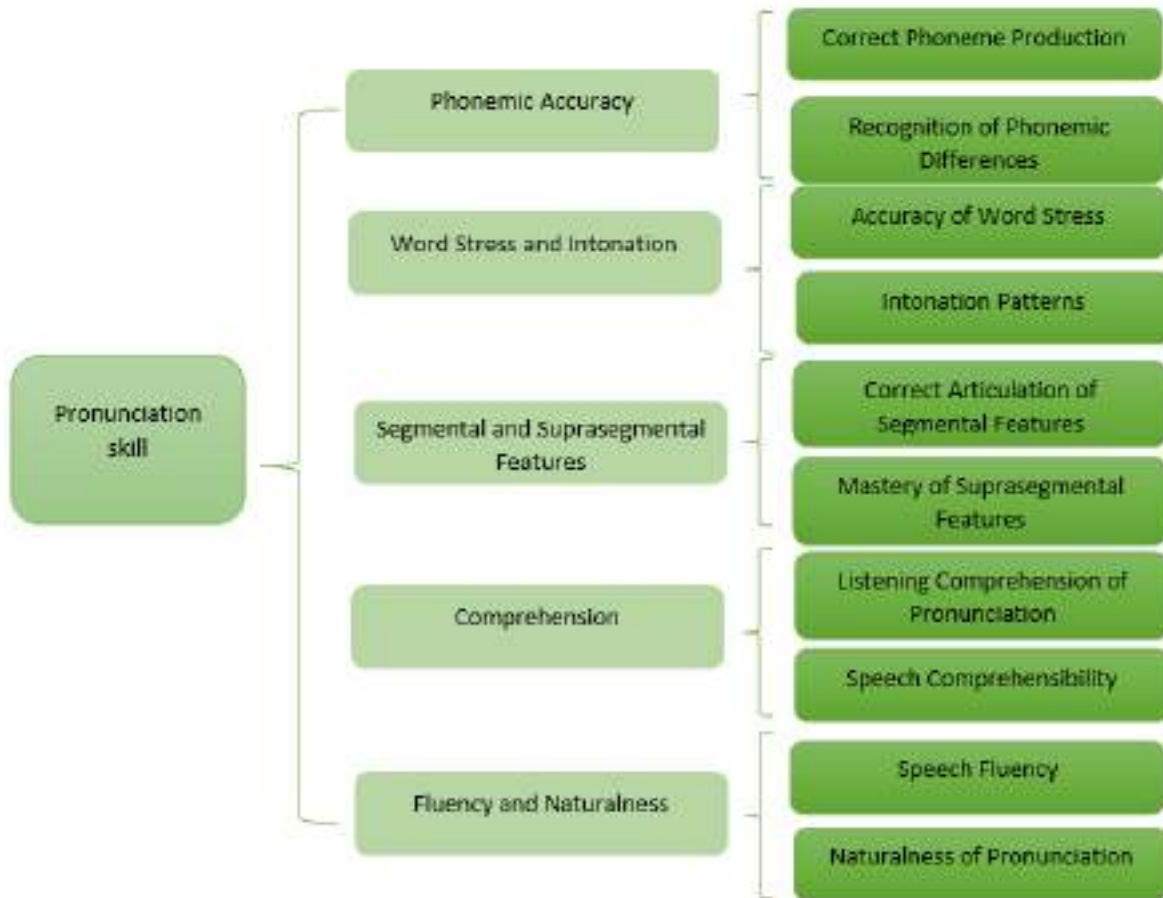
- Accuracy: How closely the produced sounds match the target sounds.
- Intelligibility: How easily a listener can understand the speaker.
- Fluency: The smoothness and naturalness of speech.
- Accent: The degree to which a speaker's pronunciation deviates from native-like pronunciation.
- Measurement: Pronunciation skill can be measured through various methods:
 - Speaking tests: Assessing pronunciation in structured tasks (Agustina et al., 2024).
 - Acoustic analysis: Analyzing speech sounds using software to measure parameters like formant frequencies and vowel duration (Butkevičiūtė, 2024).

Figure 2 *Independent variable*



Note. Elaborated by Rosa Ramón.

Figure 3 *Dependent variable*



Note. Elaborated by Rosa Ramón.

To gather quantitative data, the study used a mixed research method research design. Pre- and post-tests were applied to participants to measure improvements in their pronunciation skills. The experimental group participated in different activities focused on pronunciation such as oral presentations and lessons in the Duolingo app. However, the quantitative data has been collected through surveys and observation techniques. In the class, the group was conducted to make some presentations to improve their pronunciation, but for this part, students were assessed by a rubric focused just on some characteristics of pronunciations such as pronunciation, intonation & stress, fluency, vocabulary use, grammar accuracy, and content relevance.



CHAPTER 1: THEORETICAL FRAMEWORK

This literature review examines Duolingo as a tool to improve pronunciation in A1-level students through gamification and MALL (Mobile Assisted Language Learning) approaches. The technology has been implemented in the teaching world as an innovative and dynamic tech tool to learn English as a second language. In recent years, technology has played a crucial role in language learning, providing students with interactive and accessible tools to enhance their skills. One such tool is Duolingo, a widely used language-learning application that offers gamified lessons for learners of various proficiency levels. With the increasing demand for digital learning solutions, researchers have been exploring the effectiveness of mobile-assisted language learning (MALL) in improving different aspects of language acquisition (Metruk, 2023).

1.1. Duolingo

Research by Mulyani¹ and Suryadi (2023) has shown that the well-known language-learning website Duolingo has used technology to democratize education and increase the effectiveness and accessibility of language learning. The platform has made it possible to provide everyone on the earth with high-quality education through the use of AI-powered courses, gamified mini-lessons, and the Duolingo Incubator. Without the need for extra resources, the platform has been shown to offer a competitive, entertaining, and user-friendly learning environment, especially for reading and writing abilities.

Therefore, one technological tool that students can use to play and learn English is called Duolingo. Luis Von Ahn and Severin Hacker developed the freemium language-learning app Duolingo for desktops and smartphones in 2012. According to the Duolingo website, the Duolingo app facilitates the teaching of the four English language skills to students: speaking, writing, listening, and reading. The Duolingo learning exercises use the



four skills through questions, transcribed text, and little text to hear. To evaluate their speaking skills, the students must also record their pronunciation (Tiara, A. D. et al., 2020).

Tiara, A. D. et al. (2021) argues that when it comes to learning English as a second language, students have positive opinions of Duolingo because of its usability, connectivity, mobility, cost, content, and context, encouraging pupils to practice whenever they choose and demonstrating their development. Students also point out that Duolingo offers combined exercises for translation, audio, and pronunciation. In addition, one of the most significant features of Duolingo is blending, which focuses on helping students improve their pronunciation skills so they can communicate effectively in real-world situations. It helps students participate in interactive activities on Duolingo and gives them confidence because teachers can create lessons that include game-supported content and are accessible at any time.

A study demonstrates the outcomes of using Duolingo with a group of Spanish-learning students in the United States. Due to its adaptability, it was concluded that Duolingo is simple and beneficial. In order to facilitate the teacher's function in the classroom, all pupils were immersed in an application where they discovered certain lessons related to the material covered in class. The instructor selects the lesson during this period and provides the students with a URL to open, see, and complete the exercises. In the meanwhile, teachers can use a dashboard to view students' progress in a variety of ways (Munday, 2016).

As they progress through the software and learn the rules, the audiolingual method helps students interact with Duolingo by enabling them to produce new words they have both written and heard. Duolingo is the source of these three features: restoration, inflection, and replacement. Students are linked and motivated to participate in every session in order



to earn stars and advance to the next level, rather than becoming disinterested as a result of gamification. This set of exercises consists of intonation, repetition, and drill.

Research by Savvani (2019) has shown that Duolingo is based on the learning theories such as grammar translation, audiolingual method, and digital game-based language learning.

1.2. Grammar translation method

One of the earliest approaches to teaching languages is the study of a language through text translation. The Grammar Translation is based on repetition, memorizing, and translation of small and complex sentences rather than communicative competence (Richards & Rodgers 2014). This technique learning ideas that are incorporated into the design of Duolingo. By learning vocabulary and grammar rules by heart, Duolingo users are expected to translate phrases in the target language. Duolingo's methodology includes sentence translation activities that encourage learners to transfer linguistic knowledge between their own language and the target language, mirroring traditional grammar-translation approaches (Munday, 2016). Duolingo is based on learning theories such as the grammar translation method, audiolingual method, and digital game-based language learning. By learning vocabulary and grammar rules by heart, Duolingo users are expected to translate phrases in the target language (Savvani, 2019).

1.3. Audiolingual Method

This method is characterized by helping learners to develop oral proficiency. Although Duolingo does not focus just on the speaking skill, it helps new learners acquire a second language through replacement, inflections, and restoration. As they progress through the software and learn the rules, the audiolingual method assists students in interacting with Duolingo by helping them produce new words that they have already



written and heard. Duolingo is the source of these three features: restoration, inflection, and replacement. Students are linked and motivated to participate in every session in order to earn stars and advance to the next level, rather than becoming disinterested as a result of gamification. This set of exercises consists of intonation, repetition, and drill. Accordingly, it's a fantastic method for learning a second language and aids in speech improvement (Savvani, 2019).

1.4. Digital Game Based Language Learning

The learning of a second language based on gamification; it creates a Dynamic environment in which student learn through a game. Duolingo frequently features edutainment, which is described as "a hybrid mix of education and entertainment that heavily relies on visual material, on narrative or game-like formats, and on more informal, less didactic styles of address. Three components appear to be essential to edutainment design, according to an adaptive digital game-based learning framework: Multimodal (interaction features, multimedia components, and narrative); Task (completing challenges); and Feedback (assessment of progress and incentives intended to boost users' motivation). The manner in which these components are applied (Savvani, 2019).

According to Mulyani¹ and Suryadi (2023), the study's findings, using Duolingo is linked to increased foreign language proficiency. Through this research, using Duolingo raised students' English proficiency. Nevertheless, the majority of research tends to concentrate on app design rather than results, and there is now scant concrete evidence of its value or significance in the language learning process. It is crucial to remember that Duolingo does not offer grammatical explanations; instead, it facilitates the development of fluency by giving students practice with new vocabulary.



1.5. Technology

Technology has been a more significant factor in education in recent years, changing how teachers and students teach and learn. Technology integration in English language instruction has drawn a lot of interest because it has the potential to improve students' overall performance and language competency. There are a ton of new chances for developing and utilizing innovative teaching techniques in the classroom as new technology become more accessible and potent (Mulyani, 2023).

Theremore, English has increasingly raised in the last years due to the globalization. According to Cambridge assessment, English is been considered like the most dominant language in the world, so that everybody needs to speak the language with others in any situation. A quarter of population in worldwide speaks English. In the education and technology field this language has made a lot of changes, since English is a language which can open many opportunities (English, C. A. (2018).

1.6. Gamification

Gamified experiences are designed on non-game contexts and non-entertainment, but it is focused on instructional settings in order to motivate and engage people in any topic in which they must learn through self-directed learning. Therefore, humans react into positive way to gamification due to game dynamics, such as rewards, achievements, and competition, are the elements that attract and motivate learners during the gamification experience, whereas game mechanics includes control mechanisms like points, challenges, levels, and leaderboards that are used to design gamification experiences to control user actions and behaviors (Li and O'Rourke, 2022).



1.7. MALL (Mobile Assisted Language Learning)

Language learners can learn and communicate using any kind of mobile device thanks to the evolution of mobile learning (m learning), also known as mobile-assisted language learning (MALL). Recently, many students are interested in learning through devices for English Language Learning. Mobile learning uses Internet-connected devices like smartphones and tablets with features like touch screens, cameras, apps, and location awareness. MALL offers unique and engaging language learning opportunities, providing significant benefits for foreign language education. " Mobile devices have several key characteristics, including mobility, functionality, multimedia convergence, ubiquity, personal ownership, social interaction, context sensitivity, location awareness, connectivity, and customization (Metruk, 2023).

1.8. Pronunciation

Through the years, pronunciation has been defined as a group of sounds articulated by humans, this skill has been one of the most difficult to teach in the SLA, but it's important to mention that many researchers have found some extra subjects such as phonology, phonetics, and morphology by studying a second language. For this reason, some teachers and researchers manifest that phonology is the science which study the real production of sounds with the proper stress and intonation patters in the field of linguistics (Saidi, A. 2017).

Furthermore, the pronunciation skill is constructed by these three keys: intelligibility, comprehensibility and accentedness. Intelligibility (the extent to which a listener understands a speaker's intended message) comprehensibility (the amount of work required for a listener to grasp L2 speech), and accentedness (the degree of variation from an expected accent) (Munro, 2020).



The pronunciation is a critical component of language proficiency, often poses challenges for beginners, as it requires both listening and speaking practice. Traditional classroom instruction may not always provide sufficient opportunities for individualized pronunciation practice due to time constraints and large class sizes. As a result, many educators and researchers are investigating whether apps like Duolingo can serve as an effective tool to support pronunciation development, particularly for A1-level students who are in the early stages of learning a new language.

This research area is important because accurate pronunciation contributes to effective communication, helping learners build confidence and reducing misunderstandings in real-world conversations. Understanding the role of Duolingo in pronunciation improvement can provide insights into how digital tools can complement traditional teaching methods and enhance language learning outcomes. Without a doubt, nowadays the education has facing new challenges by implementing new ways to teach in a more interactive and effective way.

Technology-enhanced language learning, which supports language practice and instruction by utilizing digital tools and resources, is one topic that has attracted a lot of attention. There are many advantages and potential for both teachers and students with technology-enhanced language learning. It gives users access to a variety of interactive exercises, multimedia resources, and real language materials that can help with language learning and increase learners' motivation and engagement. Additionally, technology provides the flexibility of anytime, anywhere learning, allowing students to interact with language learning resources whenever it is most convenient for them. To guide teaching strategies and advance successful pedagogical techniques, it is essential to assess how the



use of technology affects language learning outcomes as it becomes increasingly common in educational contexts (Nurmala, 2023).

1.9. Productive Skills and Language Acquisition

Listening to the language increases the student's ability to turn information into productive skills. The pronunciation of productive skills needs to be improved through a variety of activities and training methods, such as the drilling method, substitution drilling, associating sounds with ideas, and chaining. It is largely the instructor's responsibility to help students pronounce words correctly (Himmayati & Triyoko, 2024).

Better communication is based on correct pronunciation. Some studies were carried out with different Russian and Indian groups, people with different accents. Since pronunciation is a speaking subskill, it becomes the most important thing for ESL students. According to Baily and Hinofotis (1980), pronunciation—rather than grammar or vocabulary—is the flaw that most seriously hinders the communication process in EFL/ESL learners up to a particular proficiency standard. It most likely relies on how "raw sound" in speech is classified or conceptualized. When the mother tongue's dominant sound system already dominates the majority of the mind, it might be challenging to adjust to a new foreign language's sound system (Priya & Kumar, 2020).

1.10. Communication

It is a process in which human beings communicate their ideas and beliefs, also. To communicate throughout the world, English has been recognized as the most spoken language worldwide, in different aspects. Some studies argues that Communicative Language Teaching, is an approach emphasizes in interaction and communication, as the primary principle of it. Research continuously shows that CLT has a good effect on students'



speaking ability. For example, a study by Abdelmageed & Omer (2020) shows that students who get CLT are more confident and fluent in oral communication than students who receive standard instruction. Likewise, Adem & Berkessa (2022) emphasize that CLT exercises like role-playing, group discussions, and task-based learning promote real-world language use and improve students' capacity for self-expression in a variety of settings (Ghafar, A. D. et al., 2023).

A strategy to teaching foreign or second languages is known as a communicative language approach. It highlights that communicative competence, which emphasizes making meaningful conversations and effective language use as the primary focus of all classroom activities, is the ultimate goal of language acquisition (Abdelmageed & Omer, 2020).

1.11. Language

English plays a significant role in worldwide communication, promoting cross-linguistic and cultural connections. There are some important aspects: English is a lingua franca, allowing speakers of different original languages to communicate with one another. This is particularly common in international business, diplomacy, education, and tourism. Using English as a common language for worldwide communication encourages global connectivity, cross-cultural understanding, and global collaboration. English is one of the most often taught second languages internationally. Learning English provides access to diverse cultural resources, such as literature, cinema, music, and online content. This exposure promotes cultural exchange and appreciation as students discover many facets of English-speaking societies (Abdelmageed & Omer, 2020).



Language acquisition is more effective when learners are provided with ample opportunities to be exposed to the language and to use it in authentic communicative contexts. This process closely resembles the way people acquire their first language. Consequently, traditional methods that prioritize grammatical instruction and translation do not typically foster a spontaneous or interactive learning environment. Communicative Language Teaching (CLT) constitutes an innovative pedagogical approach that encourages learners to apply both their general and linguistic knowledge to accomplish meaningful tasks, such as engaging in conversation, negotiating, persuading, and making decisions (Hien, 2021).

Language learners typically measure success by their ability to converse in that language. Learning to talk requires numerous sub-skills. Sub-skills include vocabulary, sentence structure, and proper pronunciation (Jiang, X. et al., 2021).

1.12. Skills and Productive Competence

It is the ability to use the language in grammatical competence, sociolinguistic competence, discourse competence, and strategic competence, while Bachman (1990) divides it into organizational competence and pragmatic competence. According to Kiato & Kiato (1996), CLT is the ability to use language both receptively and constructively in everyday contexts. CLT aims to develop learners' language skills by incorporating general and linguistic knowledge into real-life tasks and activities that simulate real-life situations. This includes maintaining conversation despite limited language knowledge, using language for various purposes and functions, understanding different types of texts, and using appropriate language for different settings (e.g. formal and informal) (Hien, 2021).



1.13. The Relevance of Speaking Skills

According to Leong & Ahmadi (2017), speaking is the way humans produce some sounds to communicate with others. Also, they are programmed to speak before learning to read and write. Humans often interact with language orally rather than in writing. Speaking is an essential ability for engaging in discussion. Speaking English requires proficiency in pronunciation, grammar, vocabulary, fluency, and comprehension. English language proficiency is essential for effective communication with others. Speaking is a method of communicating ideas and messages orally. To encourage students to communicate in English, it's important to practice using the language in real-life situations and ask them to do the same.

1.14. Productive skills in English Learning

Speaking is one of the most important skills in the English Language because it involves the production of grammar patterns and vocabulary that students have previously learned. In learning a second language, in the class, teachers give more importance to grammar, writing, and reading instead of speaking, but this process occurs in this way. Students learn a lot of grammar patterns and other abilities from that. In the real world or life, people need to speak for communication because they can get better job opportunities, and education exchange programs (Leong & Ahmadi, 2017).

1.15. Theoretical Integration: Pronunciation Skill in Language Acquisition

Pronunciation remains a contested issue in Second Language Acquisition (SLA). Historically, it was considered a secondary part of language learning, sometimes overlooked in favor of more obvious linguistic structures like grammar and vocabulary (Derwing & Munro, 2005). Recent research suggests that proper pronunciation is crucial for communicative skills, especially in spoken language.



Pronunciation plays a crucial part in mutual intelligibility, allowing speakers to understand each other even with different accents or phonological patterns. English pronunciation relies heavily on intonation and stress patterns, which convey meaning. A shift in stress can alter the meaning of a sentence or word, such as "record" (noun) vs. "record" (verb). Celce-Murcia, Brinton, and Goodwin (2010) emphasize the importance of understanding these elements for precise and natural communication in conversation. Learning English pronunciation can be challenging for L2 learners, especially in non-English-speaking situations (Tonoyan & Tadevosyan, 2020).

1.16. Dimensions of Pronunciation skill

Phonemic Accuracy: Linguistics includes phonetics as one of its branches. It is a crucial component of language learning, particularly for EFL students studying English. Phonetics is the general study of the characteristics of speech sounds. The study of a language's sounds without considering whether or not those sounds serve as a distinguishing factor in meaning is known as phonetics (Himmayati & Triyoko, 2024).

The proper way to teach the sounds of a foreign language has taken many years, until the International Phonetic Alphabet (IPA) was suggested as one of the most important solutions to master the correct sounds. However, the teaching of pronunciation is focused on the study of the physical characteristics of sounds, as well as their location and approach to vocalization. Then, the process of phonemic accuracy occurs, for example, spoken sounds are divided into vowels and consonants in any description of the English sound system. Consonants can be classified according to the articulation movements of the mouth (bilabial, dental, alveolar, palatal, velar), the type of airstream, the location and motion of the tongue, and whether or not the voice is used (voiced, voiceless, plosive, affricate, fricative, nasal, lateral). Vowels, on the other hand, are primarily characterized in terms of lip rounding and



tongue position. Given how crucial they are in teaching pronunciation, these thorough phonetic descriptions are not arbitrary (Saidi, 2017).

Word Stress and Intonation: learning how to pronounce or make sounds in English is challenging, because a foreign voice or accent has unique sounds that are unique for each language. Awareness-raising Activities are pronunciation training methods that emphasize developing the ability to emphasize speech sounds that indicate various meanings (such as intonation, rhythm, specific word rhyming, and distinct sounds) or phonological awareness (Himmayati & Triyoko, 2024).

Segmental and Suprasegmental Features: to talk effectively, students must learn how to enunciate the words. Speaking in English requires proper pronunciation, which is a method of saying or reciting language. The process by which speakers produce the sounds that give meaning when they speak is known as pronunciation, and it entails (Himmayati & Triyoko, 2024).

A Chinese study shows that research between Chinese and Native speakers of the recognition of phonemes, the smallest units of sound that can distinguish meaning in a language, is a component of segmental PA. The phonological characteristics of language, including stress, intonation, pitch, timing, and meter, that go hand in hand with segmental phonology, are all included in suprasegmental PA. When learning to read an alphabetic script in English, native speakers' word reading abilities are strongly correlated with their segmental and suprasegmental phonological awareness (PA). The sounds and meaning of oral language are related (Jiang, Y. et al., 2024).

Comprehension: comprehending a second language speech requires a certain amount of work on the part of the listener. They maintained that general comprehensibility



or ease of interpretation was the "main factor involved in judgments of pronunciation. Nevertheless, even with content control, it is impossible to conclude that the focus of a listener's assessment of comprehensibility, whether accent and intelligibility or accent and comprehensibility, may differ slightly from their sense of accent (Munro & Derwing, 2020). Also, comprehensibility

Fluency and Naturalness: Dell Hymes suggests that the primary purpose of learning a second language is to enhance communicative competence. The phrase describes a language learner's capacity to understand not only the principles of grammar for creating proper sentences, but also phonology—the correct way to pronounce words—and sociolinguistic competence—the knowledge of when and when to use words. Individuals learning English focus on the stress placed on specific words in a sentence (stress) and the intonation used when speaking. Accurate pronunciation and fluency in speech are the main goals of phonetics (Priya & Kumar, 2020).

1.17. Linguistic skills

A study on the effectiveness of Duolingo states that Duolingo does not explicitly teach pronunciation. Instead, it relies on students to acquire the skill implicitly by listening to and occasionally repeating or producing words or phrases (Taylor, C., & Huang, C., 2024).

In conclusion, this chapter has provided a solid theoretical foundation for evaluating the use of Duolingo as a tool to improve pronunciation abilities in A1-level English learners by combining gamification and Mobile-Assisted Language Learning (MALL) techniques. According to the literature review, technological breakthroughs such as Duolingo have drastically revolutionized the landscape of language teaching by providing interactive,



adaptive, and accessible resources that help students learn essential language abilities, including pronunciation.

Duolingo's design incorporates principles from well-established language teaching methodologies, including the Grammar-Translation Method, the Audiolingual Method, and digital game-based learning. This integration allows learners to practice and enhance their pronunciation through engaging, game-like activities. Empirical studies have demonstrated that such strategies can increase student motivation, participation, and confidence which are the factors that are essential for successful language acquisition, particularly for beginners, during the initial stages of learning.

The chapter also emphasizes the multidimensionality of pronunciation, which includes segmental (individual sounds) and suprasegmental aspects (stress, intonation, rhythm), as well as the ideas of intelligibility, comprehensibility, and accentuation. Accurate pronunciation is critical for communicative competency because it immediately affects learners' capacity to be understood and comprehend others in real-world situations.

Furthermore, the combination of MALL with gamification not only coincides with current educational technology trends but also provides practical advantages such as flexibility, instant feedback, and improved learner autonomy. The review of relevant studies suggests that while Duolingo effectively supports vocabulary and reading skills, its potential to enhance pronunciation, especially for beginners, warrants further empirical investigation.

Therefore, this theoretical basis justifies the focus of the present research on evaluating Duolingo's effectiveness in improving pronunciation among A1-level learners. By leveraging innovative digital tools within sound pedagogical frameworks, educators can



better address the challenges of pronunciation instruction and contribute to more successful language learning outcomes.

CHAPTER II: METHODOLOGY

In this section of the research methodology, it was taken into account the rise in the use of technology in the teaching/learning process, focus on foreign languages, due to its impact on the different learning dynamics and methodologies currently in use. Under these considerations, language applications such as Duolingo represent an opportunity to apply a self-directed educational process, mainly due to their easy accessibility, low costs, and availability for most mobile devices, which is ideal for students at the initial levels.

Similarly, this application stands out for its use of gamification principles, which involve micro-learning processes and the ability to generate immediate feedback, features that can be useful in learning English. Although Duolingo is one of the most widely used applications worldwide for learning English, there is limited empirical evidence about its effectiveness, so this study aims to highlight the benefits of using technology in university academic settings.

It is important to note that one of the aspects on which the application focuses is pronunciation, which is considered a key factor in educational skills, as it directly influences the process of linguistic exchange, confidence in expressing oneself, and, of course, intelligibility. In the case of this study, by focusing on a population that is in the early stages of learning English, referred to as A1 according to the Common European Framework of Reference for Languages, students are in the early stages of discovering, imitating, and



automating the phonetic principles of the language. Therefore, if they use technological resources that expose them to high-quality auditory models and oral production, they can consolidate an efficient foundation for learning English.

2.1. Research Objectives

2.1.1. General objective

To assess the impact of the Duolingo app on the pronunciation skills of first-level English students at the English Institute, using a rubric to evaluate performance in pre- and post-tests at the University of Cuenca.

2.1.2. Specific objectives

- To design and implement Duolingo techniques to improve pronunciation in students of the first level of English.
- To measure the effectiveness of using Duolingo as a tool to improve the pronunciation among students of A1 level.
- To evaluate the efficacy of Duolingo in improving pronunciation skill of the students from A1 level of English in the university of Cuenca.

2.2. Research approach

For this research, the mixed method was applied: quantitative data regarding numbers taken from the diagnostic test, and qualitative data obtained from students' surveys. Mixed methods were used in this research because a diagnostic test was carried out at the beginning of the course, then it indicated the proficiency level of students through numbers. From this point, the teacher had real results to apply the Duolingo application in the classroom. After that, the quantitative method was focused on measuring and



quantifying the use of Duolingo by students to improve their pronunciation skills. This research method relies on mathematically based approaches for data collecting and analysis (Almalki, 2016).

On the other hand, the qualitative method was used to observe the students' perceptions. Also, qualitative research aims to understand how people or groups interpret social or human problems. Inductive qualitative methods assume reality is a social construct, variables are complex and interwoven, subject matter is important, and data is collected from an insider's perspective (Almalki, 2016).

2.3. Scope of the research

The scope of this research has been considered longitudinal in nature due to the use of a pretest and a posttest, which determined the evolution of English language learning after using the Duolingo app for a defined period. Unlike cross-sectional studies, the longitudinal design favors the observation and measurement of the variables under study during the time established in the research, which, in this case, spans a period of six months, allowing for the definition of patterns and trends in terms of the effectiveness of the digital tool in foreign language learning.

In the context of learning a foreign language such as English, the application of a longitudinal approach is beneficial, since the process of teaching and learning a language and pronunciation skills is progressive and cumulative, and is conditioned by contextual, affective, and cognitive factors.

In this study, the longitudinal cut is presented through the application of a pretest and a posttest, in which a video presentation on the present simple tense is graded using a rubric designed for this purpose and based on the Likert scale. Although the period between



the pretest and posttest may be relatively short, it is highly significant in the context of early English language learning, where it is known that the first few weeks are key to the proper acquisition of knowledge and skills for expressing basic phonetic patterns, minimizing possible interruptions and confusion with the native language, and developing articulation routines.

The results obtained in the pretest allowed to identify the students' initial skills with respect to criteria such as pronunciation accuracy, intonation and rhythm, fluency in communication, comprehension of spoken language situations, and fluency in the pronunciation of new words. With the initial results obtained, the Duolingo app was implemented to further develop pronunciation skills, with students having regular sessions with Duolingo, ensuring high exposure to native audio.

Once the lesson plans associated with the present simple tense had been completed, a post-test was conducted using another similar video in which concepts associated with the present simple tense were applied. With the results of the post-test, it was possible to compare the progress of the students after using Duolingo.

2.4. Research design

In accordance with the mixed approach and longitudinal scope, a quasi-experimental design was defined, with a single group of participants in a pretest and a posttest, since the implementation of the two measurements, together with the controlled use of Duolingo, made it possible to develop a comparison in terms of English pronunciation skills.

Similarly, the quasi-experimental design was selected because it is highly applicable to the study context, which consists of first-year English students at the University of Cuenca. Thanks to the use of a mixed approach, it was possible to determine not only the

degree of improvement in the students' present simple pronunciation skills, but also their criteria and perceptions of this modality, thereby enriching the interpretation of the results.

It should also be noted that, although this is not a purely experimental process, the results obtained suggest that decisions should be made to improve teaching activities in relation to English. It was also not necessary to apply randomization or establish control groups, as the survey provided further insight into the interaction between the Duolingo tool and the students, its use, efficiency, and effectiveness in terms of pronunciation learning.

2.5. Study population

The study population included 27 first-level English students (A1 group) in the 2024–2025 academic year. Since the population is small, sampling was not required, and the results represent the entire group.

The criteria for selecting participants included being enrolled at the University of Cuenca, regularly attending English classes, and voluntarily agreeing to participate in the research. To this end, they were informed of their participation in a timely manner, with a detailed explanation that their personal data and information would not be shared at any time and that there was no academic or personal risk involved, so that they could participate. All of the students were more than 18 years old, so you did not need any permission from their legal representatives.

2.6. Technique and instrument for gathering information

To gather information about the effectiveness of using Duolingo to improve English pronunciation in the present simple tense, validated techniques and instruments were used



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to identify the students' performance level with regard to pronunciation before and after using Duolingo.

Both the pretest and posttest techniques were based on the evaluation of a video in which each student orally conveyed aspects associated with the present simple tense in English. Phonetic aspects related to pronunciation accuracy, intonation, and rhythm, communication fluency, comprehension of spoken language situations, and fluency in the pronunciation of new words were measured using the analytical grading rubric, for which the foundations established in the Common European Framework of Reference for Languages (CEFR) were used.

At the same time, a survey technique was applied, together with a questionnaire consisting of 10 questions focused on phonetic accuracy, accent and intonation of words, segmental and suprasegmental characteristics, comprehension, and fluency and naturalness. In addition, the questions were designed according to the Likert scale in order to gain a better understanding of the students' perceptions of the use of Duolingo.



2.7. Operationalization of variables

Table 1 *Conceptualization and operationalization of variables - independent variable*

OPERATIONAL MATRIX OF VARIABLES					
TOPIC: Use of Duolingo as a tool to improve pronunciation among students of A1 level.					
Objective: To improve pronunciation skill among students of A1 level through the use of Duolingo, at the University of Cuenca, Azuay province.					
INDEPENDENT VARIABLE	CONCEPTUAL DEFINITION	DIMENSIONS	INDICATORS	ITEMS FOR INSTRUMENTS DESIGN SURVEY	SCALES
DUOLINGO AS A GAMIFICATION TOOL	Duolingo is a free app created by Luis Von Ahn and Severin Hacker in November 2011. Its slogan is “Free language education for the world.” According to its website, it has more than 30 million registered users. It offers several languages for English speakers as well as others for non-English speaker. (Munday, 2016, p 85).	Individual learning	Autonomous learning Autonomous learning individual feedback	Q 1. How useful is autonomous learning using Duolingo?	Very useful Somewhat useful Neutral Not very useful Not useful at all
		Social and Collaborative learning	Team work	Q 2. How can technology facilitate social and collaborative learning though Duolingo?	Through discussion forums Group study sessions Peer-to-peer feedback Collaborative projects All of the above
		Accessibility and Usability	Accessibility	Q 3. How often do you interact in Duolingo weekly?	Daily 3-4 times a week 1-2 times a week Occasionally Never
		Effectiveness in Language Learning	Evaluating learners' progress	Q 4. Why is it important to assess the learners' progress?	To track improvement To identify areas of weakness To provide personalized feedback To adjust teaching strategies All of the above



		Learning technological tools	Efficiency to learn languages	Q 5. How efficient is Duolingo in learning English?	Extremely efficient Quite efficient Moderately efficient Slightly efficient Not efficient at all
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Note. Elaborated by Rosa Ramón

Table 2 *Conceptualization and Operationalization of Variables - Dependent Variable*

OPERATIONAL MATRIX OF VARIABLES					
TOPIC: Use of Duolingo as a tool to improve pronunciation among students of A1 level					
Objective: To improve pronunciation skill among students of A1 level through the use of Duolingo, at the University of Cuenca, Azuay province.					
DEPENDENT VARIABLE	CONCEPTUAL DEFINITION	DIMENSIONS	INDICATORS	ITEMS FOR INSTRUMENTS DESIGN SURVEY	SCALES
	Pronunciation is an important part of linguistics competence but it is considered a less relevant ability in the communicative approach. However, pronunciation has sounds and intonation within the language. Also, when learners are acquiring the L2, they have to control a variety of sounds. (Nair, 2017)	Phonemic Accuracy	Accuracy of sounds	Q 6. - Learners can pronounce most words correctly after practicing in Duolingo?	Strongly agree Agree Neutral Disagree
		Word Stress and Intonation	Appropriate intonation	Q 7. - Can students pronounce with appropriate intonation in the conversations?	Always Often Sometimes Rarely Never



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LEVEL**

STUDENTS' Pronunciation skill	Segmental and Suprasegmental Features	Pronunciation accuracy	Q 8. - Can learners communicate pronouncing well?	Very effectively Effectively Moderately effectively Ineffectively
	Comprehension	Clear communication	Q 9. Can students comprehend any spoken situation?	Always Often Sometimes Rarely Never
	Fluency and Naturalness	Fluency and naturalness in pronunciation	Q 10. - Can they pronounce the new words fluently?	Very fluently Fluently Moderately fluently Not very fluently

Note. Elaborated by Rosa Ramón

2.8. Description of data processing

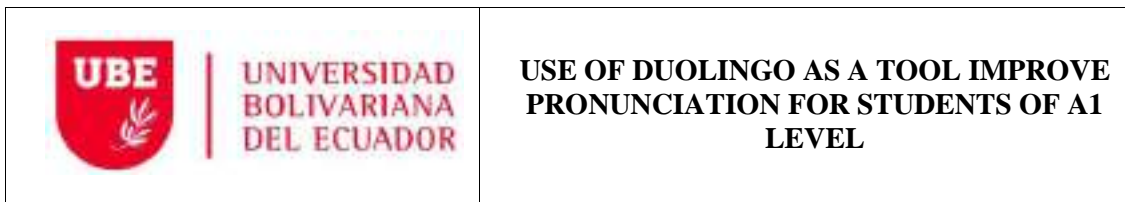
The data collection procedure began with the assessment of the students' video presentations, which were graded using the assessment rubric, with a focus on the pronunciation of the present simple tense. The rubric used is shown below.:

Table 3 *Rubric for Assessing Duolingo Pronunciation Improvement*

Criteria	Exceptional (4)	Proficient (3)	Basic (2)	Limited (1)
Accuracy of Pronunciation	Pronounces nearly all words accurately, demonstrating clear understanding and mastery of pronunciation rules.	Pronounces most words accurately, with occasional minor errors.	Pronounces some words accurately, but with noticeable errors.	Pronunciation errors significantly hinder comprehension.
Intonation and Rhythm	Consistently uses appropriate intonation and rhythm in conversations, enhancing clarity and fluency.	Generally, uses appropriate intonation and rhythm, contributing to overall understanding.	Occasionally uses appropriate intonation and rhythm, but inconsistently.	Rarely uses appropriate intonation and rhythm, leading to misunderstandings.
Fluency in Communication	Communicates thoughts and ideas fluently, with minimal pauses and hesitations.	Communicates thoughts and ideas reasonably fluently, with occasional pauses and hesitations.	Communicates thoughts and ideas somewhat fluently, with noticeable pauses and hesitations.	Communication is often halted due to pauses and hesitations.
Comprehension of Spoken Language Situations	Demonstrates high comprehension of spoken situations, accurately interpreting most dialogues and instructions.	Demonstrates adequate comprehension of spoken situations, understanding main points but sometimes missing nuances.	Demonstrates limited comprehension of spoken situations, struggling to understand main points.	Demonstrates poor comprehension of spoken situations, often misunderstanding key information.
Fluency in Pronouncing New Words	Pronounces new words fluently and accurately, incorporating them seamlessly into speech.	Pronounces new words fairly fluently and accurately, with minor hesitations.	Pronounces new words with effort, often hesitating or mispronouncing.	Pronunciation of new words is consistently inaccurate or hesitant.

Note. Elaborated by Rosa Ramón

Next, during the period from February 2024 to July 2024, the Duolingo app was implemented to further develop pronunciation skills, with a primary focus on the present



simple tense. Finally, in July 2024, the post-test was conducted, which consisted of evaluating the presentation through a video.

In the case of the surveys, which were developed using the Likert scale, the results were statistically analyzed using Microsoft Excel in order to identify, in a descriptive manner, the perspective of the study participants regarding the benefits of using Duolingo for learning English, especially in terms of pronunciation.



CHAPTER III: RESULTS

This section presents the main results of the pretest, posttest, and survey administered to all 31 students who voluntarily participated in the study. With this data, it was possible to determine the effectiveness and efficiency of using Duolingo as a tool to improve pronunciation in first-level English students.

3.1. Pre - test and pos - test results

As can be seen in the table below, the pretest yielded an average score of 7.70, suggesting that students had a basic level of pronunciation prior to using the app. After using Duolingo to improve pronunciation skills, the post-test revealed an increase in the average score to 9.06, the table of the results of pre- and post-tests can be seen in the table below.

As for the median, the pretest score was 8.00, while the posttest score rose to 9.00, marking a difference of +1.00. In the case of minimum values, one student obtained a score of 5 in the pretest, while in the posttest, this indicator increased to 8, suggesting a significant improvement in pronunciation skills.

However, it is important to note that one student (#3) showed a decrease in the post-test of -1.00 points, as the student initially obtained a score of 10.00 and dropped to 9.00, it could be considered that they experienced the ceiling effect, that is, they may have shown a decrease in concentration, high levels of anxiety in the recording of the second video, natural variability, etc. As this is an isolated case, it does not negate the overall trend toward improvement in pronunciation, as it reinforces the fact that 10 students obtained a score of 10 on the post-test.



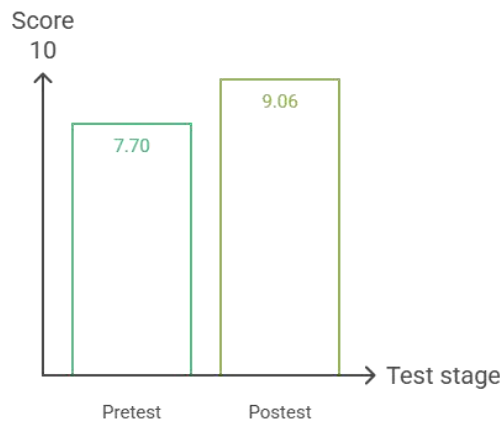
Table 4 *Descriptive results*

Factor	Pretest	Posttest	Diferencia
Media	7.70	9.06	+1.36
Mediana	8.0	9.0	+1.0
Desviación estándar	1.15	0.85	1.03
Mínimo	5.0	8.0	-1.0
Máximo	10.0	10.0	+3.0
Rango	5.0	2.0	4.0

Note. Elaborated by Rosa Ramón

The following figure shows the average increase in pre-test and post-test scores, revealing a significant increase of 1.36 points, which demonstrates that the use of the Duolingo app has been effective in improving English pronunciation.

Figure 4 *Pre-test and post-test average*



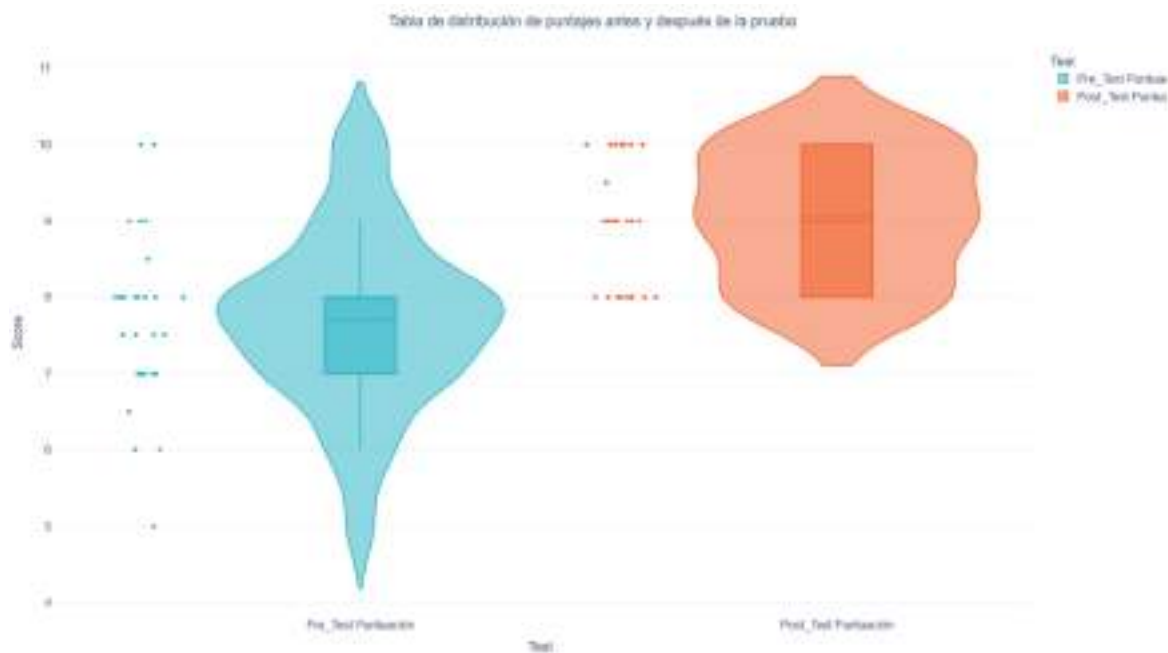
Note. Elaborated by Rosa Ramón

The following graph shows the distribution of scores obtained in the pre-test and post-test, with an initial central tendency of 7.70 in the pretest (blue), increasing to 9.06 in the posttest (orange), while the dispersion of the scores decreased from 1.15 to 0.81, suggesting superior performance after using Duolingo. In other words, the graph shows a



distribution with an upward trend, which means that the students improved their pronunciation, as their scores show less dispersion compared to the pretest.

Figure 5 Pre-test and post-test distribution

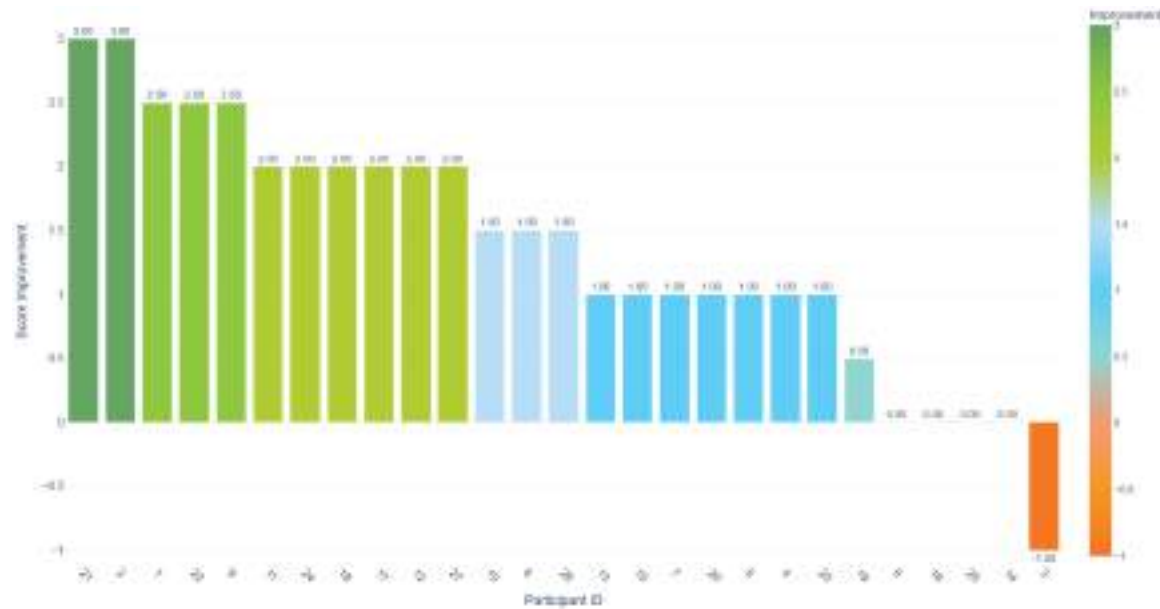


Note. Elaborated by Rosa Ramón

As can be seen in the following figure, the improvement of each student in pronunciation after using Duolingo is shown, highlighting in order which participant benefited most from using the application, while on the right-hand side, those who did not improve or even scored lower in the post-test are shown. It was observed that the best score was +3 points, while one student showed a decrease of -1 point. However, overall, there was an increase of +1.36 points across the entire study population. With these results, it can be generally concluded that the results were positive after using Duolingo for pronunciation.



Figure 6 Improvement in individual score

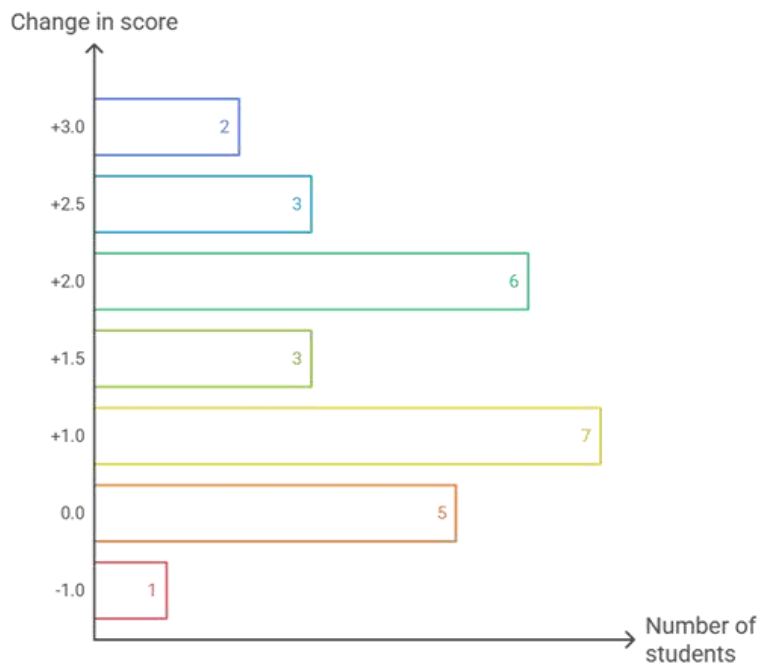


Note. Elaborated by Rosa Ramón



Finally, in the last figure, you can see the increase and decrease in students' scores after using Duolingo, as evidenced by their grades, where it is noted that seven students increased their scores by +1 point, six students increased their scores by +2 points, and two students increased their scores by +3 points. Similarly, it can be seen that one student's score decreased by -1 point after using Duolingo.

Figure 7 Histogram of differences



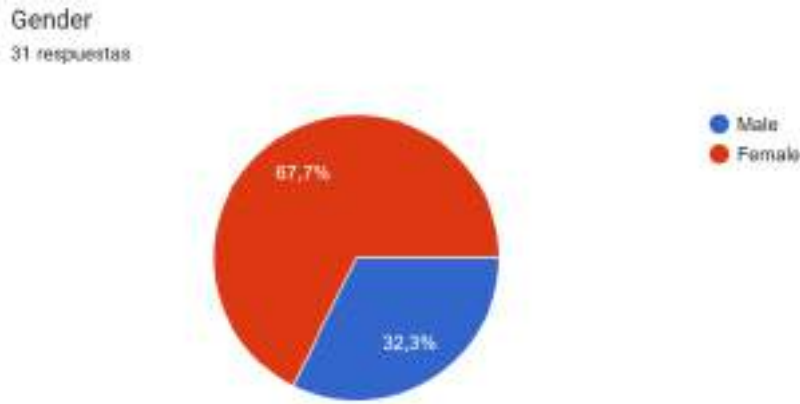
Note. Elaborated by Rosa Ramón

3.2. Survey results

With regard to the gender of participants, 67.7% are female, while the remaining 32.3% are male. These data reveal that there is a 2:1 ratio with a predominance of women in the course considered for the research, as shown in the following figure:



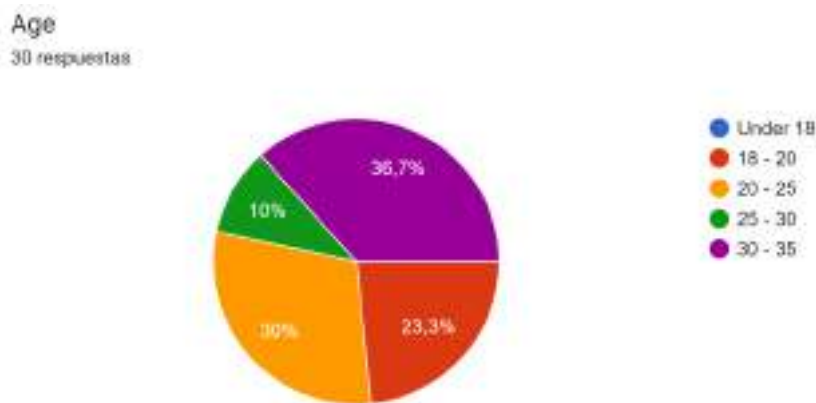
Figure 8 Gender



Note. Elaborated by Rosa Ramón.

With regard to the age of participants, 36.7% are between 30 and 35 years old, 30% are between 20 and 25 years old, 23.3% are between 18 and 20 years old, while the remaining 10% are between 25 and 30 years old. These results show that most students are between 30 and 35 years old, although the other age groups are not far behind, as can be seen in the figure below:

Figure 9 Age



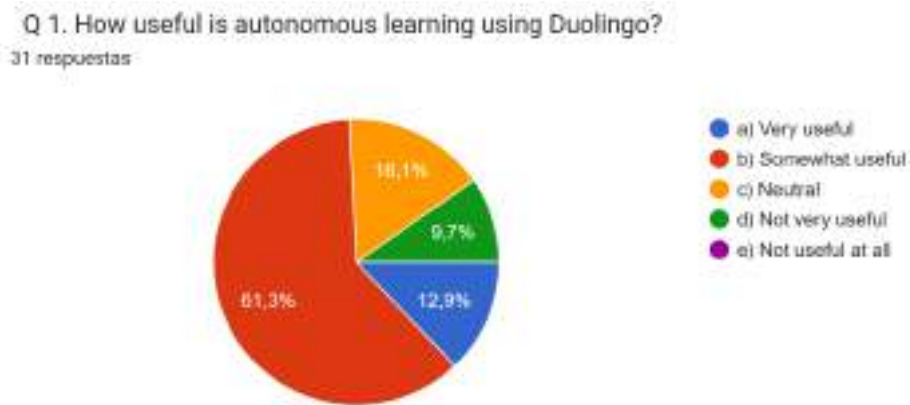
Note. Elaborated by Rosa Ramón.

Regarding the usefulness of self-directed learning with Duolingo, 61% of participants consider it somewhat useful for learning pronunciation, 16.1% consider



themselves neutral on the subject, 12.9% indicate that self-directed learning with Duolingo is very useful for improving English pronunciation, while the remaining 9.7% consider it not very useful in terms of improving pronunciation. These data suggest that for more than half of the participants, the use of Duolingo is important for improving their English pronunciation, which highlights the importance of using this app, especially at the initial levels, as shown in the following figure:

Figure 10 *Autonomous learning using Duolingo*



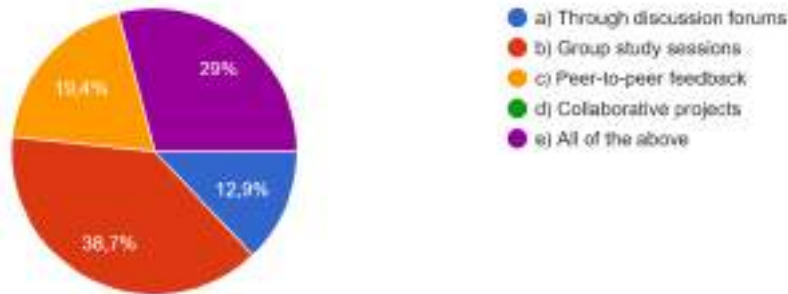
Note. Elaborated by Rosa Ramón.

Regarding how technology can facilitate social and collaborative learning through Duolingo, 38.7% of participants indicated the option of group study sessions, 29% of participants selected the option of all of the above, 19.4% opted for the option of feedback and comments among peers, while the remaining 12.9% opted for the option of discussion forums. Based on these criteria, the Duolingo app is considered more efficient for group study sessions, as it allows for information sharing and peer feedback to correct pronunciation issues.



Figure 11 social and collaborative learning though Duolingo

Q 2. How can technology facilitate social and collaborative learning though Duolingo?
31 respuestas

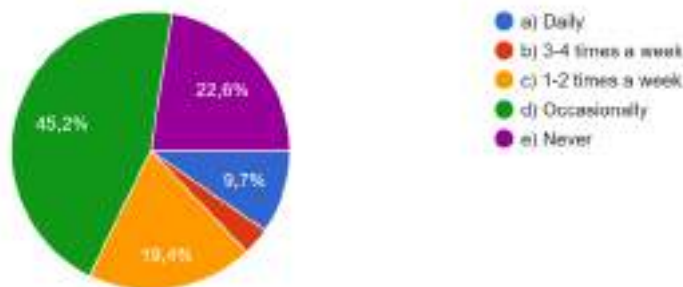


Note. Elaborated by Rosa Ramón.

With regard to the frequency with which students interact with the app on a weekly basis, the results show that 45.2% of participants opted for the occasional option, 22.6% indicated that they never use the app, 19.4% indicated that they use the app once or twice a week, 9.7% use it every day, while the remaining 3.2% use Duolingo three to four times a week. These results indicate that almost half of the participants use the app occasionally, while a small percentage use Duolingo every day. Therefore, it is important to develop strategies to motivate students to use educational tools such as Duolingo to reinforce foreign language learning.

Figure 12 frequency of interaction with Duolingo

Q 3. How often do you interact in Duolingo weekly?
31 respuestas

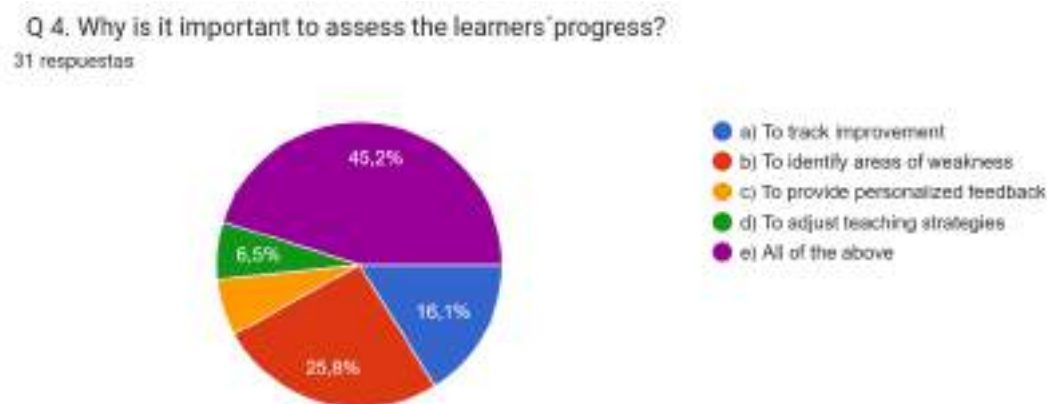


Note. Elaborated by Rosa Ramón.



With regard to the importance of assessing student progress, 45.2% of participants selected the option “all of the above,” meaning that it is important to monitor progress, identify weaknesses, provide personalized feedback, and adjust teaching strategies. 25.8% selected the option of identifying weaknesses, 16.1% indicated that it is important to track improvement, 6.5% chose the option of adjusting teaching strategies, while the remaining 6.5% chose the option of providing personalized feedback. These results reflect that the majority of students agree that assessing student progress is important for all response options, so they consider assessment to be an integrative approach with different purposes that allow them to understand and improve teaching-learning processes and not just assign a grade to the student.

Figure 13 *importance of assessing student progress*



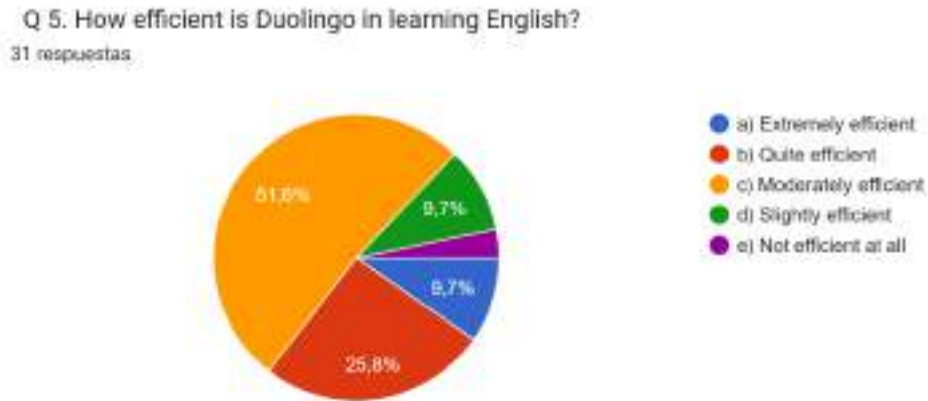
Note. Elaborated by Rosa Ramón.

Regarding the efficiency of the Duolingo app for learning English, 51.6% indicated that the app is moderately efficient, 25.8% consider it quite efficient, 9.7% consider it extremely efficient, another similar percentage (9.7%) consider it slightly efficient, while the remaining 3.2% consider it not efficient at all. These results suggest that for half of the participants, the app is moderately efficient, which leads to a rethinking of the educational



methodologies implemented, so that the technological resources currently available can be used efficiently, and students can get the most out of them for their own benefit.

Figure 14 *Duolingo's effectiveness for learning English*

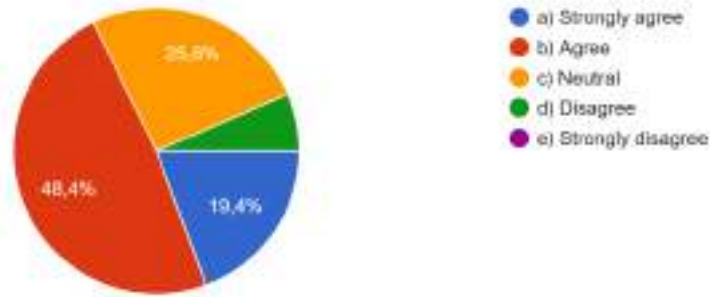


Note. Elaborated by Rosa Ramón.

When asked whether students can pronounce most words correctly after practicing on Duolingo, 48.4% of participants agreed with this statement, 25.8% remained neutral, 19.4% strongly agreed, and 6.5% disagreed. These results show that almost half of the participants agreed that they were able to pronounce most words correctly after using Duolingo, while almost a quarter strongly agreed with this statement. However, there is still a significant percentage who have problems using the app to improve their pronunciation. Based on these criteria, strategies can be implemented to improve the Duolingo experience in terms of intonation.

Figure 15 *Pronunciation after using Duolingo*

Q 6. - Learners can pronounce most words correctly after practicing in Duolingo?
31 respuestas

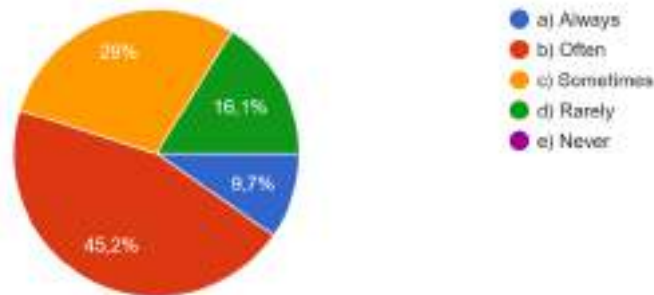


Note. Elaborated by Rosa Ramón.

With regard to whether students can pronounce words with the correct intonation in conversations, 45.2% indicated that they often achieve the correct intonation, 29% chose the option “sometimes,” 16.1% selected “rarely,” while 9.7% chose “always.” These results suggest that almost half of the participants can already pronounce with the appropriate intonation in conversations, while a small proportion have already mastered it in all cases. However, there is a significant percentage that still has shortcomings in this area, so it is important to take the necessary measures to mitigate these weaknesses.

Figure 16 *Proper intonation in conversations*

Q 7. - Can students pronounce with appropriate intonation in the conversations?
31 respuestas

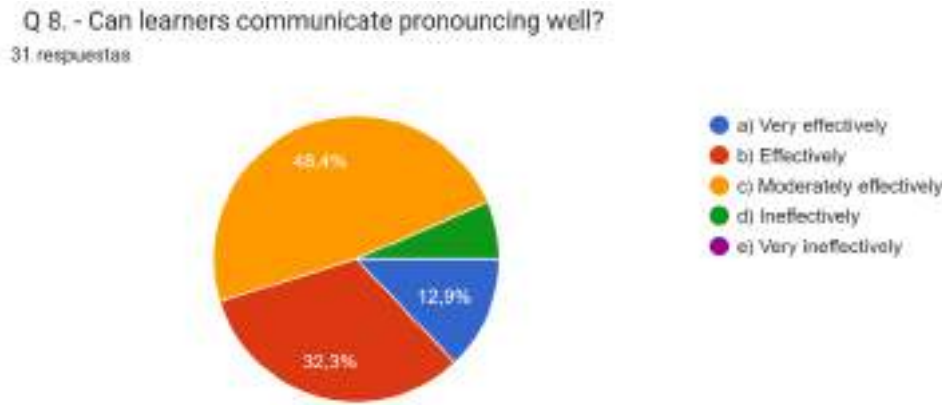


Note. Elaborated by Rosa Ramón.



With regard to whether students can communicate effectively through pronunciation, 48.4% consider it moderately effective, 32.3% consider it effective, 12.9% consider it very effective, while 6.5% opted for the ineffective option. These results indicate that, although a large proportion of students show effective progress in English pronunciation, there is still a significant percentage who need to strengthen their pronunciation skills in order to improve communication processes and make them more fluid.

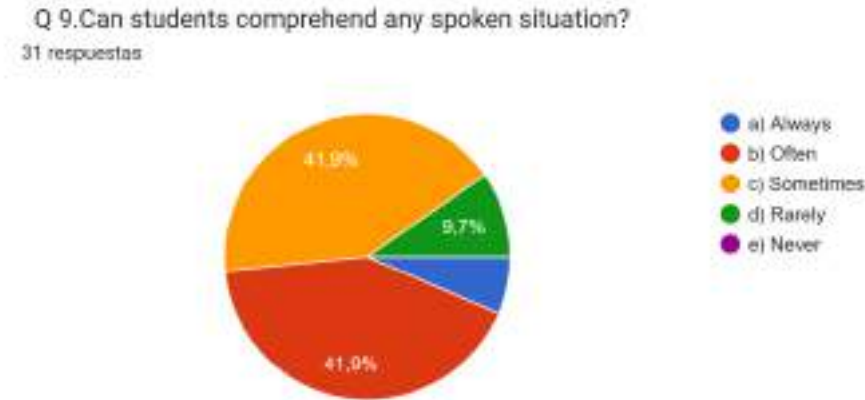
Figure 17 *Pronunciation in conversation*



Note. Elaborated by Rosa Ramón.

In terms of the level of comprehension of any spoken situation, 41.9% selected the option “sometimes,” another 41.9% selected “often,” 9.7% chose “rarely,” while the remaining 6.5% opted for “always.” These results suggest that the vast majority of participants have a basic level of understanding of different spoken situations. Although there is a small percentage who understand all situations, it is necessary to emphasize practical exercises where students can hold conversations in English until they can improve their understanding of the language in a fluent manner.

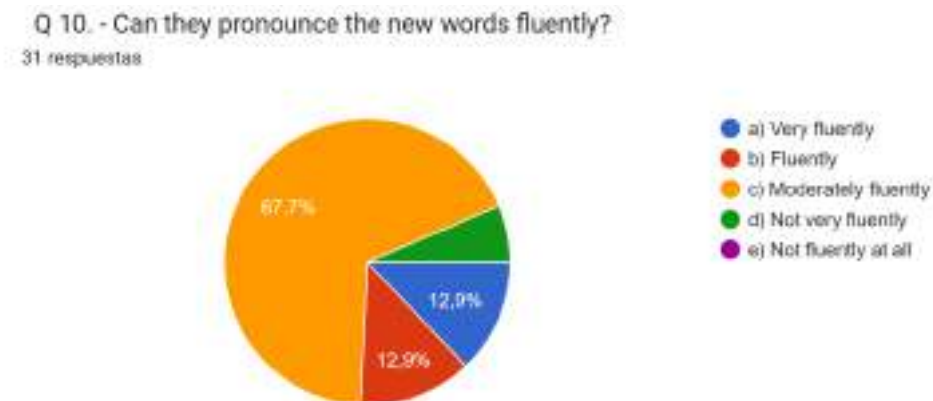
Figure 18 *Level of comprehension in any spoken situation*



Note. Elaborated by Rosa Ramón.

Finally, in the last question about the level of fluency in pronouncing newly learned words, 67.7% of participants selected the option “moderately fluent,” 12.9% chose “fluent,” another 12.9% chose “very fluent,” while the remaining 6.5% chose the option “not very fluent.” These results reflect that a large percentage of students have a good level of learning of new words and their corresponding pronunciation in the English language. However, there are still students who find it difficult to learn new words in English, so it is important to reinforce the inclusion of new terms to increase their familiarity.

Figure 19 *Pronouncing new words fluently*



Note. Elaborated by Rosa Ramón.



Following the results obtained in the pretest and posttest, Duolingo proved to be highly effective in improving pronunciation, as the average score rose from 7.70 points, which represents students with basic pronunciation skills and certain normal difficulties for their level, such as rhythm, intonation, and sounds not found in the Spanish language, to an average score of 9.06 points, representing an improvement of +1.36 points in relation to the time the application was implemented. It is also important to note that, in addition to the majority of students improving or maintaining their pronunciation levels, 10 students achieved a post-test score of 10 points, i.e., the maximum score, which reinforces and highlights that this application is a great contribution to learning and improving English pronunciation, especially for students who are at a beginner level.

In addition to the results of the pretest and posttest, it was possible to consider the students' perspective on the use of the Duolingo app through a survey, which showed that, for more than half of the participants, the use of the app had benefits in improving pronunciation with regard to the present simple tense. In addition, a small percentage felt that the app was not very useful for them in this area. Therefore, it is important to take these two points of view into consideration so that strategies can be used in future implementations to encourage the continued use of this app.



Conclusions

Once this research aimed at identifying the benefits of using Duolingo as a technological educational resource for learning English pronunciation among first-year English students at the University of Cuenca has been completed, contributing updated evidence on the role of technological resources as tools for teaching and learning processes, in this case, the English language for students at the first level, the measurement of impact through this quasi-experimental study emphasized in the phonetic part, allows us to conclude that:

A relevant and accessible educational strategy has been implemented for the study population, which presented a systematic and easy-to-replicate structure, intentionally selecting lessons provided by the application (Daily Routine, Habits, and Verbs) that promote the practice of present simple intonation, considered a basic topic in learning English at the A1 level, since it is the foundation for being able to hold conversations fluently.

In conclusion, it can be said that the implementation of Duolingo for learning the pronunciation of the present simple tense in English was highly effective and efficient, bearing in mind that it must have a systematic, orderly structure and that the teacher can guide its correct use, especially in matters of pronunciation. Although this tool is not the definitive resource for learning English, it can complement and be part of the teaching-learning processes within the initial levels of English language learning, provided that it is developed within the curriculum in order to take advantage of its benefits of autonomous and gamified work.



Recommendations

Due to the evidence of the use of Duolingo for learning the pronunciation of the English language, it is recommended that you have pedagogical criteria in accordance with the objectives and learning outcomes proposed as part of the Subject Study Program, in the cognitive, procedural and actitudinal domains, so that it presents a systematized structure and is implemented in an orderly and effective way.

To this end, it is recommended that you take advantage of the lessons provided by Duolingo to promote pronunciation exercises in the present simple through the use of the application in sessions distributed on a weekly basis, and have as evidence of progress the record provided by the application. In this way, the use of Duolingo would be an active part within the class training system, promoting its use on a constant basis.

To this end, it is recommended the periodic training of teachers who teach the English subject, in the use of applications such as Duolingo for its implementation within the classroom, teaching them about the resources available, so that they can take full advantage of and can promote the use of active teaching methodologies such as gamification, flipped classroom, etc., where students tend to apply greater autonomy for language learning. With this knowledge, teachers will be able to guide their students to the effective use of Duolingo, reducing the risk of repetitive and mandatory use, and turning it into a tool that motivates pronunciation practice.

Similarly, in order to support the results of this research and their validity in other educational contexts, it is recommended to define an evaluation process that addresses the



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use of recordings, both audio and video, as evidence of progress in pronunciation. It is also suggested that some evaluations involve teachers or external experts who can provide criteria for students' pronouncements.

Although the heading presented in this research can be used in other contexts, it is recommended to adapt it to educational needs and to apply periodic evaluations that increase in difficulty according to the subjects covered.



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