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UNDERGRADUATE PROGRAM**

RESEARCH REPORT

**MOBILE APPLICATIONS IN THE DEVELOPMENT OF
LANGUAGE SKILLS**

Research report before obtaining the bachelor's degree in National and Foreign
language Pedagogy, English Major

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DECLARATION OF AUTHORSHIP

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

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ENDORSEMENT BY THE RESEARCH PROJECT TUTOR

As Tutor of the Research Work on the title:

“Mobile applications in the development of language skills”, by Choto Iza Irene Avigail and Yépez Masapanta Yesenia Carolina, from the National and Foreign Languages Pedagogy career, I consider that this research report meets the methodological requirements and sufficient scientific-technical contributions to be submitted to the evaluation of the Project Validation Tribunal that the Board of Directors of the Pujilí Extension of the Technical University of Cotopaxi designates, for its corresponding study and qualification.

Pujilí, February 13th 2025



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APPROVAL OF THE TITLE TRIBUNAL

As a Tribunal of Readers, they approve the present Research Report in accordance with the regulatory provisions issued by the Technical University of Cotopaxi, and by the Pujilí Extension; because, the applicants: Choto Iza Irene Avigail; Yepez Masapanta Yesenia Carolina, with the title of the Research Project: **“MOBILE APPLICATIONS IN THE DEVELOPMENT OF LANGUAGE SKILLS”**, have considered the recommendations issued in a timely manner and have sufficient merits to be submitted to the act of defense of the thesis.

For the above reasons, it is authorized to record the corresponding files on a CD, according to institutional regulations.

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Irene & Yesenia

DEDICATION

With all my love and gratitude, I dedicate this thesis to God, whose guidance and strength have sustained me, granting me wisdom, patience, and perseverance. To my parents, my greatest inspiration, for their unconditional love, sacrifices, and unwavering support, and to my family for always reminding me that dedication is worthwhile. To my dear friend Josselyn, whose support and encouragement have been invaluable throughout this journey. This achievement belongs to all of you—thank you from the bottom of my heart!

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I dedicate this work with deep gratitude to God, whose love and wisdom have guided me through every challenge. To my mother, for her strength and unwavering support, and to the memory of my father, whose love still watches over me. To my brothers and niece, for their constant motivation.

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Yesenia.

TECHNICAL UNIVERSITY OF COTOPAXI

PUJILI EXTENSION

THEME: “MOBILE APPLICATIONS IN THE DEVELOPMENT OF LANGUAGE SKILLS”

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ABSTRACT

Mobile applications have revolutionized language learning due to their accessibility, offering a flexible and engaging approach. However, they present limitations that can affect their effectiveness, such as irregular usage and technical issues. This study aims to analyze the use of mobile applications on the development of English language skills in eighth-semester students at the Universidad Técnica de Cotopaxi, evaluating their benefits, limitations, and consequences. The research seeks to identify areas where mobile apps are most beneficial and the obstacles students face when using them. A quantitative, descriptive approach was applied. The technique used was the survey, and the instrument was a questionnaire administered to 31 Language Pedagogy students. The questionnaire, based on the Mobile Learning Experience Questionnaire (Jung, 2018) and the Cognitive Load Inventory (Paas, 1998), consisted of 10 validated closed-ended questions categorized into language skills, usage and effectiveness, and user experience and limitations. Data collected was analyzed statistically to determine key trends. Results show that mobile applications significantly improve vocabulary acquisition, with a noticeable impact on students' reading and writing skills. However, their impact on grammar, pronunciation, and listening comprehension is less significant. Many students find the apps useful, but irregular usage is attributed to time constraints, lack of motivation, or inadequate app design. Issues such as difficulty in understanding feedback suggest the need for clearer instructions. These tools support autonomous learning, reduce barriers, and enhance inclusion. Recommendations include integrating advanced technology-based tools and immersive environments to improve the learning experience.

Keywords: mobile learning, language skills, educational technology, language teaching, accessibility.

UNIVERSIDAD TECNICA DE COTOPAXI

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TEMA: “APLICACIONES MÓVILES EN EL DESARROLLO DE LAS HABILIDADES DEL LENGUAJE”

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RESUMEN

Las aplicaciones móviles han revolucionado el aprendizaje de idiomas debido a su accesibilidad, ofreciendo un enfoque flexible y atractivo. Sin embargo, presentan limitaciones que pueden afectar su efectividad, como el uso irregular y problemas técnicos. Este estudio tiene como objetivo analizar el uso de aplicaciones móviles en el desarrollo de habilidades en el idioma inglés en estudiantes de octavo semestre de la Universidad Técnica de Cotopaxi, evaluando sus beneficios, limitaciones y consecuencias. La investigación busca identificar las áreas donde las aplicaciones móviles son más beneficiosas y los obstáculos que los estudiantes enfrentan al usarlas. Se aplicó un enfoque cuantitativo y descriptivo. La técnica utilizada fue la encuesta y el instrumento fue un cuestionario administrado a 31 estudiantes de Pedagogía de Idiomas. El cuestionario, basado en el Mobile Learning Experience Questionnaire (Jung, 2018) y el Cognitive Load Inventory (Paas, 1998), consistió en 10 preguntas cerradas validadas, categorizadas en habilidades lingüísticas, uso y efectividad, y experiencia del usuario y limitaciones. Los datos recopilados fueron analizados estadísticamente para determinar las tendencias clave. Los resultados muestran que las aplicaciones móviles mejoran significativamente la adquisición de vocabulario, con un impacto notable en las habilidades de lectura y escritura de los estudiantes. Sin embargo, su impacto en la gramática, pronunciación y comprensión auditiva es menor. Muchos estudiantes encuentran útiles las aplicaciones, pero el uso irregular se atribuye a limitaciones de tiempo, falta de motivación o diseño inadecuado. Las recomendaciones incluyen integrar herramientas tecnológicas avanzadas para mejorar la experiencia de aprendizaje.

Palabras clave: aprendizaje móvil, habilidades lingüísticas, tecnología educativa, enseñanza de idiomas, accesibilidad.

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UNDERGRADUATE DEGREE WORK STRUCTURE

1. General Information

Theme: “Mobile Application In The Development Of Language Skills”

Starting Date: November 2024

Ending Date: March 2025

Place of Research: Extension Pujili

Sponsoring Faculty: Technical University of Cotopaxi, Pujili Campus

Sponsoring career: National and Foreign Language Pedagogy: English

Macro project of the career: Formative Processes in the Teaching-Learning of the English Language and its Academic Discourse

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Research line: Education, communication and design for human and social development.

Research sub-line: Teacher professional development, school management and learning communities.

2. Problem Statement

Over the past decade, the rapid advancement of digital technology has transformed education worldwide, with mobile applications emerging as powerful tools for language learning. Countries like the United States, China, and Germany have seen significant adoption of platforms such as Duolingo, Babbel, and Memrise due to their accessibility, flexibility, and user-friendly interfaces, enabling learners to practice languages anytime and anywhere. This shift aligns with the increasing reliance on mobile technology for educational purposes globally. However, despite their growing adoption and potential benefits, mobile language learning applications present notable limitations that impact their effectiveness and may lead to unintended negative consequences.

In Latin America, the use of mobile applications for language learning reflects a similar phenomenon, where flexibility and accessibility are valued in a diverse educational context. Nonetheless, recent research indicates that the real impact of these applications on the development of language skills is limited, particularly regarding meaningful social interaction. The lack of opportunities to practice essential communicative skills, such as speaking fluency and listening comprehension in real-world contexts, poses a significant challenge (Kim, Lee & Choi, 2020). Additionally, superficial learning resulting from the memorization of vocabulary and simple phrases, without focusing on complex aspects like advanced grammar or precise pronunciation, restricts linguistic proficiency to a basic level (Li & Tsai, 2019).

In Ecuador, the use of language learning applications can foster technological dependency, where users become hesitant to practice without digital support, ultimately weakening their ability to apply learned skills in offline settings (Lee, 2021). This situation is concerning, as language acquisition extends beyond automated exercises; it requires engagement in dynamic real-world situations that demand immediate, contextually appropriate responses. The

fragmentation of content and cognitive overload experienced by users, often presented repetitively, can hinder long-term retention of knowledge (Zhao, 2022). Therefore, this study aims to investigate the challenges and drawbacks of mobile apps in language learning, seeking to understand their limitations and the potential negative consequences of their use, providing empirical data to enhance the design and implementation of these tools in educational settings.

By examining the challenges and drawbacks of mobile apps in language learning, this research seeks to uncover their limitations and the potential negative consequences of their use. Understanding these factors provided empirical data to enhance the design and implementation of these tools in educational settings. Directly, this study aims to improve the effectiveness of mobile language learning apps by addressing their shortcomings, leading to better user engagement and learning outcomes. Indirectly, the findings can inform educators, policymakers, and developers, fostering the integration of more comprehensive teaching methodologies that combine digital and traditional learning strategies for a more balanced and effective language acquisition process.

The rapid proliferation of mobile applications has revolutionized the way individuals approach language learning, providing unprecedented access to resources and learning opportunities. As these applications become integral to the educational landscape, it is essential to assess their impact on language skill development. This inquiry aims to investigate the multifaceted effects of mobile apps in this context. The research question leads us to answer the following: To what extent do mobile applications influence the development of language skills, considering both their benefits and limitations, as well as their negative consequences?

3. Objectives

General Objective:

To analyze the use of mobile applications on the development of English language skills in eighth-semester students majoring in English at the Technical University of Cotopaxi.

3.1 Specific Objectives:

1. To determine the theoretical foundations for understanding the influence of mobile applications on students' language learning skills.
2. To identify the benefits, main limitations, and issues for students when using mobile applications for language learning.
3. To establish conclusions and recommendations about the use of mobile applications on the development of English language skills in the students.

4. Activities and task system in relation to the objectives proposed.

Tabla 1 *Activities and task sistema in relation to the objectives proposed*

Specific objective	Activities	Verification Means
To determine the theoretical foundations for understanding the influence of mobile applications on students' language learning skills	<ul style="list-style-type: none"> • Literature review. 	<ul style="list-style-type: none"> • Theoretical framework.
To identify the benefits, main limitations, and issues students when using mobile applications for language learning	<ul style="list-style-type: none"> • Design a survey and apply focused on limitations students face. 	<ul style="list-style-type: none"> • Survey
To establish conclusions and recommendations about the use of mobile applications on the development of English language skills in the students.	<ul style="list-style-type: none"> • Analyze research findings and conduct a discussion session to formulate conclusions and recommendations on the use of mobile applications in language learning. 	<ul style="list-style-type: none"> • Conclusions and recommendations.

1. Justification

In the digital age, mobile applications have transformed the way languages are learned by offering flexibility, accessibility, and the ability to learn from anywhere at any time. Platforms such as Duolingo, Babbel, and Memrise have proven to be popular among students due to their interactive approach and the autonomy they provide. However, despite their growing use, the effectiveness of these tools for the development of comprehensive language skills remains a topic of debate, especially in the context of university students.

The goal of this research is to analyze the impact of mobile applications on the development of language skills among eighth-semester students at the Universidad Técnica de Cotopaxi, evaluating both their benefits, limitations, and the possible negative consequences associated with their use. While these applications offer opportunities for autonomous learning, evidence suggests they cannot replicate real social interaction, a crucial factor for improving communicative skills such as verbal fluency and listening comprehension in real-world contexts. This limitation prevents students from effectively practicing key aspects of language that can only be developed through interaction with native speakers or in spontaneous communication environments.

Moreover, while mobile applications may facilitate the memorization of vocabulary and phrases, they often fail to delve into the complex aspects of language, such as advanced grammar structures or precise pronunciation. This can result in superficial learning that does not support complete and effective language competence. Additionally, the design of the applications, by segmenting and presenting content repetitively, can lead to cognitive overload, making long-term retention and the application of knowledge in real-life situations more difficult.

Excessive use of these platforms may also generate technological dependency, causing students to feel incapable of practicing without the support of the application, which limits the transfer of acquired knowledge to the real world. Understanding these limitations and negative

consequences is essential for designing and applying more effective educational strategies that integrate mobile applications in a complementary way within the learning process.

Therefore, this study aims to provide empirical data that can help improve the design of mobile applications and optimize their use in educational contexts, benefiting both students and educators who seek to effectively integrate digital tools into language learning

6. Scientific and technical foundation

6.1 Background

In recent years, mobile applications have become increasingly popular as language learning tools, revolutionizing traditional teaching methods with their flexibility, accessibility, and interactive features. Platforms like Duolingo, Babbel, and Memrise provide learners with opportunities to practice and enhance their language skills anytime, anywhere, making language acquisition more engaging and convenient. Their design focuses on interactivity, with exercises, quizzes, and games that facilitate the practice of vocabulary, grammar, and conversational skills. Several international studies have evaluated the impact of these applications on language skill development. Miftah (2018), in his study "The Impact of Mobile Applications on English Learning", used a quantitative experimental design with vocabulary and pronunciation tests as instruments. The objective of the study was to assess the impact of mobile applications on English learning, finding significant improvements in pronunciation and vocabulary, but limitations in conversational fluency due to the lack of direct interaction. Chinnery (2006), in his literature review titled "Emerging Technologies for Language Learning", used documentary and qualitative analysis with the aim of reviewing previous studies on the effectiveness of mobile applications in language learning. He concluded that mobile applications are useful, especially for self-directed learning, although their effectiveness depends on the pedagogical approach used. Stockwell (2010), in his research "Using Mobile Phones for Language Learning", used surveys and interviews as instruments. The aim of his study was to investigate student engagement with mobile applications, and he found that interactive applications with gamification significantly improve student engagement, while more traditional applications have

a limited impact. Vesselinov and Grego (2012), in their study "Duolingo: A Study on the Effectiveness of Mobile Language Learning", conducted a quantitative evaluation of participants' language skills before and after using the application. The objective was to analyze the effectiveness of Duolingo in language learning, finding improvements in vocabulary and grammar, but limitations in conversational skills due to the lack of real interaction. Li (2014), with a mixed approach in his study "The Role of Mobile Applications in English Learning in China", used surveys and interviews as instruments. The objective of this study was to explore the impact of mobile applications on English learning among Chinese students, finding improvements in reading and listening skills but limitations in speaking production due to the lack of face-to-face interaction with native speakers. These studies demonstrate that, while mobile applications are valuable tools, their success depends on factors such as content, pedagogical design, and the context in which they are used.

In the Ecuadorian context, several studies have analyzed the implementation and effectiveness of mobile applications in language learning. The study "The Use of Mobile Technologies for Language Learning in Ecuadorian Universities" (Gómez, 2019) used a qualitative methodology through interviews with students and teachers, aiming to analyze how these technologies are implemented in universities. The instruments used were semi-structured interview guides, and the results showed that, although mobile applications are popular, their integration into language programs is limited due to the lack of formal pedagogical support. In "The Implementation of Digital Tools in the Language Classroom in Ecuador" (Mendoza, 2020), action research was applied in three public schools, using questionnaires and direct observation as instruments. The objective of the study was to evaluate the effectiveness of digital tools in the language classroom, finding that digital tools, including mobile applications, improve student motivation, but teachers face difficulties due to the lack of training in technology use. The study "The Impact of Mobile Applications on English Learning in Secondary Students in Guayaquil" (Pérez, 2021) used a quantitative approach with surveys as the main instrument to measure the impact of mobile applications on the development of language skills. The objective was to assess the impact of mobile applications on English learning, and the results indicated improvements in vocabulary and listening comprehension, though limitations were observed in conversational skills due to the lack of face-to-face interaction. In "Use of Mobile Applications for Foreign Language Learning in Higher Education in Ecuador" (Ramírez, 2022), an exploratory study was conducted

at universities in Cuenca and Loja, using interviews and focus groups as instruments. The objective of this study was to explore students' and teachers' perceptions of mobile applications, finding that students have a positive perception of these applications, but teachers consider they cannot replace traditional teaching due to the lack of training and resources. Finally, the study "Evaluation of the Use of Mobile Applications for Learning English in Rural Ecuador" (Vargas, 2023), a case study in rural communities, used interviews and surveys to evaluate the effectiveness of mobile applications. The objective was to analyze the impact of mobile applications on English learning in rural areas, and the results revealed that, although students accepted the applications well, limited connectivity and device availability hindered their effectiveness, though progress was made in vocabulary and comprehension. These studies demonstrate that, although mobile applications are valuable tools for language learning in Ecuador, their effectiveness depends on factors such as teacher training, technological infrastructure, and the context in which they are implemented.

6.2 Theoretical Framework

6.2.1 Mobile Learning and Mobile-Assisted Language Learning

Mobile learning has gained prominence in contemporary education due to the widespread use of portable devices such as smartphones and tablets, which provide immediate access to educational content. This phenomenon has led to a transformation in traditional teaching methods, promoting more flexible and personalized learning. Through mobile technology, students can access educational resources autonomously, anytime and anywhere, supporting the idea that learning should be a continuous process (Crompton, 2020).

Mobile-Assisted Language Learning (MALL) is a specific form of mLearning that focuses on the use of mobile applications as tools for language learning. These applications enable students to interact with multimedia content, perform interactive exercises, and practice language skills, such as pronunciation, listening comprehension, and grammar. These platforms provide an accessible, engaging, and adaptable learning environment, offering a richer and more personalized educational experience (Godwin-Jones, 2020).

The flexibility offered by mobile applications allows students to access educational materials at any place and time, leading to greater autonomy in their learning process. This type of learning is characterized by being less structured than traditional classroom settings, encouraging more personalization and control over the pace of learning (Ally, 2021). Furthermore, many mobile applications incorporate advanced technologies like geolocation, augmented reality, and artificial intelligence, which provide immersive and contextualized learning experiences, improving language comprehension and practice in real-world situations.

One significant benefit of MALL is its ability to promote student-centered learning. Applications typically adapt to each learner's level and pace, providing exercises and content tailored to their progress. This personalized approach not only enhances motivation but also improves learning effectiveness by offering practical and relevant experiences for students (Silva, Lopes, & Almeida, 2021). By using these tools, students can improve their language skills autonomously, without relying solely on classroom instruction.

However, MALL also faces certain limitations. While mobile applications offer a variety of resources and activities, some fail to replicate real-life interaction with native speakers, limiting the development of conversational fluency in everyday contexts. The lack of social interaction is one of the most criticized aspects, as language learning involves not only understanding linguistic structures but also the ability to communicate effectively in a social context (Singh & Rani, 2020). Additionally, some applications may focus too much on vocabulary memorization and simple phrases, without delving into more complex aspects of the language, which could lead to superficial understanding.

On the other hand, cognitive overload is a recurring challenge when using mobile applications. The design and complexity of some apps can lead to distraction or frustration among learners, reducing their ability to learn effectively. Cognitive overload may occur when apps require constant attention to multiple tasks or when content is not presented clearly and simply (Zhao, 2022).

In conclusion, mLearning and MALL have proven to be powerful tools for language learning, providing more flexible, accessible, and personalized education. However, to be truly effective,

it is necessary to consider both their advantages and limitations. As these technologies continue to evolve, it is crucial for app developers and educators to collaborate to optimize their design and functionality, maximizing their benefits and minimizing potential challenges (Torres & Herrera, 2020).

6.2.2 Design and Usability of Mobile Learning Applications

The design and usability of mobile learning applications are key factors in their effectiveness and acceptance by students. In the context of mobile applications for language skill development, the design must be intuitive, accessible, and aligned with the pedagogical objectives of language learning. A user-centered design involves simple and easy-to-navigate interfaces with interactive features that encourage active participation. The design should include interactivity, with functions such as games, quizzes, and practice activities that can motivate students to engage more in the learning process. Accessibility must also be ensured, making the application compatible with various devices and platforms and inclusive of students with disabilities. Additionally, the aesthetic of the application should be attractive but not overwhelming, using colors and visual elements that complement the content effectively.

Usability refers to how easily students can interact with the application to achieve their learning objectives. In this regard, applications must be designed so that students can navigate without difficulty and without wasting time on complex tasks. Menus and options should be clear, logically organized, and the functions should be simple to understand and use. Immediate feedback is another crucial aspect; applications should provide quick responses about the students' performance, allowing them to continuously correct mistakes and improve. A well-designed application not only enhances students' motivation and engagement, but it also allows them to study autonomously and at their own pace. According to Vázquez-Cano et al. (2020), well-designed mobile applications "promote autonomous learning by providing immediate access to educational resources, allowing students to progress according to their own pace and needs" (p. 85).

Furthermore, well-designed applications can improve vocabulary acquisition, grammar, and listening comprehension by allowing students to practice consistently. However, challenges also

exist. Information overload, a complex interface design, or technical issues can hinder the user experience. According to Lau et al. (2019), this can lead to frustration among students, negatively affecting their learning. In their research, the authors mention that "an overloaded design and lack of personalization can lead to user frustration, which can decrease the effectiveness of mobile learning" (p. 33). Moreover, the lack of personalization in applications, which does not allow content to be adjusted according to students' individual progress, can make learning monotonous and less effective.

Finally, understanding students' opinions on the effectiveness of the design and usability of mobile learning applications is essential to assess their impact. In line with the objectives of this research, a detailed analysis was conducted to understand how students perceive these aspects and how they influence their learning experience.

6.2.3 Pedagogical Implications of Mobile Learning

The integration of mobile learning applications in education brings both positive and negative pedagogical implications. On the one hand, mobile learning offers significant advantages, but on the other hand, it also presents certain challenges that educators and students must navigate carefully.

One of the primary pedagogical benefits of mobile learning is its ability to foster student autonomy. Mobile applications allow students to engage in self-directed learning, which is particularly important in language development. With instant access to resources, exercises, and feedback, students can study at their own pace, reinforcing concepts outside the classroom. This is particularly valuable in language acquisition, where practice and repetition are key to mastery. Moreover, Riazi and Fatahzadeh (2019) emphasize that mobile learning provides a dynamic environment where students can practice and engage with language in authentic contexts, enhancing both their motivation and language acquisition (p. 5).

Mobile learning applications also facilitate collaborative learning, enabling students to engage with peers and instructors through interactive features such as discussion forums, group tasks, and peer assessments. This social learning aspect can enhance motivation, increase engagement, and provide students with opportunities to practice language skills in real-world contexts. Furthermore, mobile applications can incorporate gamification, which introduces elements of

play to make learning more enjoyable and engaging, motivating students to continue their learning journey.

However, the use of mobile applications in education is not without its drawbacks. One major concern is the potential for distraction. With mobile devices offering access to social media, entertainment, and other non-educational content, students may struggle to maintain focus on learning activities. This diversion can hinder the educational process and lead to fragmented attention. As a result, it is crucial for students and educators to develop strategies for minimizing distractions while using mobile learning tools.

Another significant limitation is the digital divide. Not all students have equal access to smartphones or reliable internet connections, which can create disparities in learning opportunities. Students from lower-income backgrounds may face challenges in accessing mobile learning applications, thus affecting their ability to fully participate in language development activities.

Moreover, there is a risk of over-reliance on technology. While mobile applications offer great potential for learning, they should not replace traditional teaching methods entirely. Educators must ensure that mobile learning is used as a complement to face-to-face instruction, not as a substitute. Overuse of technology can lead to a lack of face-to-face interaction, which is essential for developing communicative and interpersonal skills, particularly in language learning.

In conclusion, while mobile learning applications offer numerous pedagogical benefits, including enhanced autonomy, collaboration, and engagement, they also pose significant challenges related to distraction, inequality, and over-reliance on technology. Educators must carefully consider these implications and design mobile learning experiences that balance the strengths of technology with the essential aspects of traditional pedagogical methods.

6.2.4 Mobile Applications in Education

Mobile applications have revolutionized the landscape of education, offering a new way to engage learners and facilitate learning. The ubiquity of smartphones and tablets has made learning more accessible and flexible, especially in the context of language acquisition.

Language learning apps, such as Duolingo, Babbel, and Memrise, have gained popularity due to their convenience and user-friendly interfaces. However, while these mobile applications provide various advantages, they also come with certain limitations that must be considered. This section explores both the benefits and drawbacks of using mobile applications for language learning, with a particular focus on their effectiveness and challenges.

Advantages of Mobile Applications for Language Learning

- **Accessibility and Convenience:** One of the primary advantages of mobile applications for language learning is their accessibility. Mobile devices, including smartphones and tablets, are portable and always within reach, enabling learners to study anytime and anywhere. This flexibility allows learners to engage in language learning on their own terms, whether during a commute, while waiting in line, or at home. The ability to learn on-the-go significantly increases opportunities for practice, which is essential for language acquisition (Stockwell, 2018). Moreover, mobile apps break down the barriers of time and space, making language learning more inclusive, especially for individuals who may not have access to formal educational settings or language instructors.
- **Personalization and Adaptivity:** Many mobile apps are designed to adapt to the learner's progress and proficiency level. Through the use of algorithms, apps like Duolingo and Babbel can offer personalized lessons that are tailored to the learner's strengths and weaknesses. As learners progress, these apps dynamically adjust the difficulty of tasks, ensuring that learners are continuously challenged without feeling overwhelmed. This personalized learning approach helps students focus on areas where they need improvement while reinforcing concepts they have already mastered. The adaptive nature of these applications also increases learner engagement, as students are less likely to feel frustrated or bored by material that is too difficult or too easy (Blin & Jalkanen, 2014).
- **Gamification and Motivation:** Mobile applications often integrate gamification techniques, such as point systems, badges, and levels, to motivate learners. These elements make the learning process more engaging and enjoyable, fostering a sense of achievement as learners complete tasks and reach milestones. Studies have shown that

gamified learning experiences can significantly increase motivation, enhance persistence, and promote consistent practice (Pappas, 2014). In the context of language learning, this can be especially beneficial, as sustained practice is crucial for acquiring vocabulary, grammar, and pronunciation skills. Learners are more likely to return to the app regularly if they are motivated by the rewards and progression systems it provides.

- **Interactive and Multimedia Learning:** Another key advantage of mobile apps is their ability to incorporate multimedia elements, such as audio, video, and interactive tasks. These features provide a rich and varied learning experience that helps reinforce language concepts. For instance, language learning apps often include audio recordings of native speakers, enabling learners to hear proper pronunciation and intonation. Additionally, some apps offer speech recognition features that allow learners to practice speaking and receive feedback on their pronunciation. The combination of text, audio, and visual elements caters to different learning styles and promotes deeper understanding and retention (Godwin-Jones, 2017).
- **Social Interaction and Collaborative Learning:** Many mobile language learning apps now include social features that facilitate interaction between learners. Apps like HelloTalk and Tandem enable users to connect with native speakers or other learners around the world, allowing for real-time conversations and cultural exchanges. These interactions foster authentic language use in practical, social contexts, which is crucial for developing fluency. Furthermore, collaborative learning through peer interactions can help reinforce language skills, as learners are often more motivated when they can practice with others in a social environment (Kukulska-Hulme & Shield, 2008).

Limitations of Mobile Applications for Language Learning

- **Limited Depth and Comprehensiveness:** While mobile applications are excellent for reinforcing basic language skills, they may not offer the depth and comprehensiveness that traditional classroom learning or formal courses provide. Apps often focus on vocabulary acquisition, grammar practice, and pronunciation but may lack opportunities

for more advanced language skills, such as writing or nuanced conversation. Additionally, the lack of in-depth explanations and grammar rules in many apps can leave learners with gaps in their understanding. As a result, while apps are useful for beginners and intermediate learners, they may not be sufficient for advanced language acquisition without supplementary resources (Reinders, 2017).

- **Lack of Contextual and Cultural Learning:** Language is deeply intertwined with culture, and effective language learning involves more than just mastering vocabulary and grammar rules. It also requires an understanding of cultural nuances, idioms, and the social contexts in which language is used. Mobile apps, however, often lack a strong cultural component. While some apps include cultural lessons, they are typically not as rich or detailed as those found in classroom-based instruction or immersion programs. This limitation can hinder learners from gaining a holistic understanding of the language, which is essential for fluency (Godwin-Jones, 2017).
- **Cognitive Load and Over-reliance on Technology:** Although mobile apps can be highly interactive and engaging, they also pose the risk of overloading the learner's cognitive capacity. For example, when apps present too many new concepts or rely on too much visual or auditory information, learners may struggle to absorb and retain the material effectively. This issue is particularly relevant in language learning, where complex grammar structures or vocabulary can become overwhelming if not spaced out appropriately. Cognitive load theory suggests that learners can become fatigued or frustrated if they are faced with an excessive amount of information at once (Sweller, 1988). Over-reliance on mobile apps for language learning can also reduce learners' face-to-face interactions with native speakers or instructors, which are essential for developing real-world communication skills.
- **Lack of Feedback and Individualized Support:** While mobile apps can provide immediate feedback on vocabulary or pronunciation tasks, they often lack the personalized and nuanced feedback that a language instructor or tutor can provide. This absence of individualized support may hinder learners from fully understanding their mistakes or

grasping complex language concepts. Furthermore, mobile apps cannot replicate the adaptive scaffolding that a teacher might provide in a classroom setting, particularly for learners who require more intensive support or individualized instruction (Kukulska-Hulme & Shield, 2008).

- **Motivational Challenges for Some Learners:** Despite the gamified elements of many language learning apps, some learners may experience motivational challenges. For example, the novelty of mobile apps can wear off over time, leading to a decline in engagement. Additionally, some learners may struggle to maintain a consistent study routine when using apps alone, as they lack the structure and accountability that formal classes provide. Without external motivation, learners may abandon their language learning goals, particularly if they do not see immediate progress (Reinders, 2017).

Features of mobile language exchange applications

Mobile applications for language learning have become increasingly popular due to their accessibility and effectiveness. Among the most widely used are Duolingo, Babbel, Memrise, Busuu, and Tandem, each offering unique features to help learners improve various language skills.

- Duolingo is known for its gamified approach, making learning interactive and fun through lessons that include reading, writing, listening, and speaking exercises. It is particularly useful for beginners and those looking to expand their vocabulary and grammar.
- Babbel, on the other hand, provides a more structured approach focused on real-life conversations, helping learners develop communication skills, with an emphasis on pronunciation, grammar, and vocabulary.
- Memrise stands out by using native speaker videos to teach vocabulary and phrases in context, which helps with pronunciation and listening comprehension. It's especially useful for expanding vocabulary and learning colloquial expressions.
- Busuu offers adaptive lessons that cover all language skills speaking, writing, reading, and listening and also allows users to interact with native speakers for real-world

practice. A key feature of Busuu is the ability to receive direct feedback on writing and pronunciation from native speakers.

- Finally, Tandem is a social platform that connects learners with native speakers worldwide for conversation practice, making it ideal for improving speaking fluency and understanding cultural nuances. These applications enable learners to improve a range of skills, including vocabulary, grammar, pronunciation, listening comprehension, and speaking, all in a flexible and accessible way. Each app has its strengths, catering to different learning needs with interactive tools that enhance the user experience.

Mobile applications for language learning offer numerous advantages, including flexibility, accessibility, personalized learning, and engaging features like gamification and multimedia content. These benefits make language learning more convenient and enjoyable, especially for beginners and intermediate learners. However, these apps also have limitations, such as the lack of depth in language instruction, limited cultural context, and potential issues with cognitive overload. Additionally, the absence of individualized feedback and the risk of over-reliance on technology can hinder long-term language development. For mobile apps to be truly effective, they must be integrated into a comprehensive learning strategy that includes face-to-face interaction, cultural immersion, and opportunities for advanced language practice.

6.2.5 Language skills

Language skills are the fundamental components required for effective communication and language acquisition. These skills are generally divided into four main areas: listening, reading, speaking, and writing, each of which plays a vital role in the development of language proficiency.

- Listening is the ability to understand and interpret spoken language. It is one of the most important skills for language learners, as it enables them to comprehend conversations, lectures, and other audio materials in real-life contexts. Effective listening skills help

learners understand accents, intonation, and speech patterns, which are essential for real-time communication.

- Reading involves decoding and comprehending written text. It includes the ability to understand vocabulary, sentence structure, and meaning from a wide variety of written materials, such as books, articles, and online content. Reading comprehension is essential for academic success and for gaining deeper insights into a language's structure and vocabulary.
- Speaking refers to the ability to produce spoken language clearly and coherently. This skill involves correct pronunciation, fluency, and the capacity to organize thoughts in a way that is understandable to others. Speaking is often seen as one of the more challenging skills to develop, as it requires the ability to think quickly in the target language while also managing grammatical accuracy and vocabulary.
- Writing involves the ability to express thoughts, ideas, and information clearly and coherently in written form. This skill requires mastery of spelling, grammar, punctuation, and writing structure. Writing is a key skill for academic and professional contexts, allowing individuals to communicate formally and informally.

These four skills are interdependent and collectively contribute to overall language proficiency. Effective language learners engage in all four skills to build a comprehensive understanding of the language. Listening and reading are often receptive skills, as they involve understanding language input, while speaking and writing are productive skills, requiring the active production of language.

Language skills are essential not only for communication but also for cognitive and academic development. Mastery of these skills allows learners to participate fully in the linguistic, social, and cultural aspects of language use. They form the foundation for fluency and literacy, which are necessary for success in a second language. According to researchers, language proficiency

across these areas can enhance cognitive flexibility, improve problem-solving abilities, and contribute to overall academic achievement (Snow, 2010).

In conclusion, language skills listening, reading, speaking, and writing are the pillars of language acquisition. A balanced development of these skills ensures that learners can interact effectively and express themselves proficiently in a new language. The integration of all four skills enables comprehensive language competence and fosters a deeper connection with the language.

6.2.6 Impact of Mobile Learning on Language Skills

The impact of mobile learning on language skills has been a central topic in research regarding the use of mobile applications for language learning. While these apps offer advantages in terms of accessibility and flexibility, they also bring certain drawbacks that can negatively affect the development of key skills such as vocabulary, grammar, and pronunciation.

In terms of vocabulary, mobile applications allow students to access a large number of words through repetition exercises and memory tests. However, one of the major challenges is that vocabulary learning can become mechanical and decontextualized. Apps often provide exercises without considering the context in which words should be used, which may result in students failing to integrate the vocabulary into real communicative situations. This limits the students' ability to effectively use the vocabulary learned in an authentic conversation (Kukulska-Hulme, 2016).

Regarding grammar, mobile applications often present grammatical rules in a fragmented manner, making it difficult for students to build a deep understanding of language structures. While these tools allow students to practice grammatical structures, the feedback they offer is not detailed enough to address complex errors that may arise during learning. The lack of direct interaction with an instructor limits accurate correction and contextualization of grammatical mistakes (Stockwell, 2017).

For pronunciation, while some apps include voice recognition exercises, the results are limited. Current technologies are not advanced enough to provide precise feedback on the phonetic

aspects of the language. Additionally, many students rely exclusively on these apps, reducing opportunities to practice with native speakers or receive real-time corrections. This isolation can hinder improvements in pronunciation, a key aspect of mastering a language (Lee & Park, 2020).

A critical aspect affecting all these skills is cognitive overload. Cognitive load theory suggests that when students are exposed to too much information or an inappropriate format, their ability to process and learn effectively is reduced. In the context of mobile learning, apps can present tasks and activities so quickly and scattered that students do not have enough time or space to process the information deeply, leading to superficial learning (Sweller, 2019).

Finally, the lack of social interaction in mobile apps represents one of the most significant limitations. While some apps allow exchanges with other users, these are usually limited to simple interactions and do not offer the depth achieved through in-person learning environments. Social interactions in natural settings allow students to practice the language more effectively, adapting to contextual and cultural variations. The lack of such interactions can hinder the development of advanced communicative skills (Choi & Lee, 2018).

In conclusion, while mobile applications offer significant advantages such as flexibility and accessibility, their impact on language skills is not always positive. To maximize the benefits of these tools, it is essential that they are integrated with traditional teaching methods that promote deep understanding and allow for meaningful social interaction.

6.2.7 Social Interaction and Language Learning

Social interaction plays a fundamental role in language learning, as it allows learners to practice the language in authentic contexts and fosters the development of communicative competencies. Face-to-face interaction provides the opportunity for immediate feedback, which facilitates error correction and the adjustment of communicative strategies. However, mobile language learning apps often lack the complexity of real-life interactions, as many of these apps limit interactions to structured exercises and automated responses, which can prevent students from developing the fluency needed for spontaneous situations (Hernández et al., 2019).

Furthermore, social interaction involves not only language practice but also the understanding of cultural and emotional contexts, which are key to effective communication. Language learning apps generally do not offer opportunities for learners to experience these cultural aspects in a meaningful way. According to a study by Rodríguez et al. (2020), the absence of a dynamic social component in these apps limits opportunities for collaborative learning, which is essential for developing interpersonal communication skills.

Research on mobile apps for language learning also indicates that participation in online learning communities can be an effective tool to enhance social interaction, although this depends on the quality of the platforms and student motivation. Apps that allow social interaction between users can facilitate collaborative learning, but only if they are designed to promote genuine conversation rather than simple exchanges of messages or passive exercises (González & Pérez, 2021).

Another significant challenge is the quality of feedback provided by these apps. While human interactions in educational settings allow for immediate, contextualized feedback, mobile apps often limit themselves to automated or generic responses, which can negatively impact the learning process. As Gómez and Martínez (2021) point out, this lack of personalized feedback limits the learner's ability to identify and correct errors in real-time, potentially hindering progress in language learning.

In summary, while mobile apps have the potential to facilitate language learning, their effectiveness is limited by the lack of genuine social interaction and immediate feedback. Solutions to improve these aspects might involve integrating technologies such as artificial intelligence to simulate more natural conversations and incorporating virtual learning communities to foster student collaboration (Cordero et al., 2021).

6.2.8 Cognitive Load and its Impact on Language Learning Efficiency in Mobile Apps

Cognitive load, or the amount of mental effort required to process information, plays a significant role in the effectiveness of mobile language learning applications. In many cases,

mobile apps tend to present information in rapid bursts or through fragmented tasks, which can overwhelm the learner's cognitive capacity. This can lead to superficial learning, where learners do not fully internalize the language concepts they encounter. According to Sweller (2019), excessive cognitive load reduces the learner's ability to process and retain new information effectively, which is particularly problematic in language acquisition, where understanding context and nuance is essential. In mobile learning environments, this issue is exacerbated by the limited time and space for deep processing, which can hinder long-term language retention. To mitigate this, applications should adopt strategies that reduce cognitive load by allowing learners to progress at their own pace, offering spaced repetition, and ensuring that content is presented in a logical and meaningful sequence. By doing so, mobile apps could better support the development of language skills, ensuring a balance between challenge and cognitive capacity

6.2.9 Integrating Mobile Learning with Traditional Methods for Enhanced Language Acquisition

While mobile applications offer flexibility and accessibility for language learning, research suggests that their full potential is often realized when integrated with traditional teaching methods. Combining mobile learning with face-to-face instruction provides learners with the benefits of both worlds: the flexibility and personalization of mobile apps, alongside the social interaction and in-depth feedback offered in a classroom setting. According to Kukulska-Hulme & Shield (2008), social interaction in natural settings is crucial for language acquisition, as it allows learners to practice in real-world contexts, receiving immediate feedback and correcting errors in real-time. Traditional methods, such as classroom discussions, role-playing, and collaborative tasks, promote the development of communicative skills that are essential for fluency. By integrating these with mobile apps that provide vocabulary drills, grammar exercises, and listening practice, learners can benefit from a more comprehensive and holistic approach to language learning. This hybrid model not only enhances language skills but also promotes motivation, as students can apply what they learn in both digital and social environments.

7. Methodology

7.1 Research Approach

The research approach was being quantitative, utilizing a closed-ended questionnaire in which reflects the experience of students with mobile applications for language learning, as the primary data collection instrument. This method is suitable for obtaining structured and consistent responses from participants, which facilitates systematic data analysis. The questionnaire consisted of 10 closed-ended questions, specifically designed to explore the impact of mobile applications on language skills development among eighth-semester students at the Universidad Técnica de Cotopaxi. The choice of closed-ended questions allows for a more efficient process of categorizing and quantifying the results. According to the quantitative approach, the research aims to represent and manipulate numerical observations to describe and explain the phenomena related to mobile applications in language learning (Sukamolson, 2015).

7.2 Research Method or Level

The research was descriptive, as its main objective is to explore and detail how mobile applications impact language skills development among university students. Descriptive research focuses on observing, recording, and analyzing the characteristics of phenomena in their natural context. In this case, the aim is to measure how mobile applications affect language learning skills, identifying both the advantages and limitations of their use. According to Atmowardoyo (2018), descriptive research aims to present phenomena accurately and in detail, without intervening in their development.

7.3 Research Context

The research was conducted with eighth-semester students of the Pedagogy of National and Foreign Languages degree, majoring in English, at the Technical University of Cotopaxi, located in Latacunga, Ecuador. A sample of 31 students was selected, aged between 20 and 25 years. The participants were chosen through non-probabilistic sampling, based on their availability and willingness to participate in the study. The participants were given an informed consent form

(Annex 1), which detailed the nature of the study, its purpose, and the implications of their participation.

7.4 Data Collection Procedure

The technique to be used is the structured survey, implemented through a questionnaire designed to evaluate students' experiences and perspectives on using mobile applications for language learning. This questionnaire consists of 10 closed-ended questions that focus on key themes such as the frequency of app usage, the specific language skills improved, and the perceived strengths and weaknesses of these tools. The use of closed-ended questions ensures the collection of uniform and standardized data, facilitating quantitative analysis and reducing variability in responses, thereby increasing the reliability of the results.

To ensure that the questionnaire was fit for the study objectives and suitable for collecting the required information, it was subjected to a rigorous validation process by subject matter experts. This validation ensured that the questions were clear, relevant and appropriate, allowing for efficient analysis and maintaining high-quality data collection.

The questionnaire was administered in either physical or digital format, depending on logistical circumstances and participant access. The digital format was used when participants had access to electronic devices and internet connectivity, optimizing efficiency. In contrast, the physical format served as a viable alternative in cases where technological limitations existed. Regardless of the format, the anonymity of responses was strictly maintained and participants were clearly informed about the voluntary nature of their participation, with the assurance that they could withdraw at any time without adverse consequences. These measures aim to create an ethical and comfortable environment for participants, while ensuring robust and reliable data collection for the study.

7.5 Data Analysis Process

This instrument was developed based on the Mobile Learning Experience Questionnaire (Jung, 2018), which assesses users' overall experience with educational mobile applications, and the

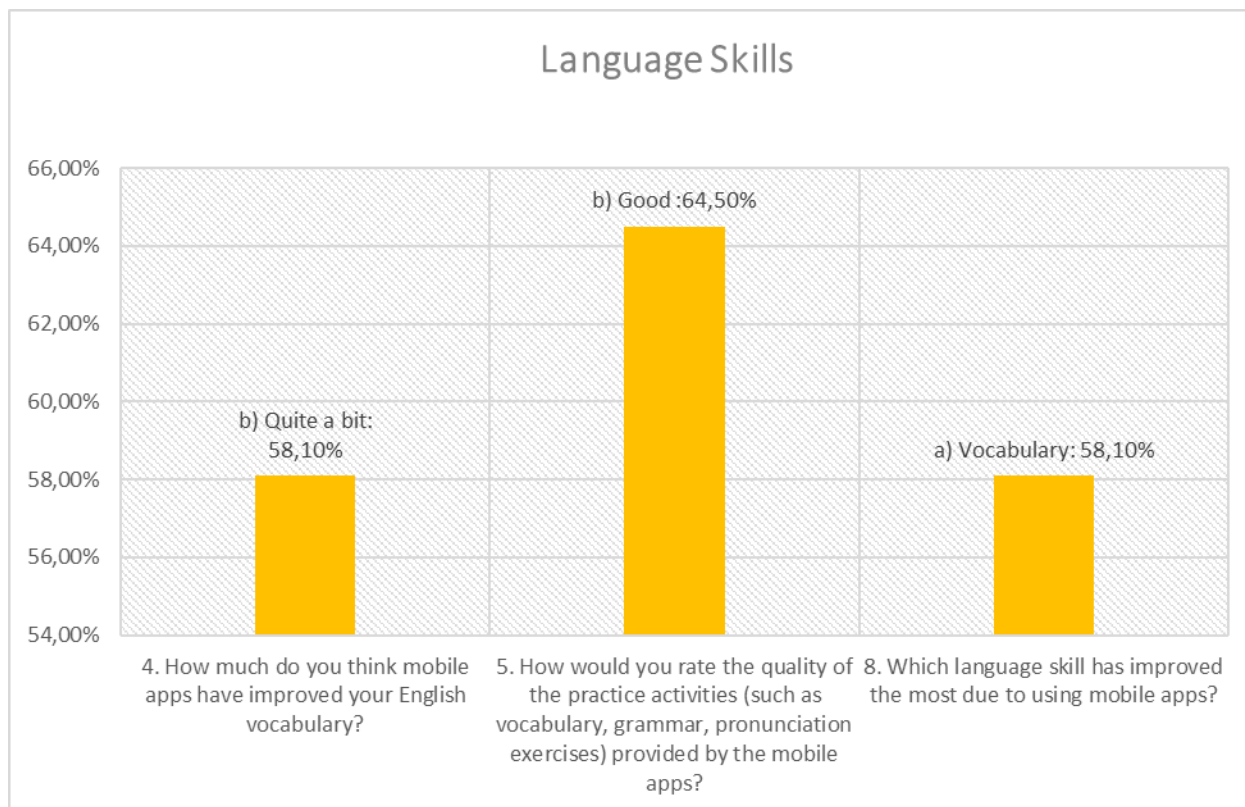
Cognitive Load Inventory (CLI) (Paas, 1998), which measures the perceived cognitive load experienced by students during the use of mobile learning technologies. Both tools are commonly used to evaluate the effectiveness of mobile applications in education and the students' cognitive effort involved in their use. The questionnaire consists of 10 questions that were validated by experts in the field to ensure their relevance and coherence. These questions were merged into three dimensions to facilitate analysis and interpretation of the results: Language Skills focuses on assessing the direct impact of mobile apps on the development of language skills, which assesses the direct impact of mobile apps on vocabulary, grammar, and pronunciation development. Usage and Effectiveness focuses on measuring both the frequency of use and perceived effectiveness of mobile language learning apps. User Experience and Limitations relates to the assessment of feedback on bugs, usability, and perceived limitations that focus on the overall user experience when interacting with mobile apps.

Data Processing and Analysis

This approach allowed the researchers to examine students' responses. This processing included coding the responses and creating tables and charts that allowed for the identification of significant patterns, trends, and correlations in the data. The analysis and interpretation of each question can be found in Annex 3: Analysis and Individual Results by Question from the Instrument, for better understanding. This annex provides a detailed view of the specific results for each question, allowing for a deeper understanding of the obtained data and their relevance in the context of the study.

8. Analysis and Discussion of Results

8.1 Language Skills



Graphic 1 Analysis of dimension (Language Skills)

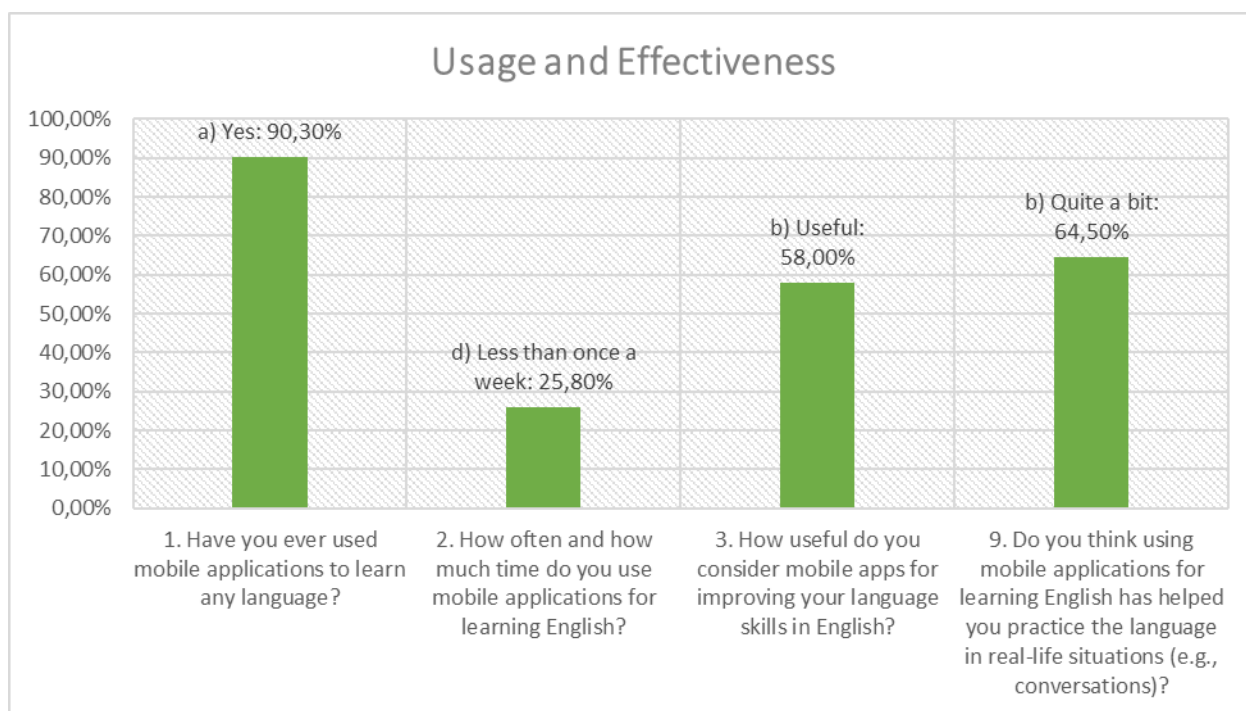
Analysis and Discussion:

The responses to the questions within the language skills dimension show that mobile applications have a significant positive impact on improving English vocabulary. Most respondents indicated that mobile apps have greatly improved their English vocabulary. Additionally, a considerable number of participants rated the quality of practical activities, including vocabulary, grammar, and pronunciation exercises, as good. The language skill most improved, according to respondents, was vocabulary, which reinforces the effectiveness of mobile applications in this area.

The high rating of vocabulary improvement aligns with Deris & Shukor (2019), who found that students perceive and accept mobile applications as effective tools for vocabulary learning. The interactive and engaging features of these apps contribute significantly to vocabulary acquisition, making learning more enjoyable and effective. However, the findings suggest that

other language skills, such as grammar, pronunciation, and listening comprehension, are not as significantly improved by mobile apps. Deris & Shukor (2019) also emphasize the need for a comprehensive approach, suggesting that app developers should integrate more varied activities for these other language skills to offer a more balanced and holistic language learning experience

8.2 Usage and Effectiveness



Graphic 2 *Analysis of dimensión (usage and Effectiveness)*

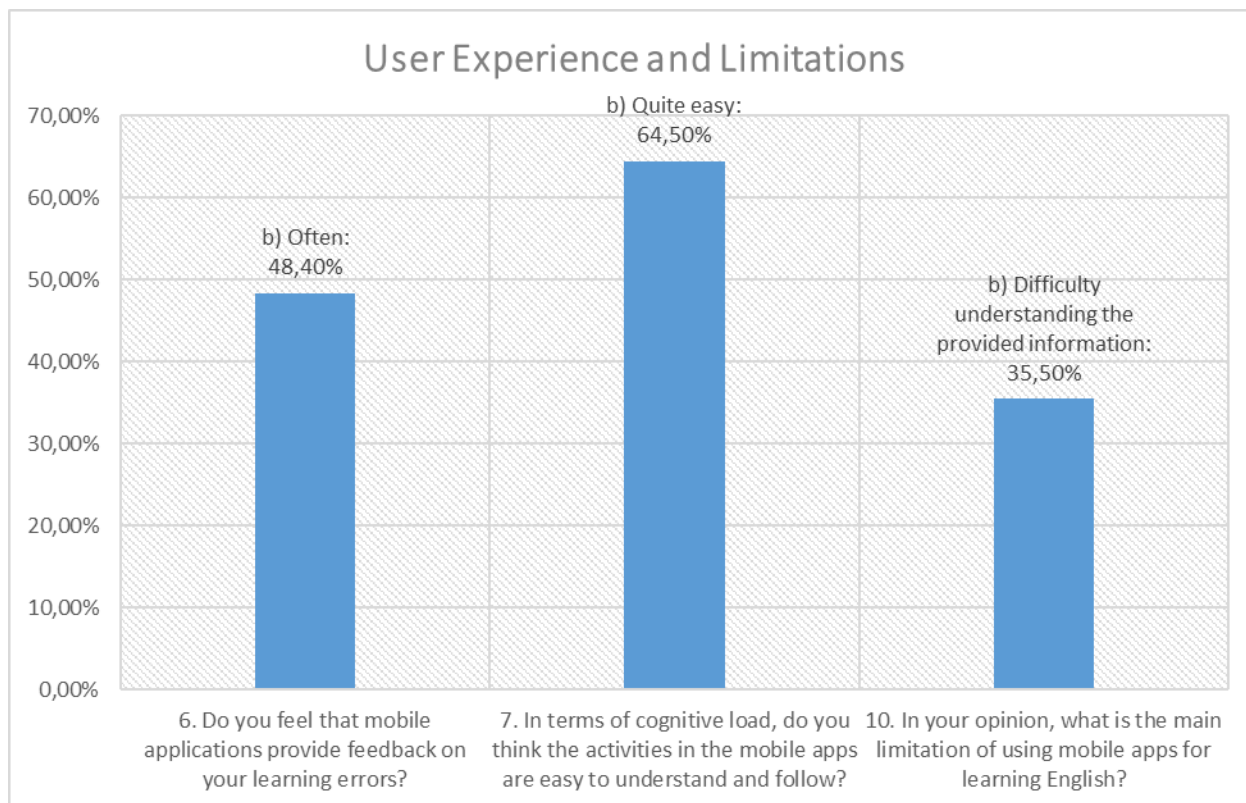
Analysis and Discussion:

The responses to the questions within the usage and effectiveness dimension show a high level of use of mobile applications for language learning. Most respondents indicated that they have used mobile applications to learn a language. Regarding the frequency and duration of use, a segment of respondents uses these applications less than once a week, suggesting that there are some barriers to regular use. Many participants consider the apps useful for improving their

language skills in English. Additionally, a significant portion of respondents stated that using apps has helped them practice English in real-life situations, such as conversations.

These results indicate that mobile applications are widely used by students for language learning, underscoring their accessibility and effectiveness as complementary tools. However, the sporadic engagement of some users suggests barriers such as time constraints or lack of interest. Most respondents find the apps useful for improving their English, highlighting their effectiveness in key learning areas. Additionally, many participants believe the apps have been helpful in practicing English in real-world contexts. According to Kim, Lee, & Choi (2020), these findings align with students' perceptions of mobile apps' utility for language learning, emphasizing the importance of contextualized practice. However, they also highlight the need to address barriers that limit regular use, such as developing more engaging content and implementing motivational strategies to maintain student interest. Addressing these areas can enhance the overall effectiveness and frequency of mobile app usage for language learning.

8.3 User Experience and Limitations



Graphic 3 Analysis of dimensión (user experience and limitations)

Analysis and Discussion:

The responses to the questions within the User Experience and Limitations dimension indicate that mobile applications generally provide feedback on learning errors with a fair degree of regularity. Most respondents reported receiving feedback often. Regarding cognitive load, many participants found the activities quite easy to understand and follow, suggesting that the apps are designed to be accessible and user-friendly. However, some users identified difficulty understanding the provided information as the main limitation, reflecting a significant area for improvement in the clarity and comprehension of the content provided by the mobile applications.

The findings suggest that while mobile apps for language learning generally offer useful feedback on users' mistakes, which is crucial for correcting and reinforcing learning, there is room for improvement in ensuring that all users receive consistent and effective feedback. The ease of use is highlighted, indicating that cognitive load is not a major barrier for most users.

However, those who cited difficulty in understanding the information provided suggest that apps could benefit from clearer instructions and a more intuitive design to enhance the user experience and learning outcomes. Zhang & Zhao (2021) emphasize that, despite the overall ease of use, difficulties in understanding information remain a significant limitation for many learners. They suggest that app developers should prioritize clearer communication and a more intuitive design to improve the learning experience. These findings align with the current results, indicating that while mobile apps are user-friendly, enhancing clarity and comprehension can further optimize their effectiveness.

In conclusion, mobile applications prove to be effective tools for learning English, particularly in vocabulary improvement, which is the most enhanced skill. While the activities provided are generally well-rated and easy to follow, areas such as grammar and listening comprehension could benefit from more attention in future updates. Additionally, the apps are useful for practicing the language in real-life contexts, adding value to practical preparation. However, concerns persist regarding the clarity of the information provided, indicating the need for more intuitive design and clearer instructions to improve the user experience. Overall, while the apps are effective in many aspects, there are opportunities to optimize feedback and content accessibility for a more comprehensive and efficient learning experience. According to Godwin-Jones (2018), the integration of technological tools must be carefully designed to cover all aspects of language learning, ensuring that feedback and content are accessible and effective for users. In this sense, it is essential that applications continue to evolve to offer a more complete learning experience, which also optimizes clarity and usability. The analysis of these three dimensions provided a comprehensive view of the performance of mobile applications in learning English, identifying both positive aspects and areas for improvement from the users' perspective.

9. Research Impacts (technical, social, environmental, education or economic):

The research has social and educational impacts because mobile applications directly influence the personal and community development of students. In the educational realm, the results indicate that mobile applications are effective tools for improving language skills, particularly

vocabulary. Their accessibility and ability to provide immediate feedback and quality practical activities complement traditional teaching methods, enabling continuous and personalized learning.

In the social realm, mobile applications facilitate language practice in real-life contexts, which increases students' confidence and competence in social and work situations. By democratizing access to education, these applications reduce geographical and economic barriers, promoting inclusion and equity. This allows students from diverse socioeconomic backgrounds to benefit from quality educational tools, fostering greater social cohesion.

The research highlights that mobile applications have a significant impact both educationally and socially. They enhance students' learning by providing accessible and personalized resources, and also promote social inclusion by reducing barriers and offering equal opportunities. To maximize these benefits, it is crucial for app developers to continue improving the clarity and intuitive design of their products, ensuring an optimal learning experience for all users.

10. Conclusions

The study demonstrates that mobile applications significantly influence students' language learning skills, particularly vocabulary acquisition. This highlights the importance of understanding how these tools contribute to foundational language development. Mobile applications effectively support learning by offering repetitive and engaging activities, although improvements are needed for skills such as listening comprehension and writing. These findings underscore the potential of mobile applications to enhance specific language skills and call for further enhancements in less impacted areas.

The research identified the benefits and main limitations of using mobile applications for language learning. Key benefits include accessibility, flexibility, and autonomous learning, while significant limitations involve difficulty in understanding content and lack of real interaction with native speakers. These findings are essential for improving the effectiveness of mobile learning tools. Furthermore, mobile applications have shown a positive impact on various dimensions of language learning, such as Language Skills, which evaluates the development of specific skills like vocabulary, grammar, and pronunciation; Usage and Effectiveness, which measures the frequency of use and perceived effectiveness; and User Experience and Limitations, which focuses on the overall user experience, including feedback and perceived limitations. These dimensions provide a comprehensive understanding of the impact of mobile applications on language learning and highlight areas for improvement to optimize their effectiveness.

The study analyzed university students' feedback on their experiences and preferences with mobile language learning apps, fulfilling the objective of understanding how these apps impact students' learning. The identification of patterns and trends in students' responses underscored the importance of incorporating user feedback to enhance the effectiveness of these tools. Students frequently highlighted the lack of real-world applicability of language learning activities and the need for better feedback mechanisms. The analysis of these findings led to conclusions and practical recommendations aimed at improving the use of these applications. The research suggests the integration of advanced AI-driven tools, immersive environments, and collaborations with native speakers to foster fluency. These insights aim to create more holistic

and interactive learning experiences, improving the overall impact of mobile applications on language learning.

10.1 Recommendations

It is recommended to focus more research and efforts on improving skills such as listening comprehension and writing in mobile applications. Incorporating advanced technologies like voice recognition for practicing pronunciation and listening comprehension, as well as offering more interactive and contextual writing exercises, could contribute to a more balanced and comprehensive learning experience.

Integrating advanced technological tools that offer precise and useful feedback, as well as immersive environments like augmented reality for conversational practice, is important. Encouraging collaboration with native speakers to provide real-time practice sessions is recommended. These strategies can help students apply what they have learned in real contexts, improve their fluency, and gain confidence in using the language.

Another important recommendation is to enhance teacher-guided mobile learning strategies to ensure that students make the most of these digital tools. While mobile applications promote self-directed learning, their impact can be amplified when incorporated into structured academic programs. Educators should design lesson plans that include specific mobile-based assignments, regular in-class discussions on app content, and guided exercises that complement traditional instruction.

10.2 Limitations

Although mobile applications have significantly advanced language learning, they still present limitations, such as an emphasis on vocabulary and grammar over productive skills like speaking and writing, the inconsistent accuracy of voice recognition technology, and the lack of immersive, real-world interaction. Additionally, many apps provide structured exercises rather than contextual writing tasks, limiting students' ability to apply their knowledge naturally. Future

research should focus on improving voice recognition for pronunciation and listening comprehension, integrating augmented reality for immersive learning experiences, enhancing AI-driven feedback for writing skills, and exploring the role of real-time interaction with native speakers in language acquisition. Furthermore, studies on long-term engagement strategies are needed to ensure sustained motivation and effective learning through mobile applications.

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12. Appendices

12.1 Annex 1: Informed Consent

ANNEX 1

UNIVERSIDAD TÉCNICA DE COTOPAXI

CARRERA DE PEDAGOGÍA DE LOS IDIOMAS NACIONALES Y EXTRANJEROS

FORMULARIO DE CONSENTIMIENTO INFORMADO

Yo, _____ estudiante de la carrera de pedagogía de los idiomas Nacionales y Extranjeros de la Universidad Técnica de Cotopaxi, acepto participar en el proyecto desarrollado _____ por _____ los estudiantes _____,

supervisado por la **Mg. Sonia Castro** el cual se llevará a cabo en el periodo académico 2024-2025. De igual manera, declaro que he sido informado que el análisis de los resultados de mi participación se realizará con el objetivo de investigar las limitaciones y las consecuencias negativas del aprendizaje de idiomas asistido por aplicaciones móviles. De igual manera, declaro que he sido informado de que el análisis de los resultados de mi participación se realizará con el único objetivo de contribuir al informe de investigación descrito anteriormente.

Entiendo que bajo ningún medio serán expuestos mis datos personales en el proyecto.

Por lo tanto, acepto y me comprometo voluntariamente a participar en las actividades de recopilación de datos por los autores del proyecto de investigación, pues además he recibido una copia del presente documento.

Firma del participante:

Cédula de identidad:

Correo electrónico:

Fecha:

12.2 Annex 2: Evaluation Instrument

Questionnaire on Mobile Applications for Language Learning

Instructions: Below are 10 closed-ended questions. Please mark the option that best reflects your experience with mobile applications for language learning. Your participation is completely voluntary and confidential.

1. Have you ever used mobile applications to learn any language?

- a) Yes
- b) No

2. How often and how much time do you use mobile applications for learning English?

- a) Daily, more than 1 hour per day
- b) Daily, 30 minutes to 1 hour per day
- c) Several times a week, less than 30 minutes per session
- d) Less than once a week
- e) Never

3. How useful do you consider mobile apps for improving your language skills in English?

- a) Very useful
- b) Useful
- c) Slightly useful
- d) Not useful at all

4. How much do you think mobile apps have improved your English vocabulary?

- a) A lot
- b) Quite a bit
- c) A little
- d) Not at all

5. How would you rate the quality of the practice activities (such as vocabulary, grammar, pronunciation exercises) provided by the mobile apps?

- a) Excellent
- b) Good
- c) Fair
- d) Poor

e) I don't do activities in the apps

6. Do you feel that mobile applications provide feedback on your learning errors?

- a) Always
- b) Often
- c) Sometimes
- d) Never

7. In terms of cognitive load, do you think the activities in the mobile apps are easy to understand and follow?

- a) Very easy
- b) Quite easy
- c) Somewhat difficult
- d) Very difficult

8. Which language skill has improved the most due to using mobile apps?

- a) Vocabulary
- b) Grammar
- c) Pronunciation
- d) Listening comprehension
- e) Writing

9. Do you think using mobile applications for learning English has helped you practice the language in real-life situations (e.g., conversations)?

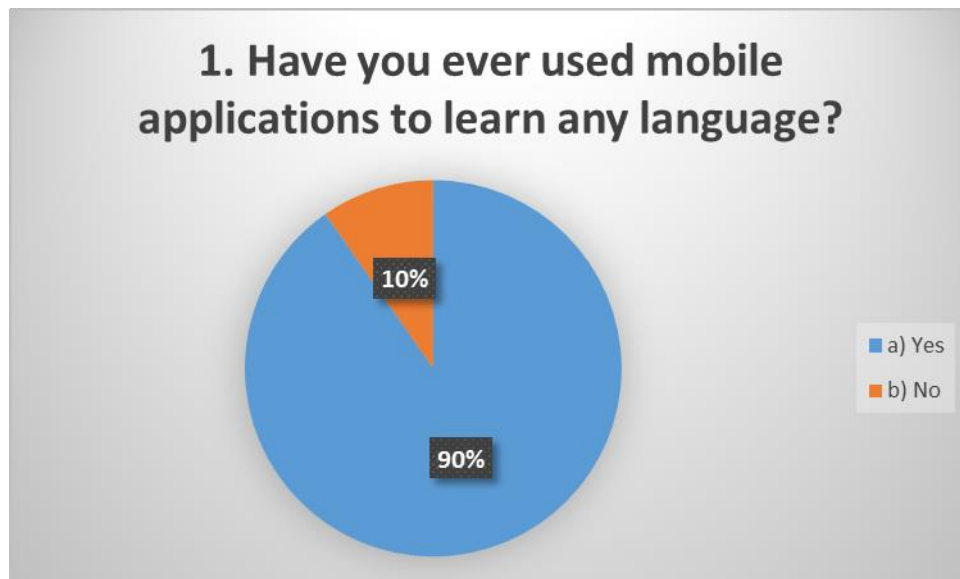
- a) A lot
- b) Quite a bit
- c) A little
- d) Not at all

10. In your opinion, what is the main limitation of using mobile apps for learning English?

- a) Lack of real interaction with native speakers
- b) Difficulty understanding the provided information
- c) Lack of motivation
- d) Limitations in app features
- e) No significant limitations

This instrument was developed based on the Mobile Learning Experience Questionnaire (Jung, 2018), which assesses users' overall experience with educational mobile applications, and the Cognitive Load Inventory (CLI) (Paas, 1998), which measures the perceived cognitive load experienced by students during the use of mobile learning technologies. Both tools are commonly used to evaluate the effectiveness of mobile applications in education and the students' cognitive effort involved in their use

12.2 Annex 3 : Analysis and Individual Results by Question from the Instrument



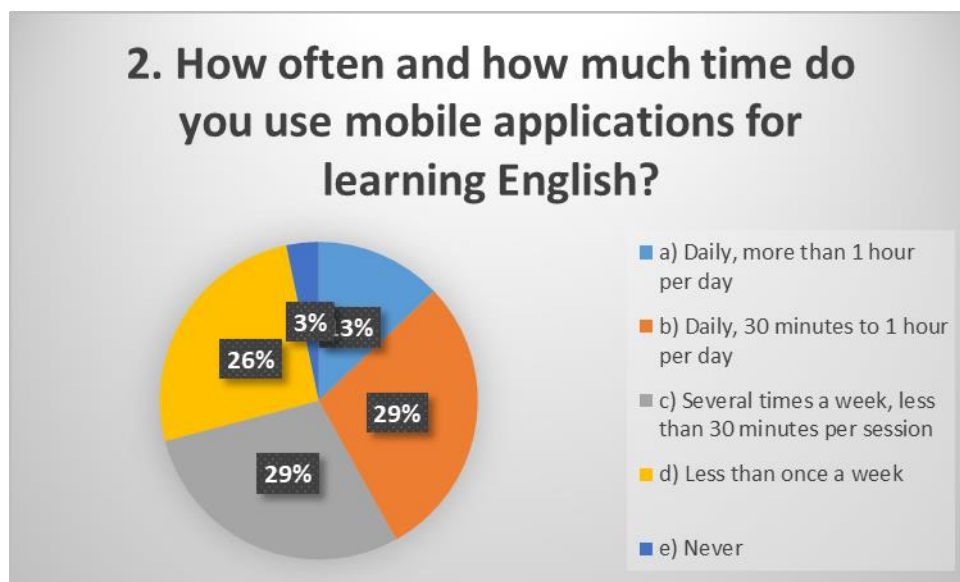
Graphic 4 Analysis of Survey Question 1: Use of Mobile Applications for Language Learning

Analysis of Survey Question 1: Use of Mobile Applications for Language Learning

The results of the first survey question, “Have you ever used mobile applications to learn any language?”, reveal a strong inclination toward mobile app usage among students. A significant 90.3% of respondents indicated they have used mobile applications for language learning, while only 9.7% stated they have not.

Interpretation:

This high percentage underscores the widespread adoption of mobile technology as a supplementary tool for language acquisition among students. The prevalence of app usage reflects its accessibility and appeal as a flexible and engaging resource. However, the 9.7% who have not used such applications may point to potential barriers, such as lack of access to devices, insufficient familiarity with mobile learning platforms, or a preference for traditional learning methods. These findings set the stage for deeper exploration of the effectiveness, benefits, and challenges of using mobile applications for language learning in subsequent sections



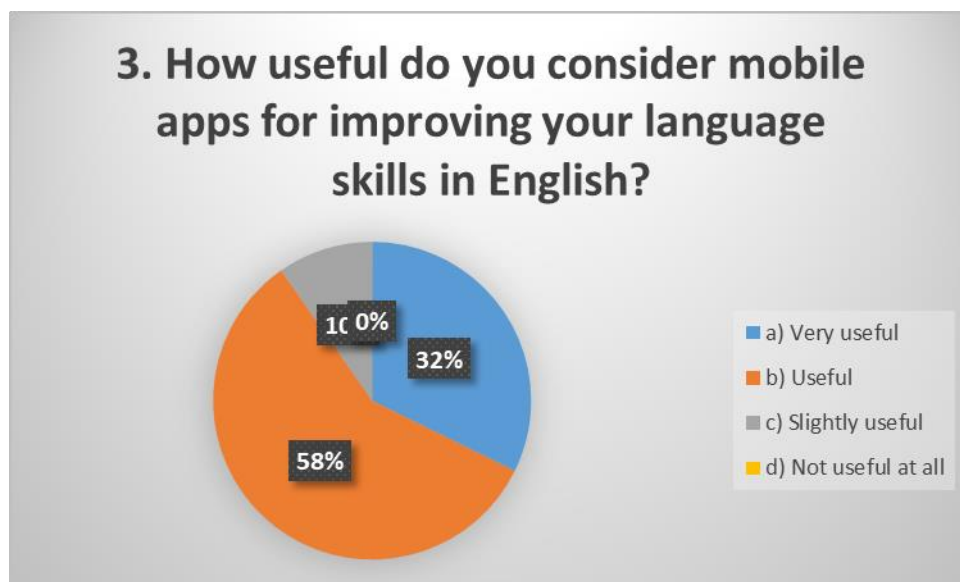
Graphic 5 Analysis of Survey Question 2: Frequency and Duration of Mobile Application Use for Learning English

Analysis of Survey Question 2: Frequency and Duration of Mobile Application Use for Learning English

The data reveals diverse usage patterns. Most students (58%) use mobile apps daily, with 29% spending 30 minutes to 1 hour and 12.9% exceeding 1 hour. Another 29% engage several times a week for short sessions, while 25.8% use them less than once a week. Only 3.3% never use these apps.

Interpretation:

Daily usage highlights the significant role of apps in consistent language practice. However, the 25.8% with infrequent use and 3.3% non-users suggest barriers like time constraints or lack of interest. These findings emphasize the need to understand motivations and challenges to optimize app adoption.



Graphic 6 *Analysis of Survey Question 3: Usefulness of Mobile Apps for Language Improvement*

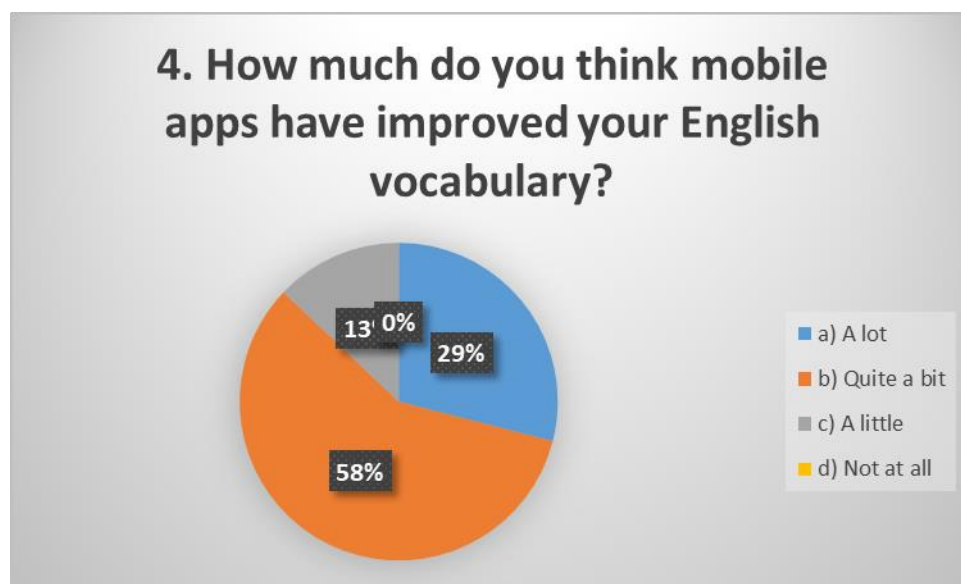
Analysis of Survey Question 3: Usefulness of Mobile Apps for Language Improvement

The results show that the majority of respondents recognize the usefulness of mobile applications in improving language skills. Specifically, 58% consider them "useful," while 32.3% rate them as "very useful," demonstrating a high level of satisfaction with the role of these tools in language learning. A smaller group, 9.7%, finds them "slightly useful," and none of the respondents selected "not useful at all."

Interpretation:

These findings highlight the general effectiveness of mobile applications in supporting language learning, particularly in areas like vocabulary, listening, and grammar. The high percentage of positive responses suggests that apps are meeting learners' expectations. However, the 9.7% who perceive limited usefulness may indicate gaps in app design, such as insufficient support for

advanced learners or lack of interactive, real-world application scenarios. This feedback underscores the importance of continuous development to ensure apps cater to a wider range of user needs and preferences.



Graphic 7 Analysis of Survey Question: Impact of Mobile Apps on English Vocabulary Improvement

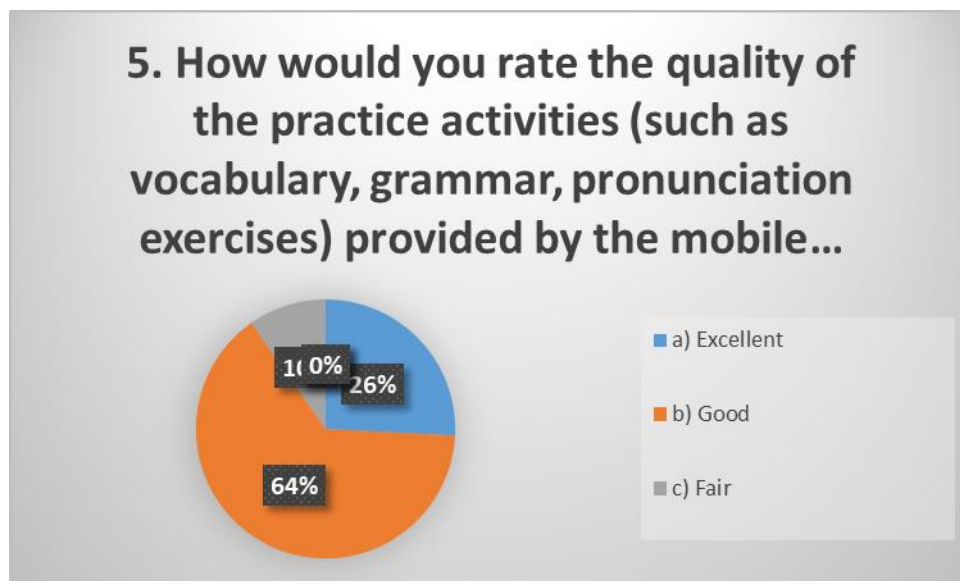
Analysis of Survey Question: Impact of Mobile Apps on English Vocabulary Improvement

The results indicate a strong positive perception regarding the impact of mobile applications on improving English vocabulary. A significant 58.1% of respondents believe that mobile apps have improved their vocabulary "quite a bit." In addition, 29% report that the apps have helped them "a lot," suggesting that these tools are highly effective for many learners in expanding their vocabulary. A smaller portion, 12.9%, feel that the impact has been "a little," and none of the participants indicated that mobile apps have had no effect on their vocabulary improvement.

Interpretation:

These results reflect the overall effectiveness of mobile applications as a tool for enhancing English vocabulary. The majority of respondents (87.1%) acknowledge a meaningful improvement, with a particularly large portion (58.1%) recognizing a significant contribution. This highlights the positive role that mobile apps play in language learning, especially in vocabulary acquisition, where users can engage with interactive content and personalized

exercises. However, the 12.9% who reported only a slight improvement suggest that there may be room for better app design, possibly focusing on more advanced learners or providing additional features for sustained vocabulary retention. The absence of any "no impact" responses further emphasizes the general perception that these apps are valuable resources for vocabulary learning, with potential for further refinement to meet diverse user needs.



Graphic 8 *Analysis of Survey Question: Quality of Practice Activities in Mobile Apps*

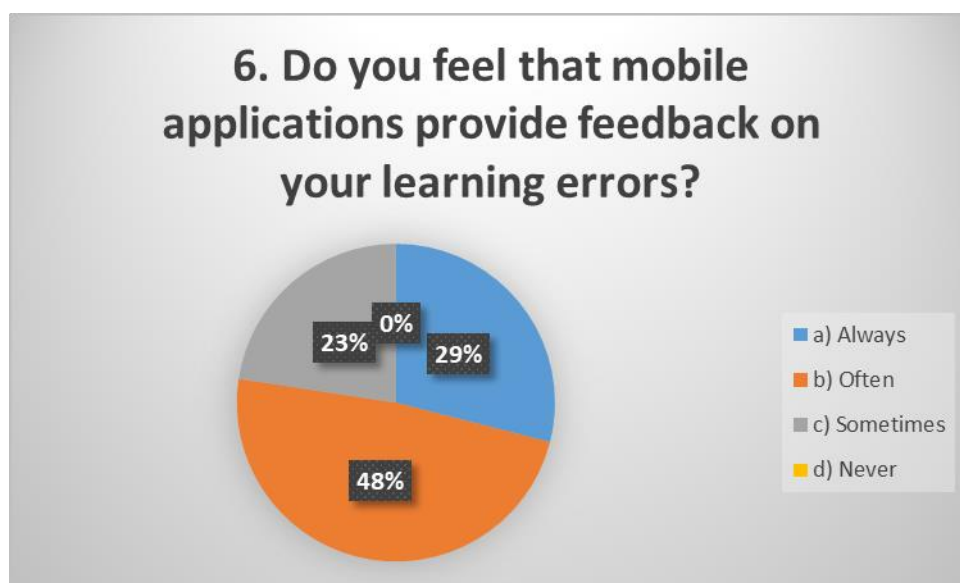
Analysis of Survey Question: Quality of Practice Activities in Mobile Apps

The results demonstrate a generally favorable evaluation of the quality of practice activities provided by mobile apps, such as exercises for vocabulary, grammar, and pronunciation. A substantial 64.5% of respondents rate these activities as "Good," while 25.8% consider them "Excellent," reflecting a strong overall satisfaction with the quality of practice exercises. A smaller group, 9.7%, rated the activities as "Fair," and none of the participants selected "Poor" or indicated that they do not engage in activities within the apps.

Interpretation:

These findings suggest that mobile apps are providing practice activities that are generally well-received by users, with most respondents finding them to be of good or excellent quality. This indicates that the apps are effective in delivering content that helps users improve key language

skills such as vocabulary, grammar, and pronunciation. The lack of "Poor" ratings is particularly noteworthy, as it emphasizes the overall positive feedback on the quality of practice activities. However, the 9.7% who rated the activities as "Fair" may indicate areas for improvement, such as the need for more challenging exercises or more engaging formats to enhance learning. The fact that no respondents indicated they avoid practice activities highlights the value of these exercises in the language learning process, underscoring the importance of maintaining and improving the quality of such content to cater to diverse learning preferences.



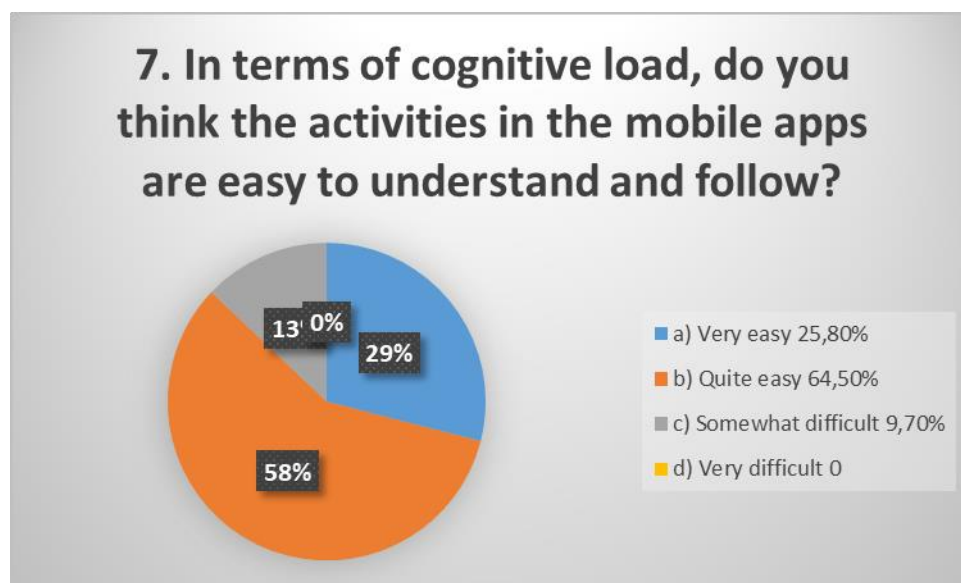
Graphic 9 Analysis of Survey Question: Feedback on Learning Errors in Mobile Apps

Analysis of Survey Question: Feedback on Learning Errors in Mobile Apps

The results indicate that mobile applications generally provide a significant level of feedback on learning errors. A substantial 48.4% of respondents reported that they receive feedback "Often," while 29% indicated that feedback is provided "Always," suggesting that most users find mobile apps to be responsive in helping them identify and correct their mistakes. A smaller proportion, 22.6%, stated that feedback is given "Sometimes," and none of the respondents selected "Never."

Interpretation:

These results reflect the effectiveness of mobile apps in providing corrective feedback during the learning process. The high percentage of respondents who report receiving feedback "Often" or "Always" highlights the importance of immediate correction in language learning, which helps reinforce correct usage and avoid the repetition of mistakes. The fact that no one selected "Never" indicates that the majority of apps in question include some form of feedback mechanism, which is crucial for learner progress. However, the 22.6% who feel they receive feedback only "Sometimes" suggests there may be variability in the consistency or clarity of feedback across different apps. This highlights an opportunity for developers to enhance the feedback features, ensuring more frequent and tailored responses to users' errors, further boosting the overall learning experience.



Graphic 10 Analysis of Survey Question: Cognitive Load of Activities in Mobile Apps

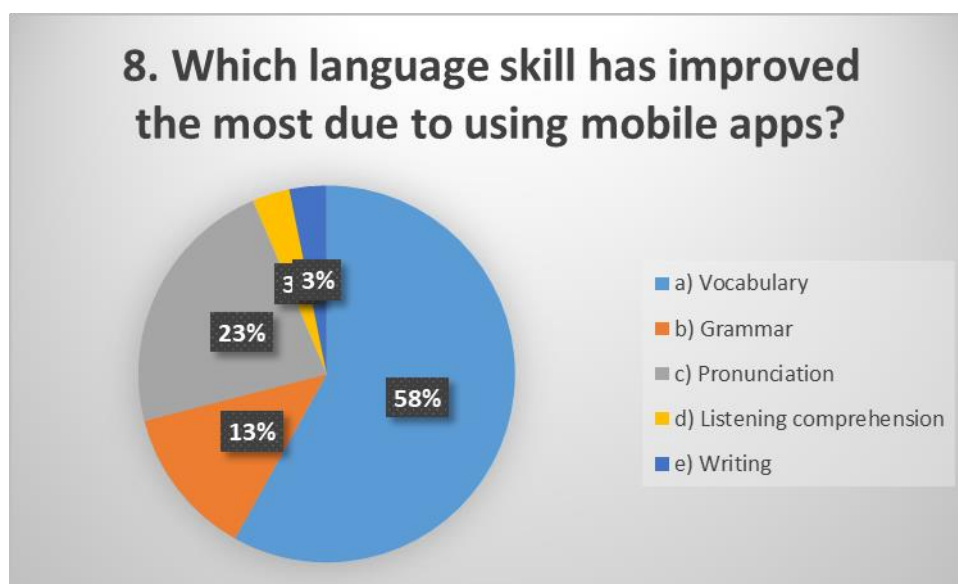
Analysis of Survey Question: Cognitive Load of Activities in Mobile Apps

The results show that the majority of respondents find the activities in mobile apps to be relatively easy to understand and follow. A significant 64.5% of participants rated the activities as "Quite easy," while 25.8% found them "Very easy." This indicates that most users feel comfortable engaging with the activities without experiencing a high cognitive load. A smaller

group, 9.7%, reported that the activities were "Somewhat difficult," and none of the participants selected "Very difficult."

Interpretation:

These findings suggest that mobile apps are generally successful in offering activities that are manageable in terms of cognitive load. The majority of users (90.3%) find the tasks easy to follow, which is essential for maintaining user engagement and preventing frustration during the learning process. The absence of "Very difficult" ratings reinforces the idea that the apps are designed to be user-friendly and accessible. However, the 9.7% who indicated that the activities are "Somewhat difficult" might point to areas where certain users could benefit from additional support or clearer instructions, particularly for more complex topics or higher-level content. This feedback emphasizes the importance of balancing challenge and ease in app design, ensuring that activities remain engaging and effective without overwhelming learners.



Graphic 11 Analysis of Survey Question: Language Skill Improvement Due to Mobile Apps

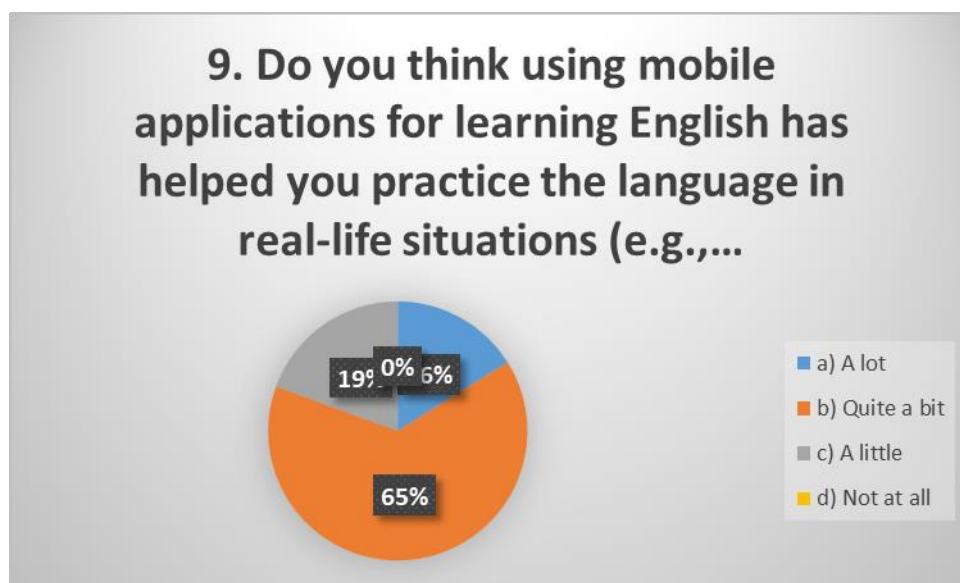
Analysis of Survey Question: Language Skill Improvement Due to Mobile Apps

The results show that mobile apps have had the most significant impact on improving vocabulary, with 58.1% of respondents selecting this option. Pronunciation follows with 22.6%,

while 12.9% indicated that grammar was the most improved skill. A smaller portion, 3.2%, reported improvements in listening comprehension and writing, both receiving equal responses.

Interpretation:

The findings suggest that mobile apps are most effective in enhancing vocabulary, with more than half of the respondents identifying it as the skill most improved. This aligns with the fact that many mobile apps are designed with an emphasis on expanding vocabulary through interactive exercises, repetition, and personalized content. The notable improvement in pronunciation (22.6%) also indicates that apps provide useful resources for practicing spoken language, though their focus on listening comprehension and writing remains limited, as evidenced by the lower percentages (3.2% for both). These results highlight the strong performance of mobile apps in certain language areas, but they also suggest that developers might focus on further enhancing features related to listening comprehension and writing to provide a more balanced improvement across all language skills



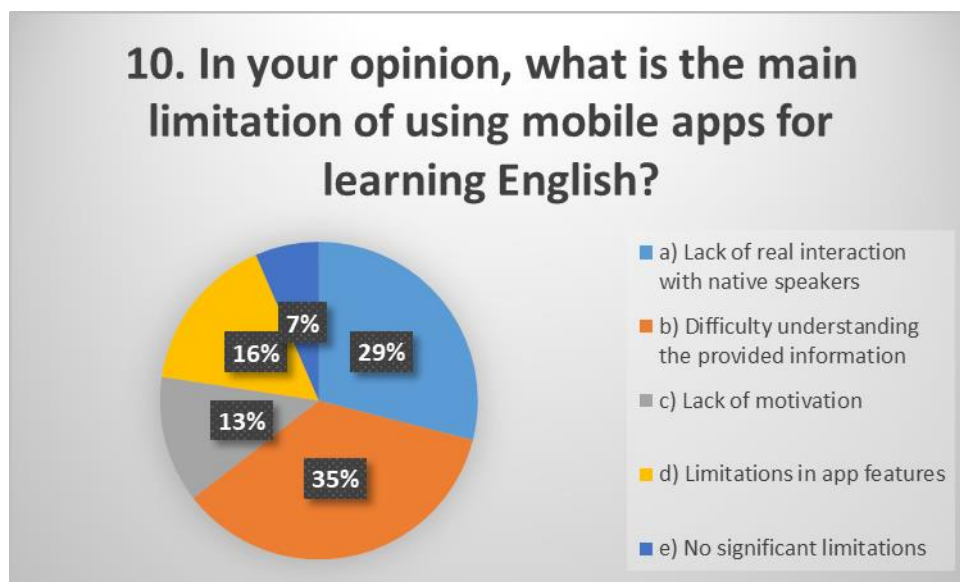
Graphic 12 Analysis of Survey Question: Mobile Apps and Real-Life English Practice

Analysis of Survey Question: Mobile Apps and Real-Life English Practice

The results reveal that the majority of respondents believe mobile applications have helped them practice English in real-life situations. A significant 64.5% of participants indicated that apps have helped them "Quite a bit," while 16.1% reported that they have been helpful "A lot." Only 19.4% stated that the apps have helped "A little," and no respondents selected "Not at all."

Interpretation:

These results suggest that mobile apps play a notable role in preparing learners for real-life language use, with the majority of respondents feeling that the apps have contributed significantly to their practical language skills. The 64.5% who selected "Quite a bit" indicates that while the apps are useful for practicing English in real-life contexts, there may be areas where apps can be further enhanced, such as providing more opportunities for real-time conversations or interactive scenarios. The 16.1% who reported significant help ("A lot") reflects the effectiveness of mobile apps in bridging the gap between theoretical knowledge and practical application. The 19.4% who feel only a little benefit may point to limitations in the app's real-life application features, suggesting that further development of features like conversation practice, contextual learning, or simulated real-world interactions could improve the overall impact of mobile apps for language learners.



Graphic 13 Analysis of Survey Question: Main Limitation of Mobile Apps for Learning English

Analysis of Survey Question: Main Limitation of Mobile Apps for Learning English

The results highlight several perceived limitations of using mobile apps for learning English. The most commonly identified limitation is the "Lack of real interaction with native speakers", selected by 29% of respondents. 35.5% of participants reported "Difficulty understanding the provided information" as the main limitation, making it the highest concern. 12.9% of respondents cited "Lack of motivation" as a limitation, while 16.1% pointed to "Limitations in app features." A smaller group, 6.5%, stated that they perceive "No significant limitations."

Interpretation:

These results reveal key areas where mobile apps may fall short in supporting English language learners. The lack of real interaction with native speakers (29%) is the most significant concern, emphasizing the importance of real-world practice and conversational skills that apps may not fully replicate. While apps provide valuable content and practice, many learners may feel that they are missing out on the authenticity and fluency gained through direct interaction with native speakers. The second-largest concern, difficulty understanding the provided information (35.5%), suggests that some users might struggle with complex instructions, unclear content, or a lack of appropriate learning scaffolding, which could hinder progress. Additionally, app feature limitations (16.1%) reflect a desire for more interactive, varied, or advanced functionalities that

could further enhance the learning experience. The lower percentages for lack of motivation (12.9%) and no significant limitations (6.5%) indicate that, while these are factors for some, they are not as widely perceived as the primary challenges. Overall, these findings highlight the need for mobile apps to better simulate real-life language interactions, provide clearer instructional content, and enhance features to address a broader range of learner needs.