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**The Impact of Using Duolingo as a Mobile Assisted Language-Learning
Tool in Developing Students Vocabulary Size**

**The case of second year lisenca students at English Department University
of Kasdi Merbah Ouargla**

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Dedication

To my beloved parents, *Mustafa*, my source of support, and *Halima*, my guiding star, whose love and guidance are with me in every step I take. Your wisdom has been my guiding light, and your sacrifices have paved the path I walk upon.

To my dear brothers, *Selmane*, *Mohammed*, and *Taha*, I am incredibly grateful for your unwavering encouragement, certainly belief in my potential, and the unconditional support and wisdom that only siblings can offer. You have not simply been brothers to me, but you have been the pillars of my strength.

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A special thanks to my binomial and sister, *Yasmine*, whose collaboration and remarkable kindness have always touched me. Your presence is a constant source of love and support. May your journey be filled with endless opportunities.

This dissertation stands as a tribute to the collective wisdom, love, and support you have all generously shared with me. It is with deep respect and gratitude that I dedicate this work to you.

Abir Toumi

Dedication

I dedicate this work to:

To ***myself*** for believing in me and my capacities and for every single effort I made.

To the diamond of my life, my beloved mother ***Houria***, and to my lovely father, the source of my power, ***Bahri*** for their infinite love, care, and encouragement to accomplish this work, all words cannot express my gratitude to them. May God bless them.

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Abstract

The current research investigates the impact of utilizing Duolingo as a mobile-assisted language learning tool on the development of students' vocabulary size. The study focuses on second year liscence students in the Department of English at Kasdi Merbah University of Ouargla. A mixed methods approach, combining quantitative and qualitative methods, is employed for data collection and analysis. Data collection involves administering a questionnaire to 110 students who use Duolingo. Additionally, semi-structured interviews are conducted with eight of these students at the Department of English. The questionnaire comprises both closed-ended and open-ended questions, while the interviews aim to provide in-depth insights. To analyze the data, the Statistical Package for Social Sciences (SPSS) is used to analyze the numerical data derived from the closed-ended questionnaire items. Qualitative Content Analysis (QCA) is applied to interpret the findings from the open-ended questions in both the interviews and the questionnaire. The findings of the study indicate that the majority of students hold positive attitudes and have a beneficial experience through using Duolingo as a tool for learning vocabulary. Moreover, the qualitative data obtained from interviews provide additional insights into the specific aspects of Duolingo that contribute to its usefulness as a vocabulary learning tool. The research results contribute to the understanding of the effectiveness of mobile-assisted language learning tools, specifically Duolingo, in enhancing students' vocabulary size. The findings can inform educational institutions and language teachers about the potential benefits of integrating Duolingo into language learning curricula, particularly for vocabulary development. Further research could explore other aspects of Duolingo impact on language learning and investigate its effectiveness in different educational contexts.

Keywords:

Duolingo. Technology-enhanced teaching .Mobile- Assisted -language learning. (MALL).
Vocabulary size development .

list of abbreviations:

AECT: Association for Educational Communications and Technology.

Apps: Application software.

CALL: Computer-Assisted Language Learning.

EdTech: Educational Technology.

EFL : English as a Foreign Language.

ESL : English as a Second Language.

KMU: Kasdi Merbah University of Ouargla.

L1: First language.

L2: Second language.

LMD: License, Master, Doctorat.

MALL: Mobile-Assisted Language Learning.

M-learning: Mobile Learning.

PDA: personal digital assistant.

QCA: Qualitative Content Analysis.

SPSS: Statistical Package for Social Sciences.

TL: Target language.

VLSs: vocabulary Learning strategies.

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General Introduction

General introduction

1. Research Background

The digital age has brought significant changes to the educational system, especially in the field of language learning. With the use of technology, such as smartphones, tablets, and PCs, learners can access various resources and tools that make learning languages more practical and accessible. According to Cakir (2016), students incorporate technology extensively into their daily routines and consider it a valuable and easy tool that enhances their learning experience, including language acquisition. One of the innovative tools that has emerged in this context is mobile-assisted language learning, which is particularly useful for teaching English as a foreign language. This tool allows learners to avoid the limitations of traditional methods, such as word drilling and extensive library research, and to enjoy the convenience and flexibility of learning at their own pace and place. Moreover, mobile-assisted language learning enhances the motivation and enjoyment of learners, as they can engage in interactive and gamified exercises that foster their vocabulary size and English proficiency. For instance, Duolingo is a popular educational app that offers a variety of activities and challenges that help learners expand their vocabulary and improve their language skills. The importance of vocabulary-building cannot be overstated, Nation (2011), and other scholars have recognized the crucial importance of acquiring vocabulary for the effective use of a second language, which significantly contributes to the development of comprehensive spoken and written texts. In English as a second language (ESL) and English as a foreign language (EFL) contexts, the mastery of vocabulary plays a fundamental role across all language skills, including listening, speaking, reading, and writing. Therefore, the integration of technology into language learning is a beneficial and promising approach that can facilitate the acquisition and mastery of languages in the digital age.

2. Statement of problem

The adaptation of mobile-assisted language learning as a new and useful approach to e-learning has provided learners with accessibility to use mobile applications as a tool in learning languages. This facilitate the process and made it more applicable to learners whom they seek to find an easy application in their smartphones. They can make them able to practice language whenever and wherever they want, using fun and less time-consuming tools. These tool break down the traditional , often boring methods and offers unlimited beneficial tasks for developing

learners skills. vocabulary-building is especially important , as it serves as a key measurement of language proficiency. many researchers before address that EFL learners face real difficulties to acquiring new words and raising up their vocabulary size to ensure an effective communication among language learner's; this difficulties may be related to several causes which come from the lack of instructions in using learning technology tools which lead the learner to the unuseful use of those technologies which may affect negatively the growth of their vocabulary size . Starting from these difficulties we can realize how insufficient vocabulary size takes place as a serious problem in the EFL learning process. Recognizing the importance of vocabulary size in EFL learning, Duolingo, one of the most popular mobile assisted language learning applications, has gained attention. With over 300 million users worldwide, Duolingo offers lessons in more than 40 languages and claims to be the most popular language-learning platform. However, despite its popularity and accessibility, there is limited research on the effectiveness and impact of Duolingo as a language learning tool, especially in terms of vocabulary acquisition and development. Many Second year English students at the English department of Kasdi Merbah University of Ouargla showed great attention to the know-how that mobile applications can help them acquire new vocabulary to enhance their language competencies. This dissertation aims to fill this gap by investigating the impact of the Duolingo app as a MALL tool on developing students' vocabulary size.

3. Aim of the Study

The present dissertation aims to investigate second year Bachelor EFL students attitudes towards the use of Duolingo as a mobile-assisted language learning in developing students vocabulary size in the English department of the Kasdi Merbah University of Ouargla. In other words, the main objective of this work is to reach an understanding of students' views of using mobile learning to acquire vocabulary, and how they can simply acquire vocabulary through the Duolingo application.

The importance of this research lies in shedding light on the pivotal details of the perceived strengths and limitations of the Duolingo application in comparison to traditional vocabulary learning methods, and the experiences of students towards using Duolingo for vocabulary learning.

4. Research Questions

The objective of the current investigation is to provide responses to the following Questions:

1. How does using Duolingo affect students' vocabulary size in the Target language?
2. What are the perceived strengths and limitations of Duolingo in comparison to traditional vocabulary learning methods?
3. In what ways do learners perceive their experiences of using Duolingo for vocabulary learning?

5. Research Hypothesis

Hypothesis 1: The use of Duolingo may positively affect students' vocabulary size in the target language.

Hypothesis 2: Duolingo could be perceived to have several strengths compared to traditional vocabulary learning methods, including its accessibility, gamified approach, and adaptive learning features. However, it may also have limitations such as cultural context and interaction with native speakers when compared to traditional vocabulary learning methods.

Hypothesis 3: Learners can perceive their experiences of using Duolingo for vocabulary learning as engaging and interactive. They appreciate the convenience and flexibility that Duolingo offers, allowing them to learn at their own pace. However, some learners may also perceive the lack of human interaction and speaking practice as a drawback.

6. Significance of the Study

The significance of this study lies in its exploration of the efficacy of the Duolingo app as a tool for Mobile Assisted Language Learning (MALL), with a specific focus on expanding students' vocabulary. The research aims to demonstrate the potential of integrating mobile applications into language learning to enhance vocabulary and facilitate its growth and development. By examining the Duolingo app, the study provides valuable insights into how such tools can improve the learning experience, making it more engaging and self-directed, while empowering learners to take control of their language learning journey. Furthermore, the findings

of this study may inspire and encourage other researchers to pursue further investigations in this domain.

7. Research Methodology

Our research is based on a mixed-method approach, which means we use both quantitative and qualitative methods to collect and analyze data. We use two main instruments to gather data: a survey and an interview. We target second-year students of English at KMU with our survey, and we also interview some of them. For the quantitative part, we used the computer software SPSS to analyze the data from the survey. For the qualitative part, we use Qualitative Content Analysis (QCA) to interpret the data from the interview.

8. Structure of the Dissertation

The current research is composed of two primary sections: The first section provides the theoretical framework, while the second section details the practical field research.

The theoretical part is divided into two chapters; the first chapter delves into vocabulary learning, offering a comprehensive view through various scholars' definitions, emphasizing its importance, and focusing on the difference between two kinds: receptive and productive vocabulary. It provides the specific types, and techniques of learning and teaching vocabulary. Additionally, it introduces common challenges learners may encounter in the process of vocabulary acquisition.

After this, the second chapter explores the role of Mobile Assisted Language Learning (MALL) and the Duolingo app in language acquisition, which are key subjects of this study. It provides an in-depth analysis of how technology and MALL are incorporated into language learning, particularly through the widespread use of the Duolingo app and its gamification strategy. This includes an examination of its use, objectives, and the effectiveness of its gamification in enhancing the vocabulary acquisition of EFL students.

Finally, the second part is dedicated to the fieldwork stage, providing a summary of the research methods and data collection strategies employed. It further explores the analysis, interpretation, and discussion of the outcomes. In conclusion, it offers an in-depth examination of the comprehensive summary derived from the research data collected.

Theoretical Part

Chapter one: vocabulary learning

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Introduction

Language is a system of communication, built upon words and syllables used to convey meaning and express ideas. People naturally use numerous words daily, underscoring the importance of vocabulary in understanding language. Learning the vocabulary of a second language can be challenging, particularly if the language being learned tends to have an extensive word. However, even fluent speakers may feel frustration when they cannot recall a needed word.

Accordingly, this chapter is concerned with the theoretical framework surrounding teaching and learning vocabulary in the context of teaching English as a foreign language (EFL). It begins by broadly defining vocabulary in general and dividing it into two main types: words we understand (receptive) and words we use (productive). Additionally, it highlights the importance of vocabulary and teaching techniques and discusses the four types of vocabulary learning, moreover it addresses the common challenges in vocabulary learning, and ends with the discussion of vocabulary learning strategies.

1. Definition of Vocabulary

In the context of EFL (English as a Foreign Language), vocabulary refers to the set of words and phrases a learner knows and understands in English. As Hatch & Brown define vocabulary as a list or set of words for a particular language, or a list or set of words that an individual speaker of a language might use. (1995). Which means conceptualizing vocabulary as either a compilation of words specific to a language or a collection of words employed by an individual speaker within that language. This broad definition encompasses not only the lexical inventory of a language but also acknowledges the personal variation and usage patterns that exist among speakers. It plays a crucial role in language acquisition and proficiency, as it enables learners to comprehend and communicate effectively in English, Diamond & Gutlohn stated that vocabulary is the knowledge of words and words' meanings. (2006). that is the fundamental concept of vocabulary is the acquisition and understanding of words and their meanings

Nation (2001) describes the correlation between vocabulary knowledge and language practice as complementary: the skill of vocabulary enables language use conversely. Language use leads to an increase in vocabulary knowledge. Stahl describes " Vocabulary knowledge is knowledge; the knowledge of a word not only implies a definition, but also implies how that word fits into the world " (2005 p.95) , which means vocabulary knowledge is multidimensional, incorporating not.

This comprehensive understanding enhances communication skills and enables individuals to navigate language effectively in various contexts. However, the activation of second language vocabulary involves the process of recalling and using learned vocabulary during language production and comprehension tasks, essential for fluency and accuracy in communication.

Different definitions of vocabulary according to different views about its meaning and how it is used. But one thing is clear: you cannot learn a language without learning its words. UR (1981) characterized vocabulary as the lexicon imparted to learners in a foreign language. Emphasizing its role as the fundamental unit representing ideas in written or spoken form. Additionally, Ur (1991) stated that:

"Vocabulary can be defined roughly, as the words we teach in
The foreign language. However, a new item of vocabulary may
Be more than just a single word: for example, post office, and
Mother-in- law, which are made up of two or three words but
Express a single idea. A useful convention is to cover all such
Cases by talking about vocabulary 'items' rather than 'words'". (p60).

All the definitions of vocabulary it can be concluded that vocabulary refers to the complete collection of words required for effective communication, including the ability to identify objects or concepts and to convey the intended message of the speaker or writer. In simpler terms, it is about understanding and using the right words to express oneself.

2. Kinds of Vocabulary

Experts have categorized vocabulary into two main types: active and passive. Harmer (1991) made this distinction, explaining that active vocabulary consists of words students have been taught and are expected to use, while passive vocabulary comprises words students recognize but may struggle to use. Hatch & Brown (1995) also described these as receptive and productive vocabularies.

2.1. Receptive Vocabulary or Passive Vocabulary

Receptive vocabulary can be addressed as passive vocabulary, which is defined by Redman and Gairns (1986) as the collection of words and language components that individuals can comprehend and grasp only when encountered within the context of written or spoken material. This implies that the understanding of these words relies heavily on the surrounding context provided by the text or speech. For example, someone might understand the word "elephant" when reading a sentence about animals in a zoo, but might not fully grasp its meaning in isolation.

Building on this, Nation (2001) further elaborated on receptive vocabulary by emphasizing the process of recognizing the structural components of words while engaging in listening or reading activities. In a simpler way, receptive vocabulary means the words that learners recognize and understand when they are used in context, but which they cannot produce.

The crucial thing that recognizes receptive language plays a significant role in effective communication and overall functioning. Difficulties in understanding can indeed lead to challenges in following instructions, participating in educational settings, and engaging in various activities. Addressing these challenges through tailored support and interventions can greatly improve individuals' ability to navigate daily tasks and academic environments.

2.2. Productive Vocabulary or Active Vocabulary

Alqahtani (2015) defines productive vocabulary as productive vocabulary is the words that the learners understand and can pronounce correctly and use constructively in speaking and writing” (p.25).

This encompasses the comprehension needed for receptive vocabulary along with the capacity to employ words appropriately in communication. Hence, productive vocabulary is viewed as an active process, enabling learners to articulate their thoughts effectively (Webb, 2005), in other words, the learners can produce the words to express ideas to others. Redman & Gairns (1986) disagreed with the practice of dividing vocabulary into "productive" (words you actively use) and "receptive" (words you understand but do not necessarily use) categories, arguing that this distinction can be artificial and not always straightforward. However, they still acknowledged the value of recognizing this difference when learning new vocabulary.

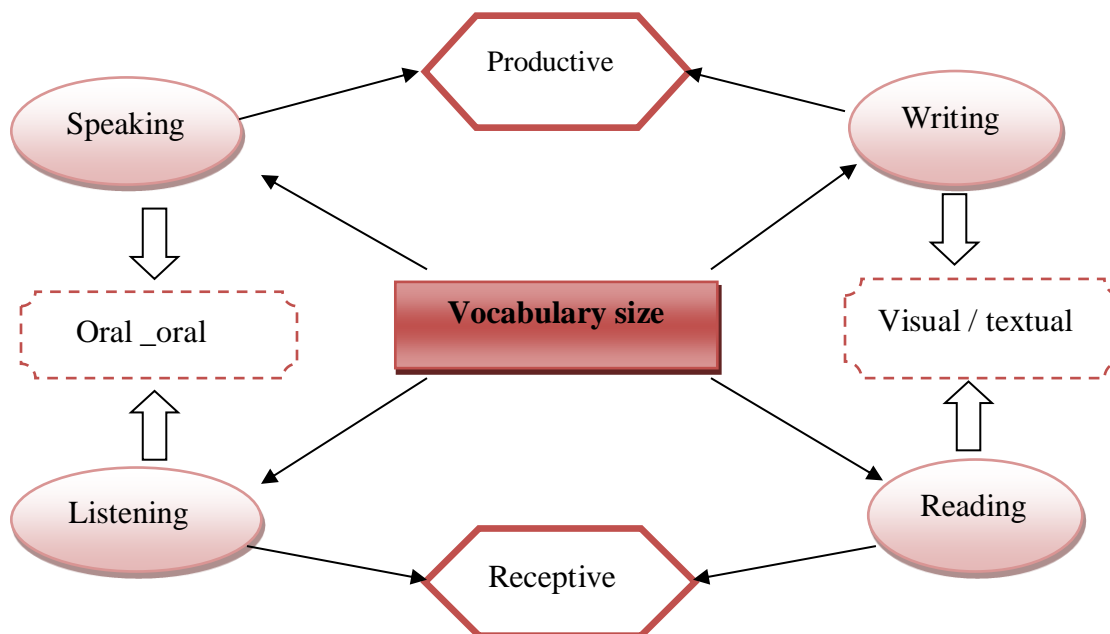


Figure 1. 1 : diagram of Receptive and Productive vocabulary

the figure 1.1 explains the understanding of vocabulary which involves both recognizing words when reading or listening and recalling their meanings. Using vocabulary actively entails expressing ideas through speaking or writing and correctly producing the appropriate words. "Receptive vocabulary use involves receiving the form of a word while listening or reading, and retrieving its meaning. Productive vocabulary use involves writing to express meaning through

speaking or writing, and retrieving and producing the appropriate spoken or written form" Nation (2001,p 37).

3. The Importance of Vocabulary

Nation(2001) further describes the relationship between vocabulary knowledge and language use as complementary. Knowledge of vocabulary enables language use, and conversely, language use leads to an increase in vocabulary knowledge.He explains that vocabulary knowledge and language use complement each other, with each reinforcing the other. Mastery of vocabulary facilitates effective communication, while engaging in language use aids in expanding one's vocabulary. Vocabulary acquisition is an essential aspect of language proficiency, crucial for expressing ideas, emotions, and intentions. It plays an indispensable role in language instruction, enabling learners to navigate linguistic contexts with confidence. Words themselves are powerful tools for communication, allowing individuals to convey their thoughts and feelings accurately. Success in language learning hinges on the continuous process of learning, understanding, and incorporating new words into one's linguistic repertoire. Increasing one's vocabulary enhances language learning outcomes significantly.

Expanding our vocabulary enhances our ability to convey thoughts effectively, underscoring the crucial role it plays in language acquisition for learners, regardless of the language they are studying.

Most students and many educators argue that understanding grammar rules holds greater significance than vocabulary knowledge. Nonetheless, numerous researchers have emphasized that without a sufficient vocabulary, students cannot effectively apply grammar rules. Therefore, it is suggested that students should prioritize acquiring essential vocabulary before delving into grammar instruction.

On the other hand, learning both grammar and vocabulary is highly beneficial. Balancing and prioritizing them equally represents a significant milestone in language acquisition. Proficiency in grammar enables students to effectively apply it only when supplemented by sufficient vocabulary and word comprehension. Moreover, it is widely acknowledged that vocabulary forms the cornerstone of language learning and instruction, exerting a substantial impact on students' progress and development.

Indeed, in both English as a second language ESL and English as a foreign language EFL contexts, mastering vocabulary is crucial for developing proficiency in all language skills: listening, speaking, reading, and writing (Nation (2011). Rivers and Nunan (1991) Acquiring an adequate vocabulary is indeed crucial for successful second language use. Even if one has learned the grammatical structures and functions of a language, without an extensive vocabulary, it is challenging to effectively convey ideas or understand others. Vocabulary provides the necessary building blocks for constructing sentences and expressing nuanced meanings. Without it, communication becomes fragmented, limiting comprehension and hindering fluency. In essence, vocabulary acts as the bridge that connects language structures and functions, enabling meaningful and comprehensible communication in a second language. (Alqathani, 2015). These instances effectively demonstrate the significance and benefits of having a diverse vocabulary.

Oxford (1990) also claims that vocabulary is by far the most sensible and unmanageable component in the learning of any language, whether foreign or one's mother tongue because of the tones of thousands of different meanings. Despite the hurdles language learners encounter in acquiring vocabulary, they must still face examinations as "vocabulary has additional being one of the language components measured in the language tests." (Schmitt 1999, 189). Many learners perceive second language acquisition primarily as the acquisition of vocabulary and thus devote considerable time to memorizing word lists and relying heavily on bilingual dictionaries for communication. Consequently, language educators and applied linguists now widely acknowledge the significance of vocabulary acquisition and are exploring more effective teaching methods. Some researchers are specifically investigating the strategies learners employ in vocabulary acquisition, which is our focal point (Alqathani, 2015). Therefore, the teaching of vocabulary to learners is increasingly crucial, and it is encouraging that learners are recognizing its importance and dedicating effort to improving their vocabulary skills. Addressing the challenges associated with teaching vocabulary will make language learning notably easier, enabling everyone to choose the most suitable vocabulary acquisition method for themselves .Vocabulary has additional being one of the language components measured in the language tests:

4. Vocabulary Teaching

Despite the acknowledged significance of vocabulary learning by numerous scholars, Milton (2009) contends that both the learning and teaching of vocabulary are undervalued, as indicated on page 1 of his work. One explanation he provides is the ongoing belief among learners and educators that one can effectively acquire and utilize a new language even with a limited vocabulary. Additionally, he highlights the misconception that vocabulary acquisition occurs naturally, thus diminishing the perceived need for explicit vocabulary instruction.

Takač (2008) discussed how teaching practices in the past have been shaped by linguistic and psycholinguistic research. Initially, methods favored implicit vocabulary learning, emphasizing guessing from context and discouraging direct translation. However, educators like Sökmen (1997) found this approach to be slow and inefficient. Consequently, there has been a shift towards more intensive and explicit vocabulary teaching from the beginning of language learning programs (Judd, 1978). This approach ensures a systematic and logical progression in vocabulary acquisition, preventing the haphazard accumulation of words. Nevertheless, the effectiveness of explicit teaching is debated, as learners may not retain everything taught. Takač (2008) emphasized the contemporary approach's recognition of the value of both implicit and explicit teaching, aiming to enhance the efficiency of vocabulary instruction.

Recent research suggests that teaching vocabulary can be challenging due to many teachers lacking confidence in effective vocabulary teaching methods and struggling to determine where to start when emphasizing word learning (Berene & Blachowicz, 2008). Similarly, Thornbury (2002) emphasized the importance of teaching vocabulary, highlighting that language acquisition is fundamentally built on words. McCarthy, O'Keeffe, and Walsh (2010) further underscored the significance of vocabulary by stating, "Vocabulary is fundamental to language; without understanding and using words effectively, language learning is limited." (p.1) .Thus, mastering vocabulary is essential for effective communication in any language.

5. Techniques of Teaching Vocabulary

The strategies used by English teachers to teach vocabulary involve various techniques aimed at helping students understand and remember new words effectively. When introducing new vocabulary, it is crucial for teachers to ensure that students not only learn the words but also retain them for future use. This requires practice, learning, and correction to reinforce the strategies taught by teachers. Teachers employ various techniques for presenting vocabulary, which are influenced by factors like content, time constraints, and learner needs (Takač. 2008), they often combine multiple techniques when introducing a planned vocabulary item, rather than relying solely on one approach. The following are some suggested techniques for teaching vocabulary, as proposed by some experts.

5.1. Teaching Vocabulary Using Objects

This method employs visual aids, real-life objects, and demonstrations to leverage our strong memory for objects. Visual strategies can be effective in helping us remember words individually and can improve language retention for learners. Additionally, using actual objects is particularly beneficial for beginners and young learners, especially when teaching concrete nouns, as objects can be used to illustrate meanings. By introducing a new term through the presentation of a real object, students often find it easier to remember the word through mental imagery. Classroom objects or items brought in from outside can be utilized for this purpose.

5.2. Teaching Vocabulary Using Drawing

Objects can be depicted either by drawing them on the blackboard or by creating flashcards. Flashcards, in particular, have the advantage of being reusable in various contexts if they are made with durable materials like cards covered in plastic. These flashcards serve as effective tools for helping young learners grasp and internalize the key concepts they have learned in the classroom. By using flashcards, educators can facilitate a clear understanding of important information and enable students to recognize and recall the main points with ease.

5.3. Teaching Vocabulary Using Illustrations and Pictures

Using images to teach vocabulary links students' existing understanding with new narratives, aiding in word acquisition. Various visuals like posters, flashcards, and photographs effectively elucidate unfamiliar word meanings, serving as valuable tools for clarity. These resources, ranging from traditional wall charts to modern blog drawings, encompass a diverse array of visuals for vocabulary instruction, sourced from various outlets. It is crucial to utilize them frequently for optimal learning outcomes. In addition to illustrations created by teachers or students, there are collections of vibrant images designed specifically for educational settings. Pictures clipped from newspapers and magazines also serve as valuable resources. Nowadays, numerous reading materials, vocabulary books, and textbooks feature an array of engaging visuals to illustrate basic vocabulary. Educators have access to school-provided learning materials and can also devise their own visual aids or incorporate images from publications. Visual support aids comprehension and enhances retention, making words more memorable for learners.

6. Vocabulary Learning

Vocabulary learning is an indispensable process of English as a second language (ESL) learners to acquire proficiency and competence in target language. The strength of one's vocabulary enables one to speak confidently and write in a compelling manner. It facilitates both learners' acquisition of knowledge and production of knowledge. It enriches learners' integrated language skills such as listening, speaking, reading, and writing. Vocabulary learning helps acquire a language, develop the learner's reading proficiency, and it is beneficial for reading comprehension (Tozcu & Coady, 2004). Learning the vocabulary encompasses four stages, discrimination, understanding meaning, remembering and consolidation, and extension of the meaning, firstly learners distinguish sounds and letters, aiding in proper pronunciation and comprehension. Secondly, they grasp word meanings by associating them with their references, thirdly, the remembering, involves retaining meanings, while the fourth stage, Consolidation and Extension, entails learning and integrating new vocabulary into one's lexicon. However, learning vocabulary can be challenging for learners as languages are dynamic and constantly evolve, adding new words.

Oxford (1990) argues that generally no rules are followed in learning the vocabulary as used in learning the grammar. Students typically encounter numerous words that require learning and practice as part of their studies.

7. Types of Vocabulary Learning

According to Nezhad et al. (2015), identified four distinct types of vocabulary learning namely, explicit, implicit, incidental and intentional .These categories describe different methods of acquiring vocabulary knowledge.

7.1. Explicit Vocabulary Learning

Explicit vocabulary learning involves intentionally focusing on acquiring new vocabulary items. According to Schmitt (2000), although it may be time-consuming and demanding for learners to build a substantial vocabulary through explicit learning, it offers the best opportunity for vocabulary acquisition. While Qing Ma (2009) defended it when he said that it is clear, categorical and observable over a short period unlike the implicit learning (p. 103). Explicit vocabulary learning is often characterized by activities such as studying word lists, using flashcards, practicing word associations, and engaging in vocabulary exercises or drills. These activities provide learners with opportunities to actively engage with the vocabulary items, reinforce their memory, and practice their usage.

One of the advantages of explicit vocabulary learning, as highlighted by Qing Ma (2009), is that it offers clear and observable progress in a relatively short period. Learners can track their improvement as they acquire new words and witness their growth in vocabulary knowledge. This can provide a sense of accomplishment and motivation for further learning. Implicit vocabulary learning, on the other hand, refers to acquiring vocabulary indirectly through exposure to language input in meaningful contexts, without explicit focus on vocabulary itself. While implicit learning plays a significant role in vocabulary acquisition, it may not always provide the same level of control and conscious understanding of the words as explicit learning does.

7.2.Implicit Vocabulary Learning

Implicit vocabulary learning refers to the subconscious acquisition of vocabulary. According to Ellis' (1994) terminology (as cited in Nezhad et al., 2015 p. 21) and Dekeyser (2003, p.314), implicit learning is typically defined as acquisition of knowledge by a process which take place naturally, simply and without conscious operation. Learning as the natural, effortless acquisition of knowledge, often involving concrete rules. In contrast, explicit learning involves conscious operation and is more suited for abstract rules. In simple words, Implicit learning often occurs in contexts like reading or listening, where learners absorb words without focusing specifically on them. However, it can also happen through repetition, such as repeatedly reviewing vocabulary lists until they are automatically learned. Thus, reading appears to be the most effective method for implicit vocabulary acquisition.

7.3.Incidental Vocabulary Learning

Incidental vocabulary learning refers to acquiring new words as a by-product of activities not specifically aimed at vocabulary acquisition (Nezhad et al., 2015). This process is commonly observed during receptive tasks like reading or listening, where the main focus is on understanding content rather than learning words (Cho & Krashen, 1994). In language acquisition, this type of learning occurs naturally through meaningful communication activities such as reading and listening (Hulstijn, 2003. p.349). Scholars argue that vocabulary acquisition predominantly happens within context. Nagy, Herman & Anderson (1985) believed that children learn most words through reading and that they do so incidentally with reading being a primary source of incidental learning, especially for children. Krashen's input hypothesis (1989), suggests that vocabulary can be gained through reading when the material is comprehensible to the learner postulates that vocabulary can be acquired by reading as long as the input is comprehensible to the learner. This form of learning, although slower, is considered more organic and sustainable, offering dual benefits of language use and vocabulary acquisition over time. (Schmitt, 2000).

7.4. Intentional Vocabulary Learning

Intentional vocabulary learning involves activities aimed at developing vocabulary where learners consciously focus on the words they aim to acquire. According to Hulstijn (2006), intentional learning entails participants being aware, before engaging in a learning task, that they will be tested on their retention of specific information afterwards (as cited in Alemi & Tayebi, 2011). In essence, intentional vocabulary learning encompasses any task designed to help individuals memorize lexical information (Hulstijn, 2001, as cited in Derakhshan & Khodabakhshzadeh, 2011).

8. Problems in Vocabulary Learning

Understanding and mastering vocabulary poses a significant challenge for foreign language learners, and its effective acquisition is closely linked to both teachers' comprehension and learners' perception of word difficulties. As Scott Thornbury (2007) claimed that there are some factors that make some words more difficult than others: Pronunciation, spelling and complexity. Also Robert Lado (1955) highlights the problem of meaning in vocabulary, Harmer (1991) identifies various challenges encountered by EFL students, stemming from several issues. He has outlined four primary problems: pronunciation difficulties, spelling challenges, memory issues, and problems related to understanding meanings.

8.1. Pronunciation Problem

Pronunciation is a fundamental aspect of language learning, particularly for EFL students. It refers to the way in which sounds, stress, and intonation patterns are produced and perceived in spoken language. It plays a significant role in effective communication because it affects how well the listener comprehends the intended message. FL students often face challenges with pronunciation due to several factors. One common obstacle is the presence of silent letters. Many words in English contain letters that are not pronounced, which can be confusing for learners. For example, Furthermore, even minor errors in pronunciation can have a significant impact on

meaning. English is known for its minimal pairs, which are pairs of words that differ in meaning by only one sound. Mispronouncing a single sound in these words can lead to misunderstandings or confusion.

To overcome these challenges, EFL students can engage in various pronunciation-focused activities. This may include practicing individual sounds, learning correct stress and intonation patterns, and developing awareness of word and sentence stress. Listening to and imitating native speakers, using pronunciation exercises and drills, and receiving feedback from teachers or language partners can also be beneficial. Overall, by recognizing the importance of pronunciation and actively working on improving it, EFL students can enhance their communication skills and be better understood by others in the target language.

8.2. Spelling Problem

Spelling is an important aspect of language learning as it allows individuals to accurately communicate in written form. For EFL learners, mastering the spelling of words in a foreign language can be particularly challenging due to differences in pronunciation, word structures, and spelling rules.

Inaccurate spelling can lead to misunderstandings and misinterpretations. A simple mistake, such as misspelling a word or using the wrong letter, can completely change the meaning of a sentence. This can cause confusion and hinder effective communication. Moreover, spelling skills are closely tied to reading and writing proficiency. When learners have a solid grasp of spelling, it becomes easier for them to decode and understand written texts. They can also express their thoughts and ideas more accurately through writing. To improve spelling, EFL learners can engage in various strategies. These may include practicing spelling rules, regularly reviewing and reinforcing vocabulary, using mnemonic techniques to remember difficult words, and seeking feedback from teachers or language partners. Additionally, exposure to authentic written materials,

such as books, articles, and essays, can help learners develop a better sense of correct spelling patterns. It is worth noting that technology, such as spell-checkers and autocorrect functions, can be useful tools for EFL learners. However, it's important for learners to also develop their spelling skills independently to avoid over-reliance on such tools

8.3. Memorizing Problem

Memorizing vocabulary can be a challenging task for many EFL students. While they may have no trouble initially learning new words, the real difficulty lies in retaining and remembering them over time. There are several factors that contribute to this challenge. First, the sheer volume of words that need to be learned can be overwhelming. English has a vast vocabulary, and students often encounter numerous new words in their studies. Trying to remember all of them can feel like an impossible task. Second, without regular practice and reinforcement, the memory of newly learned words tends to fade over time. If students do not actively review and use the words they have learned, they are more likely to forget them. This is because memory is a dynamic process that requires regular reinforcement to maintain strong connections. Additionally, the way in which words are learned can also affect retention. Simply memorizing definitions without understanding the context or usage of the words can make it harder to recall them later. It's important for students to engage with the words in meaningful ways, such as using them in sentences or associating them with personal experiences.

8.4. Meaning Problem

According to Oxford (1999), vocabulary presents a significant and challenging aspect of language learning, whether it is a foreign language or one's native tongue (p.8). This is primarily due to the vast number of meanings associated with tens of thousands of different words. In simpler terms, many English words have multiple meanings, and most students struggle with this issue because they mistakenly believe that each word has only one meaning. English is known for its rich and diverse vocabulary, and many words have multiple meanings depending on the context in which they are used. This complexity in word meanings can pose a problem for students who

mistakenly believe that a word has only one fixed meaning. When encountering a word with multiple meanings, they may struggle to determine the appropriate interpretation in a given context.

9. Vocabulary Learning Strategies (VLSs)

According to Oxford (1999), language learning strategies refer to specific actions learners take to enhance their vocabulary acquisition, making it easier, faster, enjoyable, self-directed, effective, and applicable to different contexts. The use of these strategies greatly influences vocabulary learning outcomes, and researchers have identified numerous strategies employed by learners for this purpose. Vocabulary learning strategies, a subset of language learning strategies, have garnered significant interest since the late 1970s. These strategies encompass specific instructional techniques and approaches aimed at explicitly acquiring independent word learning skills. Nation (2001), suggests that employing vocabulary learning strategies empowers learners to assume greater ownership of their learning process. He thinks that employing strategies for learning vocabulary can result in acquiring a considerable amount of vocabulary. According to Fan (2003), these strategies align with the five steps outlined by Brown and Payne (1994), for learning vocabulary in a foreign language: (1) seeking out resources to encounter new words, (2) forming clear mental images (whether visual or auditory) of the new word forms, (3) comprehending the meanings of the new words, (4) establishing robust memory connections between the words and their meanings, (5) actively incorporating the words into usage.

GU and Johnson (1996), conducted a study examining how Chinese university students utilize vocabulary learning strategies when learning English. They employed an extensive questionnaire to identify the specific strategies employed. Upon analyzing the data and comparing it with measures of vocabulary size and language proficiency, they discovered a correlation between the use of retention strategies and larger vocabulary size, while language proficiency showed no significant correlation with these strategies.

Schmitt (1997), conducted a survey on 600 Japanese EFL students to investigate vocabulary learning strategies. The study found that using a bilingual dictionary, writing repetition, verbal

repetition, saying new words aloud, studying spelling, and taking notes were the most useful strategies. Japanese learners tended to use dictionary and repetition strategies more, while immersive imagery and semantic grouping were less common. Additionally, learners emphasized word forms and semantic memory strategies in their approach to vocabulary learning.

Nation (2001), suggests that various vocabulary learning strategies are beneficial throughout the learning process and can be applied across a wide range of vocabulary. These strategies empower language learners to take charge of their own learning, even in the absence of a teacher. Additionally, Nation's research indicates that learners vary in their proficiency in utilizing these strategies, highlighting the importance of providing instruction on vocabulary learning strategies to language learners.

There are different recovery strategy classification systems, however, Schmitt's, classification system serves as the foundation for this study's examination of recovery strategies. In his classification, strategies are categorized into determination, social, memory, cognitive, and metacognitive.

Determination strategies aid learners in deciphering meaning through methods such as dictionary use, context-based guessing, and identifying linguistic elements like part of speech. In essence, determination strategies are personal learning approaches that enable learners to comprehend word meanings independently. (Schmitt, 2000).

Social strategies involve seeking out assistance from teachers, peers, and native speakers to understand word definitions (Schmitt, 2000). Essentially, these strategies promote learner interaction and mutual learning. Furthermore, learners can reinforce their understanding by conversing with native speakers or language instructors beyond the classroom setting.

Memory strategies encompass a variety of techniques that learners can employ to remember vocabulary effectively. These strategies aid in the acquisition of new words by engaging mental processes that link prior knowledge with unfamiliar vocabulary.

Cognitive strategies focus on the practical methods of learning vocabulary rather than mental processing (Schmitt, 2000). Repetition stands out as a widely employed cognitive strategy, alongside techniques such as note-taking, highlighting, word list creation, flashcard usage, physical association, maintaining a vocabulary notebook, and repeated writing of words.

Metacognitive strategies reflect learners ability to identify learning opportunities, document and reflect on those experiences. In essence, they involve monitoring, decision-making, and evaluating ones progress. Moreover, these strategies can assist learners in selecting effective methods for expanding their vocabulary. For instance, utilizing English media, repetitive exposure to new words, actively listening for English terms in conversations, and maintaining or organizing vocabulary lists are all beneficial techniques.

The final strategy, Mobile Assisted Language Learning strategy (MALL strategy), the ultimate approach in language learning through mobile devices acknowledges learners' capacity to utilize these tools effectively. Essentially, it aids learners in choosing the most suitable methods to expand their vocabulary, such as downloading vocabulary apps, engaging in games, listening to recordings, practicing basic repetitions, participating in quizzes, and immersing in stories. These diverse techniques aim to facilitate vocabulary acquisition in a more accessible, engaging, and enjoyable manner for learners.

Conclusion

To recapitulate, this chapter reviews relevant literature concerning Vocabulary learning. Learning vocabulary is essential for mastering any language. Therefore, learners of English as a Foreign Language (EFL) need to understand key concepts in vocabulary acquisition to improve their language skills. This includes recognizing the importance of vocabulary, understanding two kinds of vocabulary, vocabulary teaching and learning, teachers can choose effective techniques that align with the individual needs and learning styles. Additionally, the strategies that help in vocabulary learning. Subsequently, the following chapter will explore Mobile Assisted Language Learning (MALL) in developing vocabulary size.

Chapter Two: Duolingo Application

<i>1. Educational Technology for Language Learning</i>	<i>Error! Bookmark not defined.</i>
<i>2. Mobile learning</i>	<i>Error! Bookmark not defined.</i>
<i>2.1.Mobile Assisted Language Learning</i>	<i>Error! Bookmark not defined.</i>
<i>2.2.MALL Devices</i>	<i>Error! Bookmark not defined.</i>
<i>2.2.1.Mobile Phones</i>	<i>Error! Bookmark not defined.</i>
<i>2.2.2.Personal Digital Assistants (PDAs)</i>	<i>Error! Bookmark not defined.</i>
<i>2.2.3.Tablet PCs</i>	<i>Error! Bookmark not defined.</i>
<i>3. Mobile Apps for Language Learning</i>	<i>Error! Bookmark not defined.</i>
<i>4. Definition of Duolingo</i>	<i>Error! Bookmark not defined.</i>
<i>5. Duolingo use and objectives</i>	<i>Error! Bookmark not defined.</i>
<i>6. Advantages and Disadvantages of Duolingo</i>	<i>Error! Bookmark not defined.</i>
<i>6.1.Advantages</i>	<i>Error! Bookmark not defined.</i>
<i>6.2.Disadvantages</i>	<i>Error! Bookmark not defined.</i>
<i>7. The Role of Gamification in Duolingo Learning Approach</i>	<i>.....Error! Bookmark not defined.</i>
<i>7.1.Encouragement and Motivation</i>	<i>Error! Bookmark not defined.</i>
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<i>8. The role of using Duolingo in language learning</i>	<i>Error! Bookmark not defined.</i>
<i>8.1.Vocabulary acquisition</i>	<i>Error! Bookmark not defined.</i>
<i>8.2.Contextual Learning</i>	<i>Error! Bookmark not defined.</i>
<i>8.3.Spaced Repetition</i>	<i>Error! Bookmark not defined.</i>
<i>Conclusion</i>	<i>Error! Bookmark not defined.</i>

Introduction

In the era of rapid technological development, education is undergoing significant changes and challenges. One of the emerging trends in educational technologies is the use of mobile devices and applications to facilitate and enhance learning, especially in the field of language learning. This chapter will give an overview of educational technology and the concept of mobile learning, as well as shed light on the notion of MALL (Mobile-Assisted Language Learning), and its advantages and disadvantages for language learners. It will also focus on one of the most popular and widely used mobile applications for learning languages: Duolingo. The chapter will provide a definition and description of Duolingo, its features and functions, and its benefits and drawbacks. Moreover, it will examine the objectives and the pedagogical approach of Duolingo, which is based on the principles of gamification, and how it affects the learners' engagement, motivation, skill development, and personalized learning experience. Finally, it will assure the role of Duolingo in developing students' vocabulary size and the implications for their language proficiency and academic achievement.

1. Educational Technology for Language Learning

In today's interconnected world, where information and communication transcend borders, mastering languages becomes more crucial than ever. Fortunately, technology has emerged as a powerful tool in language learning, offering numerous advantages over traditional methods. For example, technology can provide access to authentic and diverse linguistic and cultural resources, enable personalized and adaptive learning experiences, foster collaborative and interactive learning communities, and support feedback and assessment. However, technology alone is not sufficient to ensure effective and meaningful language learning outcomes. It requires an alignment of pedagogy, design, and learner needs. This is where educational technology (EdTech) comes in.

EdTech is defined by the Association for Educational Communications and Technology (AECT) as “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski & Molenda, 2008, p. 1). This definition emphasizes the role of technology in enhancing the learning experience and improving academic performance. EdTech encompasses a wide range of tools and

resources, including digital devices, software applications, online platforms, and multimedia content. The ethical practice of EdTech involves ensuring that technology is used responsibly and safely, with consideration for issues such as privacy, security, and accessibility. By leveraging the power of technology, educators can create engaging and interactive learning experiences that cater to the diverse needs and learning styles of their students.

Integrating EdTech into modern learning environments is transforming the educational landscape, fostering innovative and personalized approaches to teaching and learning. By leveraging digital tools and resources, educators can enhance student engagement, promote active learning, and accommodate diverse learning needs. This symbiotic relationship between EdTech and pedagogy has been extensively researched and documented, with numerous studies highlighting its advantages. For instance,

A study by Kizilcec et al. (2013) found that the use of EdTech, such as online learning platforms and digital resources, can significantly improve student achievement and engagement. Similarly, a meta-analysis by Means et al. (2015) revealed that technology-enhanced learning can lead to moderate improvements in student learning outcomes.

1. Mobile learning

Mobile technology, a pivotal scientific discovery, plays a substantial role in educational advancement. According to Tyler's 2002 definition, mobile technology encompasses "a device such as a PDA or smartphone that can store, access, create, allows modifying, organizing or otherwise manipulating data in various forms from a location without being required to be lathered to any particular spot". This mobility aspect empowers these devices to be beneficial in various ways. Tyler's definition highlights the versatility of mobile technology, which includes PDAs and digital cell phones that can be leveraged for educational purposes. According to Kukulska-Hulme et al. (2004), mobile technology has the potential to provide immediate feedback or reinforcement, immersive experiences, and authentic learning in real-world contexts, among other learning scenarios. This implies that this emerging educational trend presents increased learning possibilities for individuals who wish to learn without any limitations that slow down the learning process. According to Kukulska-Hulme et al. (2004), mobile technology has the potential to

provide immediate feedback or reinforcement, immersive experiences, and authentic learning in real-world contexts, among other learning scenarios. This implies that this emerging educational trend presents increased learning possibilities for individuals who wish to learn without any limitations that slow down the learning process.

The rapid growth of mobile technologies has given rise to mobile learning as a new form of online education. By leveraging the capabilities of mobile devices, mobile learning offers learners the flexibility to access. Kukulska-Hulme and Taxler (2005,p1) define it by saying “It is certainly concerned with learner mobility, in the sense that learners should be able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location”. To elaborate, the definition is related to the notion of learner mobility, which means that learners should have the ability to participate in educational activities without being restricted to a specific physical location. In other words, this definition emphasizes the idea that learners should have the freedom to engage in educational experiences and access educational resources from anywhere, rather than being limited to a specific classroom or learning environment. An alternative perspective on m-learning centers around the portability of the device. Keegan (2005) expresses a comparable viewpoint by saying.

“I feel that in the definition of mobile learning
The focus should be on mobility.
Mobile learning should be restricted to learning
On devices that a lady can carry in her.
A handbag or a gentleman can carry it in his pocket.
I, therefore define mobile learning as
‘The provision of education and training on
PDAs/palmtops/handhelds, smartphones and mobile phones” (p.3).

According to another scholar, mobile learning occurs when the learner is not bound to a specific place and when he “takes advantage of the learning opportunities offered by mobile technologies”. (O’Malley, Vavoula, Glew, Taylor, Sharples, & Lefrere, 2005.p6) or take place in a mobile setting (Trifonova 2003). Originally, research on m-learning focused primarily on the

mobility of the technology itself. However, recently there has been a shift in perspective, recognizing that what truly matters is the mobility of the learner and the learning process itself (Sharples, Taylor, & Vavoula, 2007)

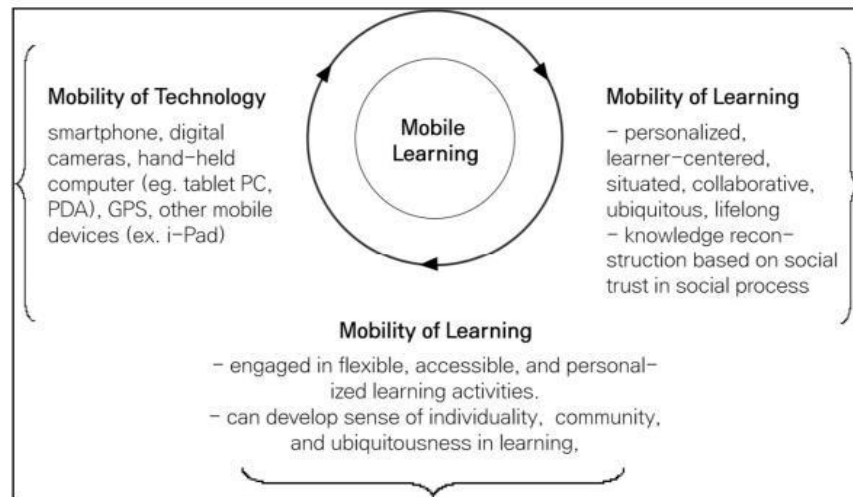


Figure 2. 1: The Concept of Mobile Learning in Three Areas (Kim & Kwon, Y, 2012)

As shown in Figure 2.1 mobile learning can be understood from three important aspects that relate to mobility (such as the mobility of technology, learning, and learning). This implies that mobile learning does not have a single and consistent meaning, but rather various viewpoints that explain it.

The growth of mobile learning has revolutionized the education landscape by breaking down the barriers of time and location. It has made learning more accessible to a broader audience, including individuals who may not have access to traditional educational resources or who have busy schedules that limit their ability to attend paraphrase cases. Sánchez Astagegney (2006) states that “the benefits of mobile learning can be gained, through collaborative, contextual, constructionist and constructivist learning environments” (p. 307). In other words, mobile learning has proven to be particularly beneficial in certain contexts, such as remote or rural areas where educational infrastructure may be limited. It has also been widely adopted in corporate training programs, allowing employees to engage in continuous learning and al development without being tied to a physical classroom.

1.1. Mobile Assisted Language Learning

The rapid expansion of mobile learning has given rise to a new form of online education known as "Mobile Assisted Language Learning" (MALL), which was first coined by Chinnery (2006). Miangah (2012, p.313) asserts MALL involves utilizing mobile technologies for language education. Learners do not necessarily need to study a second language solely within a traditional classroom setting; instead, they can engage in language acquisition through mobile devices at their preferred times and locations. In other words, MALL is a complex and dynamic field that explores how mobile devices can support language learning in various contexts and settings. MALL recognizes that language learning is not limited to the classroom, but can occur anytime and anywhere. Valarmathi (2011) supports this view by defining mobile-assisted language learning as:

Mobile -assisted language learning (MALL) describes an approach to language learning that is assisted or enhanced by using mobile devices such as (cell mobile phones) including the (iPhone or iPad), (MP3 or MP4 players e.g. iPods), and personal digital assistants about (Palm, Blackberry, etc.). With MALL, students are able to access language learning materials and communicate their teachers and peers at anytime, anywhere (p.2).

The emerging trend of MALL in the education system is a derived and independent field from Mobile learning and Computer Assisted Language Learning. Palalas (2011) claimed that "Mobile-assisted language learning draws on the theory and practice of computer-assisted language learning" (p.20). Moreover, Stockwell and Hubbard (2013) assert that MALL is a specific type of CALL and m-learning that has its features. Its CALL is a term that emerged in language education in the early 1980s (Chapelle, 2001). It is an approach that combines education, theory, and technology. Beatty (2003) defined CALL as "any process where a learner improves their language by using a computer" (p.7).

Kukulska-Hulme and Shield (2008, p. 273) distinguished MALL and CALL as two different approaches to using technology for language learning. MALL involves using devices that are easy to carry and use, such as smartphones or tablets that allow learners to access learning materials and activities anytime and anywhere, depending on their needs and preferences. CALL, on the other hand, refers to a range of technologies that focus on fostering creativity and cooperation among

learners, especially through online platforms that enable social interaction and sharing (Beatty 2010). In other words, learners can access language learning materials more easily and flexibly with portable devices like smartphones or tablets. This is the main idea of MALL. CALL, however, covers more computer-based technologies and online platforms that foster creativity, cooperation, and social interaction among language learners. Both approaches use technology to improve language learning, but they have different focuses and goals. Figure 2.2 illustrates the cross-field relationships by Hubbard and Stockwell. It shows how the three concepts are interrelated, where the shaded area indicates their intersection and overlap.

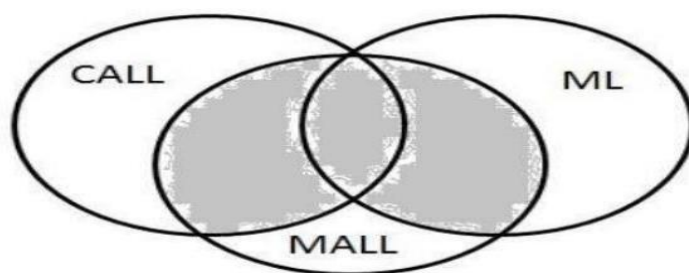


Figure2. 2 : The relationship between CALL, MALL, and m-learning (Hubbard & Stockwell, 2013, p. 5).

The rapid shift from Computer-Assisted Language Learning (CALL) to Mobile-Assisted Language Learning (MALL) has significantly impacted the attitudes of foreign language learners towards language learning. MALL, being more convenient and portable, has led to a transformation in the way England English as a foreign language is acquired (Kukulska-Hulme, 2009 cited in Çakir, 2016 Advantages/disadvantages sages of MALL).

Mobile devices offer advanced features that appeal to many users. However, their use in education has been slower, as teachers need to learn how to use them effectively for different learning purposes and create suitable materials and methods for mobile-assisted language learning (MALL). The main feature of mobile learning is the possibility to learn anywhere and anytime, as mentioned before. Mobile phones have two main features: portability and connectivity.

Portability allows learners to carry mobile phones and learning resources with them, while connectivity means that the device can connect and communicate with the learning website through the wireless network of the device to access learning materials, such as short message service and mobile e-mail, to exchange information between teachers and learners (Miangah & Nezarat, 2012 p. 310).

Additionally Andrzejewska (2014) also pointed out other benefits of mobile phones, such as flexibility, low cost, small size, user-friendliness, etc. According to Klopfer, Squire, and Jenkins (2002), mobile devices have five characteristics that make them especially suitable for educational purposes:

- Portability: refers to a device's capability to be transported easily due to its compact size and low weight.
- Social interactivity: sharing information and working together with other learners.
- Context sensitivity: the device can collect and react to the data based on the learner's settings
- Connectivity: mobile devices can join other devices, data-gathering, devices, or a shared network by forming a common network.
- Individuality: activity platforms can be adapted for individual learners

Mobile devices offer convenience and flexibility for learning, but they also have some limitations. Klopfer et al. (2002) list some of these drawbacks as follows.

While mobile devices offer certain advantages for learning services, they also come with their limitations. (Miangah & Nezarat, 2012) list some of these drawbacks as follows: small screens, readability challenges, storage constraints, and multimedia limitations. Additionally, many mobile phones are not specifically designed for educational purposes, making it challenging for learners to use them effectively for assigned tasks. This difficulty arises from both the initial design of such devices and the lack of well-developed educational mobile phones. Although there are devices suitable for specific learning tasks, they tend to be expensive for most learners. Therefore, technology is not a magic solution that can replace human effort and guidance. Learners still need to practice regularly, apply their skills in real-life situations, and seek feedback from native

speakers or experts. Teachers and educators also play a vital role in designing, selecting, and evaluating the best technological tools and methods for their students accordingly (Kukulska-Hulme & Traxler, 2005).

Mobile devices have become increasingly important and beneficial for learning in various contexts, such as formal education, professional development, and lifelong learning. They offer learners the flexibility, convenience, and accessibility to access diverse and personalized learning resources and opportunities anytime and anywhere. As technology and society continue to evolve, mobile learning is likely to play a crucial role in shaping the future of education and work.

1.2. MALL Devices

Mobile learning is a dynamic and evolving field that involves various devices and applications that are undergoing fast and frequent changes and improvements. Trinder (2005) provides a comprehensive list of devices that can be used for mobile learning and mobile-assisted language learning, from basic devices with one function such as audio-play audio devices with multiple functions such as mobile phones and PDAs. According to Trinder (2005), mobile learning devices include "mobile phones, PD Smart phone shone, GPS tools, laptop computers, MP3 or MP4 players, video tapes video tapes players, e-game too-organizers sears, e-books, CDs and DVDs" furthermore, various types of mobile devices utilized in the educational context, particularly in teaching foreign languages. Presently, it is evident that portable devices are employed for educational facilities, making the process more accessible, engaging, and effective, and a significant number of these devices have demonstrated their efficacy as language learning aids in practice.

1.2.1. Mobile Phones

According to a recent report by the International Telecommunication Union (ITU, 2009), mobile phones, among the many types of mobile learning devices, are the most widely owned and used devices; with approximately 4.6 billion subscriptions all over the world; and a number is increasing at an enormous pace due to the development in the mobile phone technology and the

expansion of the mobile market. Moreover, Saran & Seferoglu (2009), supported the notion that mobile phones (cell phones) are more common than personal computers and play a significant role in the everyday life of young people (p.99).

Despite their initial purpose of communication, mobile phones have evolved to serve a multitude of purposes in daily life, Dewitt & Siraj (2011) Confirmed that nowadays; they are used in daily life for many purposes (as cited Bicen & Kocakoyun, 2013 p.7 57). According to Collins (200 various factors contributed to the widespread use of mobile phones. He noted that even the most basic mobile phones could send text messages through SMS (Short Message Service) and that many of them also supported MMS (Multimedia Message Service), which allowed the user to share messages that combined images, audio, and text. Moreover, “mobile phones incorporate basic daily personal information management tools like address books and calendars which let people get rid of their phone books and agendas” (Trinder, 2005).In other words, mobile phones that use the latest technology are very complex and versatile. They have software that can perform various tasks, cameras that can capture images and videos, Bluetooth connections that can transfer data and connect to other devices, media players that can play music and movies, wireless connection tools that can access the internet and communicate with others, and navigation tools that can locate and guide the user. These features make mobile phones similar to a computer that has all the necessary components and functions.

1.2.2. Personal Digital Assistants (PDAs)

Personal digital assistants (PDAs) are small computers that can be held in one hand and can download and save data such as files, records, and schedules (Beatty, 2003). According to Trinder (2005), they are "handheld devices that have personal organizer functions". PDAs offer some benefits such as mobility and some operating system functions. Moreover, PDAs can do many things, such as making music, producing videos, and navigating with GPS. Trinder (2005) explained their function by saying that they were originally designed to act as electronic equivalents of diaries and personal organizers.

PDAs, which have advanced technological features, have been even extensively utilized for

educational purposes. Several studies (Trinder, 2005; Clough et al., 2007; Song & Fox, 2008) have highlighted their prominence in this regard. In a recent study conducted by Song and Fox (2008), the focus was on the use of PDAs for incidental vocabulary learning among undergraduate students. The study suggests that PDAs offer multiple ways for students to enhance their vocabulary skills. Similarly, Jacob and Isaac (2008) emphasized that PDAs facilitate interactive and group learning. The availability of text and data entry via the screen makes PDAs a preferred choice as it integrates communication tools within the device. Nevertheless, despite the widespread ownership and compared to the usage of mobile phones, PDAs are still relatively less used among people (Cavus & Ibrahim, 2009; Chinnery, 2006). This implies that such devices are too costly for many learners to purchase and as a result, mobile phones, which have most of these features integrated, are rapidly taking over the market.

1.2.3. Tablet PCs

Tablet PCs (or Pen Tablets) are a type of technological device that emerged in the early 1970s and have been evolving ever since. They are laptop computers that have a touch screen and can be operated with an electronic pen or stylus. Some of them have a screen that can rotate and fold over the keyboard, while others are more like slates that can only be used for reading e-books. In 2010, the tablet market saw a surge of new products, such as the Apple iPad, which had many features and functions (Walker, 2011). Woodil (2011) defined this invention as follows: "Tablet computers are special laptop computers shaped like slates which use an electronic stylus or a digital pen to input information into a touch screen" (p. 37).

Tablet PCs have also drawn the interest of researchers from various fields. For instance, Hourcade & Bullock-Rest (2012) investigated the use of multi touche tablet applications with children with Autism Spectrum Disorder (ASD). Their research explored the potential of tablets to foster skills such as collaboration, coordination, creativity, compromise, and emotion recognition. The results showed that tablets were a useful and motivating tool for such activities. The following year, Yeni (2015, p. 19) cited Hourcade et al. (2013) who argued that Information and Communications Technology (ICT) became more accessible with tablets. They claimed that tablets made it easier to interact with computers because of their portability and touch screen feature.

Teaching and learning was another area where tablet PCs had a significant impact. Cicevic, Mitrovic & Nestic (2016) listed numerous advantages for teachers and learners who used mobile technologies effectively. For example, tablet PCs enabled a more engaging learning experience with rich, multimedia digital content. Teachers could also use tablet PCs to deliver curriculum through PPT presentations, Word documents, and spreadsheets, and to annotate digital class work and homework. Another benefit was the saving of time and money, as instructors could use digital forms, convert digital notes to text without having to retype, and reduce paper, supply, and copying costs. Moreover, tablet PCs were environmentally friendly devices, as they combined computing power with portability.

2. Mobile App for Language Learning

Mobile technologies are ideal for integrating Mobile-Assisted Language Learning (MALL) into education, as they offer various benefits such as accessibility, flexibility, and engagement. Kukulska-Hulme (2006) argues that mobile technologies suit the concept of MALL well, as they can effectively involve students in their learning process. Moreover, Klimova (2018) highlights the advantages of mobile devices and their applications for foreign language learning, especially due to their interactivity, ubiquity, and portability. The interactivity of mobile devices enables learners to engage with language learning materials and practice their skills through various features. The ubiquity of mobile devices allows learners to access language learning resources and tools from anywhere, without location constraints. The portability of mobile devices lets learners carry their language learning materials with them, creating continuous learning opportunities.

According to Techopedia (2013), "a mobile application, commonly referred to as an app, is a type of application software specifically designed to run on a mobile device, such as a smartphone or tablet computer". Mobile apps often offer functionalities or services similar to those accessed on desktop or laptop computers, but they are optimized and tailored for mobile use. The widespread adoption of smartphones and tablets has contributed to the increasing popularity of mobile applications. Users can download and install apps from various app stores, such as the Apple App Store or Google Play Store, directly onto their mobile devices. These apps serve a wide range of

purposes, including communication, entertainment, productivity, e-commerce, and social networking.

Mobile applications are increasingly utilized in language education, offering numerous advantages for educators and learners alike. El-Hussein and Cronje (2010) note the growing popularity of mobile apps among teachers and students for educational purposes. Language educators can integrate Mobile-Assisted Language Learning (MALL) by suggesting language learning applications, prompting learners to engage with authentic materials like news articles or podcasts, and assigning tasks that require mobile usage. These applications enable learners to hone their vocabulary, listening, speaking, and reading skills, as well as to interact with native speakers and fellow learners through language exchange communities or social media.

Mobile apps are designed to align with pedagogical objectives, enhance the quality of learning, and simplify the educational process by incorporating engaging tools such as quizzes and games. Rossing et al. (2012) argue that mobile apps can make the learning experience more enjoyable, valuable, collaborative, and practical, supporting a range of learning outcomes, including critical thinking, problem-solving, and creativity. They emphasize the role of mobile apps in immersing learners in authentic and meaningful learning contexts.

Gilgen (2004) also advocates for mobile app usage in language learning, citing their user-friendly and engaging nature. He suggests that these apps provide a personalized and flexible approach to accessing language resources and activities, promoting learner autonomy and self-regulation. Furthermore, he underscores the importance of mobile apps in fostering communication and interaction between learners and educators.

Additional research by Böhm and Constantine (2016), as well as Zou and Li (2015), indicates that mobile learning applications can offer a diverse array of materials to aid English as a Foreign Language (EFL) students in their English practice. These applications can enhance academic performance, cultivate positive attitudes towards English learning, increase motivation, and spark interest in the language. They also provide EFL students with exposure to various linguistic and cultural inputs, immediate feedback, and scaffolding, potentially affecting students'

affective and cognitive factors, such as confidence, anxiety, interest, and metacognition.

Multiple studies have provided evidence that mobile applications have a significant positive impact on learners. These studies demonstrate that mobile apps not only enhance performance but also increase motivation and foster positive attitudes towards language learning. Furthermore, it is worth mentioning that language learning apps are easily accessible, with a wide range of platforms like Duolingo, Memrise, Babel, Hello Talk, Busuu, and others available for free with an internet connection.

3. Definition of Duolingo

Duolingo is a popular language-learning application that was created by Luis Von Ahn and Severin Hacker in late 2009 and launched to the public in June 2012. It also offers a web version, enabling learners to access the platform using a computer browser. According to its website, it has more than 30 million registered users and supports various languages for speakers of English and other languages. Duolingo has gained significant recognition for its ability to make the process of learning languages enjoyable and immersive. It enables the learner to acquire new vocabulary by following the Duolingo method, which adapts to their individual needs and interests (Munday, 2016). The primary goal of this innovative platform is to provide accessible and effective language education to individuals as (Kusumadewi & Widyastuti, 2018), mentioned that Duolingo platform received the highest honor from Google Play in 2013 for its innovative use of gamification techniques. It helps many people learn new things .Moreover, it provides a wide selection of languages that can be learned by students with varying levels of proficiency and different goals.

The app is available with both Android and iOS devices, allowing users to conveniently access language-learning materials on their smartphones and tablets as (Alfuhaid, 2021, p.9) defined it as "a versatile social platform designed especially for language learning. Duolingo can be downloaded on mobile phones. Furthermore, this application makes learning language fun because it depends on games and casual conversations. One of its primary uses is enabling students to call or interact with native English speakers". The app offers a vast range of language courses across multiple languages, with the majority of content available to users without any cost. This approach has made

language learning more accessible to individuals who may not have the means to invest in traditional language courses or materials.

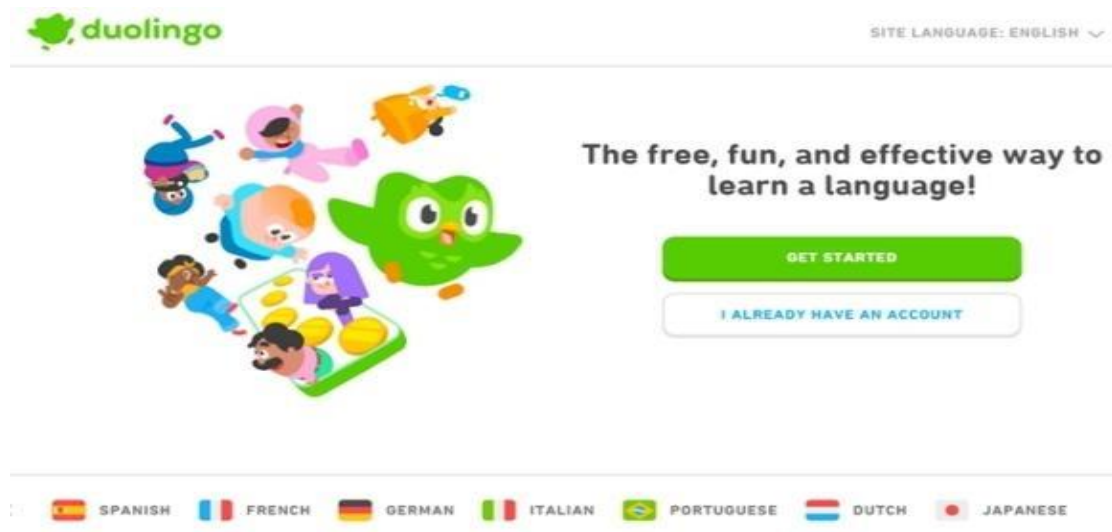


Figure2. 3: profile image of Duolingo (found on the official Duolingo website).

4. Duolingo Use and Objectives

Duolingo is a free and multilingual platform that allows users from all countries and languages to learn and have fun. It offers several languages to learn, such as French, Greek, Arabic, Dutch, and English. However, English is the most popular language among the learners (Duolingo, 2021). By using the app, users feel more confident about acquiring a new language, it gives learners a sense of achievement even with a short daily practice, which keeps them engaged. Duolingo has shown effectiveness in making learners more enthusiastic and less inhibited about learning by making it fun and rewarding (Vesselinov & Grego, 2012).

Duolingo gives an initial test to determine the learners' level, so that those who already know some of the language do not have to start from the beginning. It is suitable for all ages and levels, from beginners to advancers. In Duo lingo, each lesson is a stage and completing one unlocks the next one, like in a video game. This app is easy to access, offers many languages and supports those who want to learn a new language. It also has many features that make language learning easier, such as daily word lists, repetition, interaction with other users, reminders through

notifications and translation. Therefore, Duolingo is a game-based app that is easy to use with levels, repetition, and grammar translation that can provide additional activities and courses (Munday, 2016).

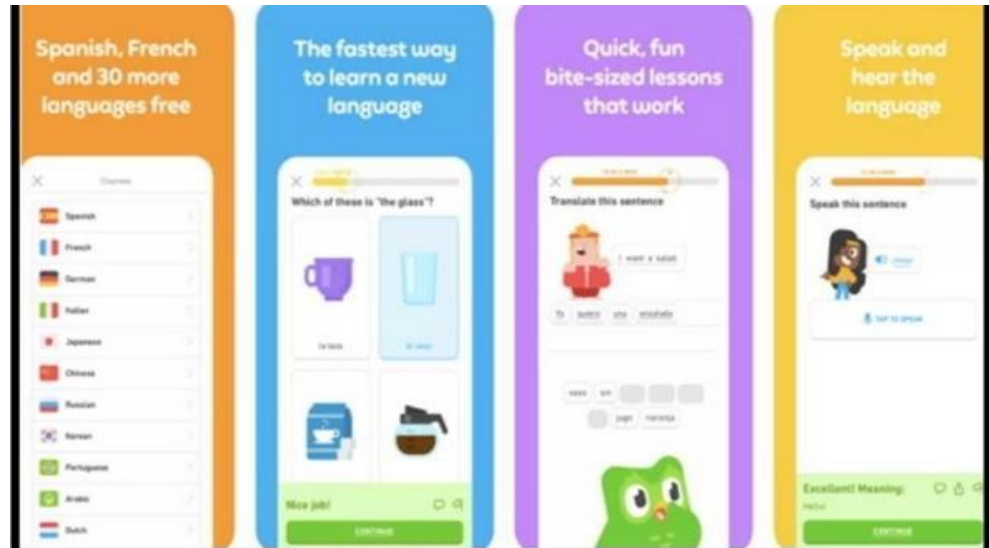


Figure2. 4: A Manual for Duolingo learners

Lionetti (2013) identified several objectives of the Duolingo application. Firstly, Duolingo aims to provide a free platform for individuals to learn and speak a new language, with the goal of democratizing language education and making it accessible to a wide range of users. Secondly, the application focuses on helping learners comprehend and express themselves effectively in another language through interactive exercises and lessons. Duolingo also emphasizes enhancing users' listening comprehension skills by providing opportunities to listen to phrases and sentences in the target language and transcribe them. Additionally, the application promotes vocabulary acquisition and word-picture association through exercises that involve matching words with corresponding pictures. Lastly, Duolingo aims to develop users' translation skills from their chosen language to English, enabling them to understand and convey meaning between the two languages through translation exercises. Overall, Duolingo is an application that helps learners improve their language skills in various ways, such as vocabulary building, writing, speaking, listening, pronunciation, and translation. It offers a comprehensive and balanced learning experience.

5. Advantages and Disadvantages of Duolingo

5.1. Advantages

According to White and Siracusa (2013), Duolingo is a language learning platform that enables learners to establish links between their native language (L1) and the language they want to learn (TL) by using translation exercises. The platform also provides its users with various sources of motivation, such as fun, rewards, and achievement, and allows them to customize their learning experience according to their needs and preferences. Duolingo incorporates a range of activities, such as listening, transcribing, speaking, and translating, in a simple interface that guides learners through words and phrases. Lionetti (2013) claims that Duolingo fosters comprehension, as it engages the user in different modes of communication, such as oral, written, and visual. The author also emphasizes that Duolingo is easy to use and flexible, as it can be accessed anytime and anywhere; it is a medium of learning language that gives the learners the freedom to learn at their own pace and convenience, as long as they have an internet connection.

5.2. Disadvantages

(White & Siracusa, 2013, p. 2) states that "Duolingo would not be good for learning an entirely new language of which one has no knowledge". In addition, They claimed that "using Duolingo is better for reviewing a language one has already started learning or for learning a language that is closely related to one that you already know, and one of the most common complaints is that many users could benefit from more explicit grammar explanations and practice" (White & Siracusa, 2013, p. 2). This means that a person needs to have some previous experience with the language they want to learn. Another drawback with Duolingo is that it does not teach grammar well. Therefore, students should also find a way to incorporate it into their lessons.

6. The Role of Gamification in Duolingo Learning Approach

Duolingo has rapidly gained popularity with its distinctive approach to language learning. Users sign up and engage in a gamified system filled with phases and challenges. Each phase involves completing tasks and accumulating points in an enjoyable manner. Kapp (2012) defines gamification as the application of game elements such as mechanics, aesthetics, and game-based thinking in non-game contexts. Duolingo employs gamification strategies like interactive lessons, quizzes, and rewards to make learning both engaging and fun. Learners earn virtual currency, unlock achievements, and compete with friends, infusing fun and motivation into their language-learning journey. Additionally, Duolingo integrates gaming elements like lingots or gems, badges, levels, and leaderboards to encourage learners to complete lessons and goals while allowing them to track their progress against others. The aim of this integration is to inspire and engage users, prompting action, supporting the learning process, and overcoming challenges.

6.1. Encouragement and Motivation

Research has highlighted the benefits of gamification in education, particularly for language learning. Gamified platforms like Duolingo use rewards to boost student engagement and participation. Studies by Gómez-Beltrán et al. (2020) and Hamzah et al. (2018) indicate that enjoyable and rewarding learning experiences increase student motivation and satisfaction, leading to greater investment in language learning. This suggests that when students enjoy the learning process, they are more likely to persist and excel in acquiring new languages.

6.2. Adaptive Learning Experiences

Duolingo's gamification features are complemented by adaptive learning algorithms that customize the experience for each user. Through performance analysis, personalized feedback, and content recommendations, Duolingo tailors the learning path to individual needs. A study by Zhang et al. (2018) found that this personalized approach positively impacts learning outcomes and encourages self-directed learning.

6.3. Proficiency Improvement

Duolingo's gamified approach presents an accessible method for improving language abilities. Studies by Hou et al. (2021) and Luján-Mora & Martínez-Monés (2017) indicate that Duolingo can significantly enhance one's vocabulary, grammar, reading, and listening skills. The platform offers a conducive environment for learners to hone their language proficiency through engaging exercises and challenges. With the support of adaptive learning algorithms, Duolingo fosters an interactive and enjoyable learning experience. This method encourages learners to engage actively and persist in their language education journey.

7. The Role of Using Duolingo in Language Learning

Duolingo, a popular language learning platform, has gained significant attention for its potential role in developing English as a Foreign Language (EFL) students' vocabulary size (Guaqueta & CastroGarces, 2018). Its primary objective is to provide users with the opportunity to comprehend and acquire knowledge with no cost, as long as they have Internet access. Several studies have been conducted to explore the effectiveness of using Duolingo in developing a student's vocabulary size.

Zarei and Rahimi (2015) conducted a quasi-experimental study with 60 Iranian EFL learners who either used Duolingo for 12 weeks or received conventional classroom instruction. Similarly, Zeng and Fisher (2023) carried out a study with 70 Chinese EFL learners who were assigned to either a Duolingo group or a traditional vocabulary instruction group. In both studies, the findings showed that the Duolingo group achieved higher benefits in vocabulary acquisition than the control group. Therefore, these studies suggest that Duolingo can be an effective tool for improving the vocabulary knowledge of EFL learners. (Zarei & Rahimi, 2015; Zeng & Fisher, 2023)

According to Huynh, Zuo, and Iida (2016), the platform encourages regular practice and provides instant feedback on performance, which can enhance vocabulary retention and increase engagement among EFL students. More than that, Duolingo allows students to manage their own learning process because it is simpler to work with words than with the whole communication situation that involves many other aspects, as Garcia (2013), argues. Similarly, Wijaka, Yufrizal,

and Kadaryanto (2016) suggest that English teachers incorporate the Duolingo app into their teaching methods for English vocabulary, as it has the ability to generate students' passion and engagement during the teaching and learning process.

Duolingo is a popular language-learning platform that provides engaging activities and tests for vocabulary learning and expansion. While Duolingo can be a useful tool for developing vocabulary, its effectiveness depends on three main factors.

7.1. Vocabulary Acquisition

Duolingo's educational platform facilitates the expansion of vocabulary for EFL learners by integrating a variety of words and expressions into its lessons and interactive exercises. The design of these activities allows learners to repeatedly practice and solidify their grasp of new vocabulary, contributing to an increase in their overall vocabulary breadth (Settles, Brust, et al, 2018)

7.2. Contextual Learning

Duolingo teaches words by showing them in sentences or conversations. This way of learning helps students grasp the sense and use of words in realistic scenarios. Students can acquire words related to different topics, such as food, tourism, our daily routines (Duolingo, n.d.)

7.3. Spaced Repetition

To help learners remember words better, Duolingo uses spaced repetition algorithms that adjust the frequency of word reviews. Words that learners find difficult are shown more often, while words that learners know well are shown less often. This method helps to strengthen learning and enhance the long-term memory of vocabulary items accordingly (Settles & Meeder, 2016)

Conclusion

To sum up, this chapter is a review of relevant literature concerning Mobile-assisted language learning (MALL) and Duolingo use. It started by discussing how technology has been integrated into education. Moreover, it provided a historical background of MALL and its different devices. Also, the chapter addressed how learners can access various mobile devices and download mobile applications such as Duolingo. Furthermore, it highlighted the various advantages and disadvantages of the app in relation to its objectives. It also introduced the gamification approach and the role of Duolingo in language learning, which can affect the learners' vocabulary development.

Practical Part

The Practical part

Chapter three: Methodology and Results

<i>Introduction</i>	<i>Error! Bookmark not defined.</i>
<i>1. Methodology</i>	<i>Error! Bookmark not defined.</i>
<i>2. Samples and participants of the study</i>	<i>Error! Bookmark not defined.</i>
<i>3. Research instrument</i>	<i>Error! Bookmark not defined.</i>
<i>3.1. Description of the Questionnaire</i>	<i>Error! Bookmark not defined.</i>
<i>3.1.1.Administration of the questionnaire</i>	<i>Error! Bookmark not defined.</i>
<i>3.2. Interview</i>	<i>Error! Bookmark not defined.</i>
<i>3.2.1.The administration of the interview</i>	<i>Error! Bookmark not defined.</i>
<i>4. Data analysis procedures</i>	<i>Error! Bookmark not defined.</i>
<i>4.1. The Quantitative analysis</i>	<i>Error! Bookmark not defined.</i>
<i>4.2. Qualitative Analysis</i>	<i>Error! Bookmark not defined.</i>
<i>5. Presentation of the results of the questionnaire</i>	<i>Error! Bookmark not defined.</i>
<i>6. Results of the interview</i>	<i>Error! Bookmark not defined.</i>
7. Discussion and recapitulation of the findings	Error! Bookmark not defined.

Introduction

This chapter focuses on the collection and analysis of data to investigate the effects of using Duolingo as a mobile-assisted language learning (MALL) tool in developing vocabulary size among students in the English department at KMUO. It presents the practical part of this study, including the methodology employed to collect and analyse data. The chapter begins with an overview of the general study approach and methodology, followed by the selection of appropriate instruments. Subsequently, the context and participants of the study are discussed. Finally, the data obtained is interpreted and analyzed by using the Statistical Package for Social Science (SPSS) for the quantitative data, whereas Qualitative Content Analysis (QCA) is used for the qualitative data.

1. Methodology

The current study utilizes a descriptive research design, which aligns with the framework proposed by Neuman (2014). Descriptive studies play a crucial role in providing a detailed and comprehensive account of phenomena, events, or situations under investigation. As Neuman (2014) states, "Descriptive research seeks to describe accurately the characteristics of individuals, situations, or groups" (p. 45). By employing this approach, researchers aim to systematically collect and analyze data to offer a vivid portrayal of the subject matter. Descriptive studies involve careful observation, measurement, and documentation of variables, enabling researchers to provide a rich and accurate depiction of the research topic (Neuman, 2014).

To achieve the objectives of the study, a mixed methods approach has been chosen. Tashakkori and Creswell (2007) define mixed methods research as "a process in which the researcher collects and analyzes data, combines the findings, and draws conclusions using both qualitative and quantitative approaches within a single study" (p.4). In essence, it is a methodological approach that involves the collection and analysis of information by blending both quantitative and qualitative methods. Consequently, both quantitative and qualitative methodologies are employed, with the quantitative approach used first, followed by the qualitative approach.

Steckler, et al (1992) emphasizes the significance of quantitative research for producing factual and dependable outcome data that can be applied to a broader population. On the other hand,

qualitative research yields comprehensive and valid process data that are based on the interpretations of the participants themselves rather than the investigator's perspectives. More specifically, the quantitative approach is utilized to gather statistical data from closed-end survey questions. This data is then presented using tables and diagrams such as pie charts and bar charts and analyzed using the Statistical Package for Social Sciences (SPSS). On the other hand, the qualitative method is reflected in the open-ended questions in both the interview and the questionnaire. These responses are interpreted through Qualitative Content Analysis (QCA). By integrating both quantitative and qualitative methods, the mixed method offers the most comprehensive means of acquiring a wide range of information and gaining a deep understanding of our research topic.

2. Population and Sample of the Study

The current research is conducted in the English Department at the University of Kasdi Merbah, Ouargla, within the academic year 2023/2024. The study focuses on second-year L2 students from the department who were selected to participate using convenience sampling. Convenience sampling involves selecting members of the target population based on factors such as accessibility, availability, or willingness to participate (Dörnyei, 2007). In this case, nonrandom sampling was more suitable because not all students were familiar with or utilized Duolingo. Therefore, the present study examines the responses provided by a sample of 110 students who currently use the application or have used it before. Additionally, eight 8 students were interviewed as part of the study to gain further insights.

3. Research Instrument

To assess students' perspectives on using the Duolingo app as a Mobile Assisted Language Learning (MALL) in developing vocabulary size, two primary methods were employed. Firstly, an online questionnaire was distributed to students via popular social media platforms (Facebook and WhatsApp), to forty-nine (49) participants. Additionally, sixty-one (61) hard-copy questionnaires were distributed to second-year students who actively use Duolingo. Then, face-to-face interviews were conducted with 8 selected participants at the Department of English to gain deeper insights into their experiences and opinions.

3.1. Description of the Questionnaire

Questionnaires are widely recognized and utilized as a valuable tool in research for collecting quantitative data. Dillman et al. (2014) claim that Closed-ended questions are frequently used to gather data concerning an individual's attitude, belief system, or unique personal traits. The respondents have the flexibility to provide their answers by either writing out their responses or selecting from a predetermined set of options. In essence, a questionnaire is essentially a compilation of written inquiries thoughtfully designed to elicit information from participants about a specific topic. Brown (2001) defines the questionnaire as " any written instrument that presents respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers" (p.6). The primary objective of the questionnaire was to gather insights into students' attitudes regarding the use of the Duolingo application for developing vocabulary knowledge. It consisted of 18 closed-ended questions that required students to provide precise responses using options such as "yes" or "no" or by selecting suitable answers. However, one question allowed students to express their individual opinions by justifying their choices. Thus ,the questionnaire was divided into three main sections:

- **Section 01:** It contains three (3) questions about students' profiles.
- **Section 02:** It contains eight (8) questions about students' familiarity with Duolingo.
- **Section 03:** It contains seven (7) questions about students' attitudes towards using Duolingo for vocabulary learning.

3.1.1. Administration of the Questionnaire

The questionnaire was distributed to a total of 110 participants, with 49 participants receiving it via Google Forms on social media and 61 participants receiving hard copies. The participants were requested to complete a questionnaire with closed-ended questions by selecting the correct response. Remarkably, all 110 participants responded to the questionnaire and sent their answers within a short period.

3.2. Interview

The interview serves as a secondary tool for gathering qualitative data in this study. Gillham (2000, p. 1) describes it as "a conversation where one person—the interviewer—is seeking responses for a particular purpose from another person—the interviewee." In this context, George (2022) notes that conducting interviews provides researchers with valuable data, allowing for more nuanced findings compared to other research methods. Interviews can be categorized into various types, depending on whether the questions are predetermined. For this investigation, the researcher chose a semi-structured interview format, comprising seven items, conducted with eight students. It was audio-recorded with the student's consent and took place on March 4th during the academic year 2023/2024 in the Department of English at Kasdi Merbah University, Ouargla. This format began with an introduction to the study's purpose for the interviewees. All questions posed were open-ended, aiming to explore the students' use of Duolingo as a mobile-assisted language learning tool for vocabulary enhancement.

The questions were organized into three main sections:

- **Section 1:** It contains one question (Q1) about the users' primary reasons and objectives for choosing Duolingo as their language learning platform.
- **Section 2:** It contains Comprises three questions (Q2, Q3, Q4) to evaluate Duolingo impact on vocabulary enhancement and the specific features that contribute to this progress.
- **Section 3:** It contains includes three questions (Q5, Q6, Q7) to explore the challenges users face while using Duolingo and their views on how it compares to other language learning applications.

3.2.1. The administration of the interview:

The interview was conducted with a group of eight L2 students following the analysis of their questionnaires. The purpose of the interview was to gather more detailed and in-depth responses compared to the questionnaire. The semi-structured interview aimed to collect qualitative data and provide insights into why students chose Duolingo, assess its impact on vocabulary development,

identify contributing features, and understand user challenges and comparisons with other language learning apps.

4. Data analysis Procedures

In this part of the research, we will discuss the approaches employed for examining the numerical and descriptive data obtained from the questionnaire and interview. To analyze the quantitative data, the Statistical Package for Social Sciences (SPSS) was utilized. On the other hand, the qualitative data were examined using Qualitative Content Analysis (QCA). By employing these two distinct methods, we can comprehensively analyze and interpret both the quantitative and qualitative aspects of the data collected.

4.1.The Quantitative Analysis

The Statistical Package for Social Sciences (SPSS) serves as the analytical tool for processing numerical data obtained from the structured 18 items within the questionnaire .it has been Described by Blumenthal (2010,p.1) as a versatile statistical software designed to cater to the requirements of both social science researchers and the wider populace, SPSS essentially functions as a digital assistant. It facilitates the examination of statistical information, enabling users to systematically compile and present this data in the form of organized tables and illustrative diagrams, thereby simplifying the interpretation and presentation of complex data sets. Essentially, SPSS serves as a powerful aid for researchers and analysts in processing and visualizing data, enabling them to draw meaningful conclusions from their studies.

4.2. Qualitative Analysis

The qualitative data obtained from the interview and questionnaire was analyzed using the adapted Qualitative Content Analysis (QCA) method. Patton (2002), defined it as "any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings" p.453. Krippendorff, (2004), also argues that Content analysis is a methodological approach used in research to systematically analyze text or other meaningful material to create replicable and valid references within a specific context. It offers researchers new insights and enhances their understanding of a particular phenomenon, thereby

informing potential actions or decisions. To conduct content analysis, the researchers collected data from a diverse range of texts, encompassing oral, written, and visual sources such as public speeches, videos, and interviews. This method allowed them to gain a comprehensive understanding of the qualitative information and apply a subjective yet scientific approach to categorize and interpret the data within the text.

5. Presentation of the Results of the Questionnaire

This section presents the findings derived from the questionnaire, which were examined utilizing the Statistical Package for the Social Sciences (SPSS), a software designed for the analysis of numerical data. Noticeably, the reliability statistics of the questionnaire calculated through Cornbach's alpha coefficient is 88.2%.

Section One: Student's Profile

Q1: Please specify your gender.

Specify your gender			
Valid		Frequency	Percentage
	Male	36	33%
	Female	74	67%
	Total	110	100 %

Table 3. 1: Student's gender

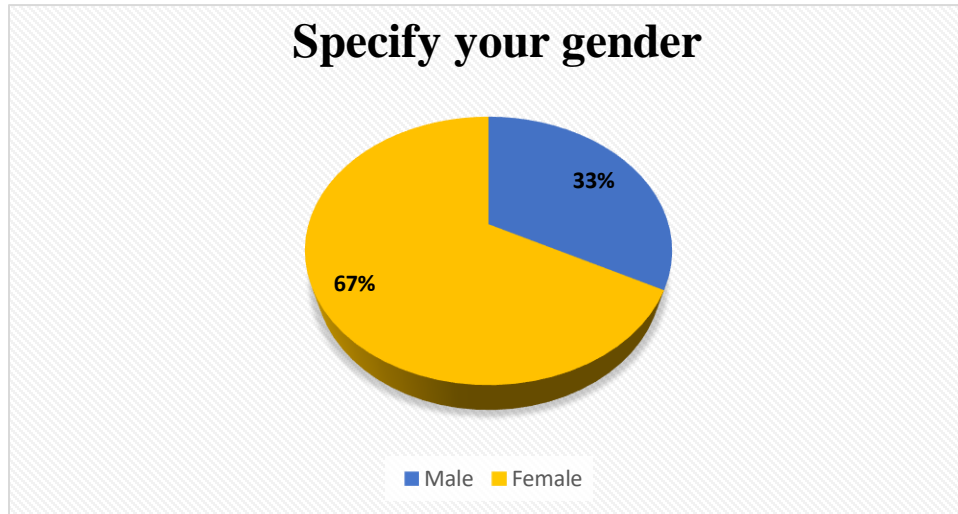


Figure 3. 1: Students' gender

Based on the available data in Table (3.1) and Figure (3.1), it can be observed that among second-year EFL students at KMU, there is a noticeable majority of female students. Out of a total of 110 students, 74 students (67%) identify as female, while 36 students (33%) identify as male. These statistics indicate that female students are more prevalent in the EFL program at KMU, suggesting a higher motivation and interest in pursuing English as a separate major at the university level compared to their male counterparts.

Q2: What is your age?

Age		
Valid	Frequency	Percentage
Under 18	1	1%
18_22	81	74%
23_27	18	16%
27+	10	9%
Total	110	100 %

Table 3.2: Students age

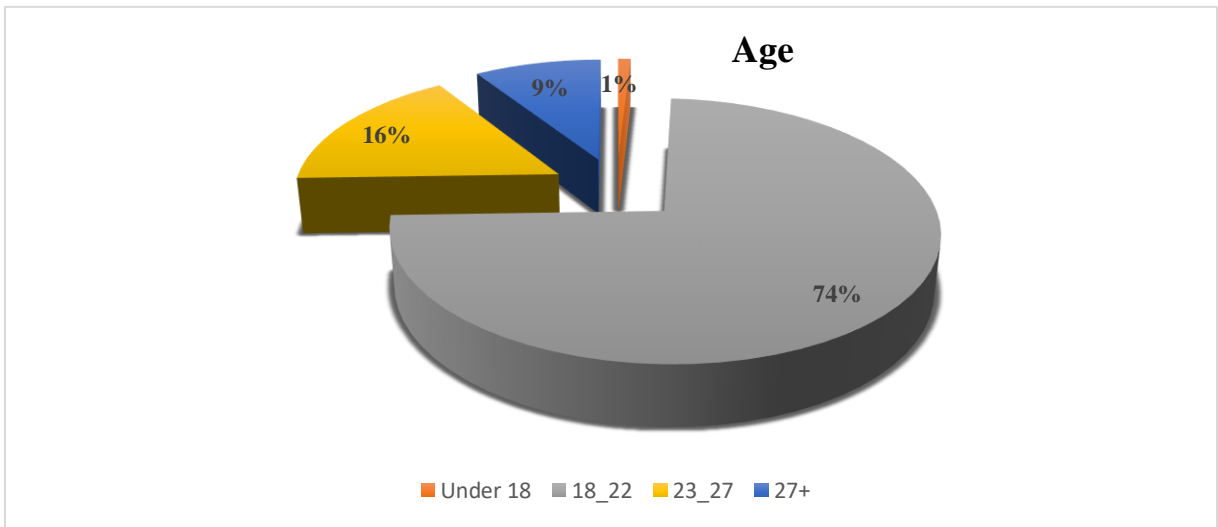


Figure 3. 2: Students age

The age distribution of the participants is as followed in table (3.2) and figure (3.20): Among the total participants, 81 students (74%) fall within the age range of 18 to 22 years. Additionally, 18 students (16%) are between 23 and 27 years old. Only one student (1%) is under 18 years of age, and 10 students (9.1%) are over 27 years old. These statistics indicate that the majority of participants belong to the younger age group, suggesting that the program primarily consists of young learners.

Q3: Specify your level in English?

Specify your level in English		
Valid	Frequency	Percentage
Good	72	65%
Average	37	34%
Less than average	1	1%
Total	110	100 %

Table 3. 3: Students level in English

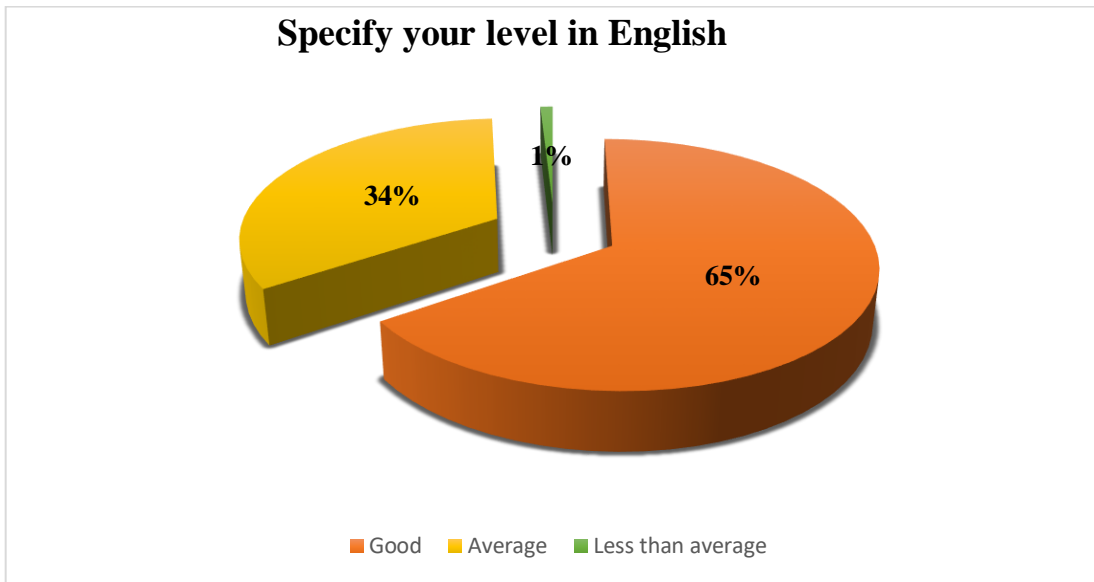


Figure 3. 3: Students' level in English

Based on the information presented in Table (3.3) and Figure (3.3), it can be observed that out of the total participants, 37 individuals (34%) demonstrate an average level and command of English. The majority of participants, 72 (65%), display a good and exceptional level of proficiency, while one participant (1%) has a below-average level in English. These findings suggest that the English language proficiency of most EFL students is above average, indicating their potential for academic success.

Section Two: Student Familiarity with Duolingo

Q1: Which kind of mobile devices do you use most?

Which kind of mobile devices do you have		
Valid	Frequency	Percentage
Smart phone	105	95%
Tablet	3	3%
Personal computer (PC)	2	2%
Total	110	100 %

Table 3. 4: Students use of mobile devices

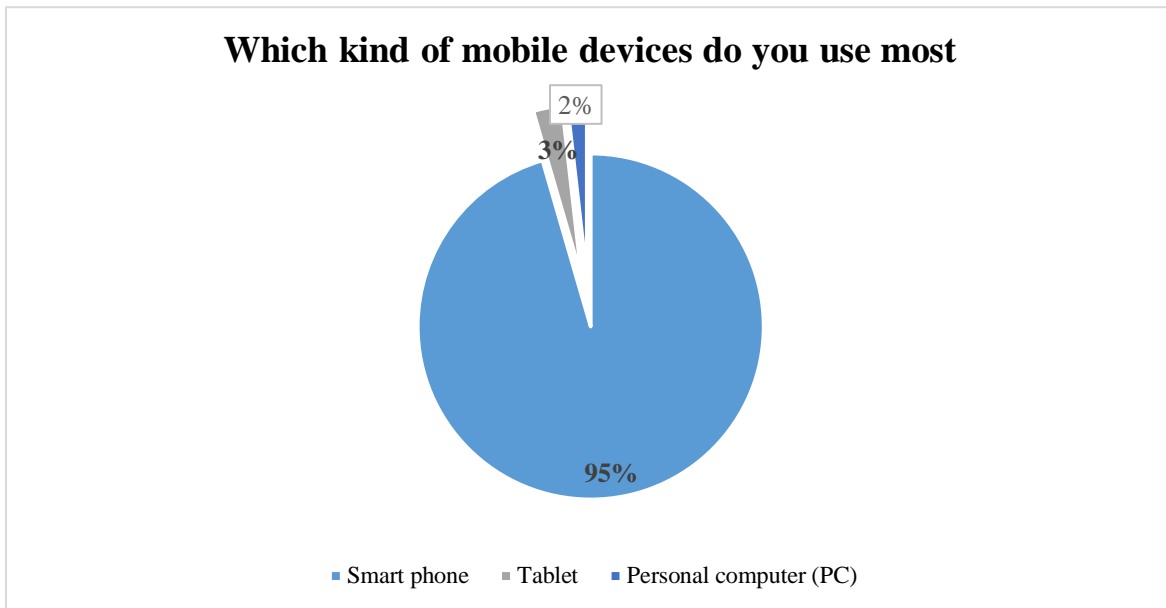


Figure 3. 4: Students use of mobile devices

The results presented in Table (3.4) and Figure (3.4) indicate that smartphones are the most prevalent mobile devices among the respondents, accounting for 105 participants (95%). This suggests that smartphones are the preferred and most commonly used devices, likely due to their convenience, functionality, and the current trend towards mobile technology. Tablets, on the other hand, constitute a smaller group with 3 participants (3%), possibly due to their larger screens preferred for certain activities like reading or watching videos but less portable than smartphones. Lastly, personal computers (PCs) are the least utilized, with only 2 participants (2%) using them. This may indicate a broader trend of shifting away from traditional desktop computing to more mobile solutions for daily tasks.

Q2: How often do you use mobile devices to learn English?

How often do you use mobile devices to learn English		
Valid	Frequency	Percentage
Always	50	45%
Often	43	39%
Rarely	17	15%
Total	110	100 %

Table 3.5: Frequency of Mobile Device Usage for English Language Learning

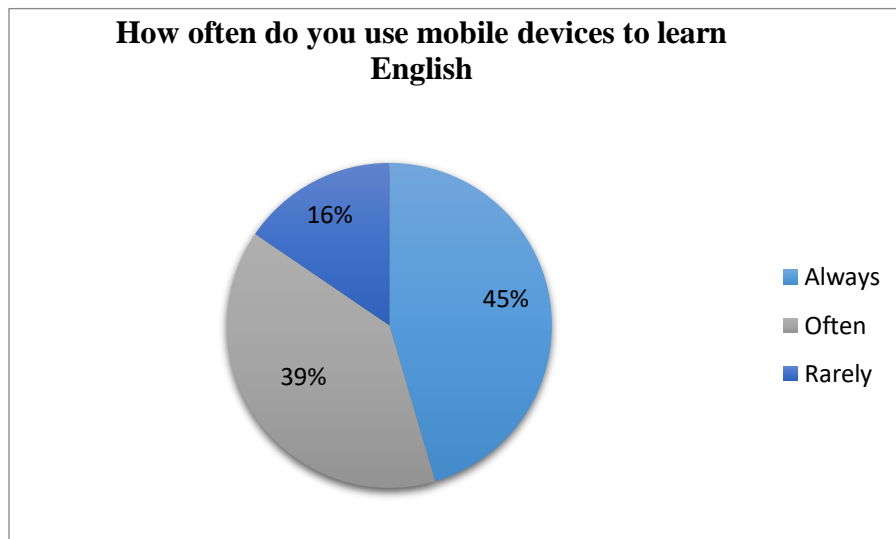


Figure 3.5: Frequency of Mobile Device Usage for English Language Learning

From the provided data in Table (3.5) and Figure (3.5), it can be observed that 45% of the respondents indicated that they always use their mobile devices to learn English. This suggests that a significant number of participants heavily rely on mobile devices for their English learning activities. Furthermore, 39% of the respondents mentioned that they often use their mobile devices for teach English, indicating that a substantial number of participants frequently engage in English learning activities using their mobile devices. On the other hand, 16% of the respondents stated that they rarely use their mobile devices for learning English. This group represents the smallest proportion of participants who may perceive mobile device usage as less effective or prefer alternative methods for language learning. Based on these findings, it can be inferred that the majority of respondents, comprising 84%, spend a significant amount of time using their mobile

devices for English learning or related activities. This suggests the widespread recognition and utilization of mobile technology as a valuable tool in the process of learning the English language.

Q3: Do you install language-learning applications on your device?

Do you install language learning applications in your device		
Valid	Frequency	Percentage
Yes	102	93%
No	8	7%
Total	110	100 %

Table 3. 6 : Usage of Language Learning Applications on Mobile Devices

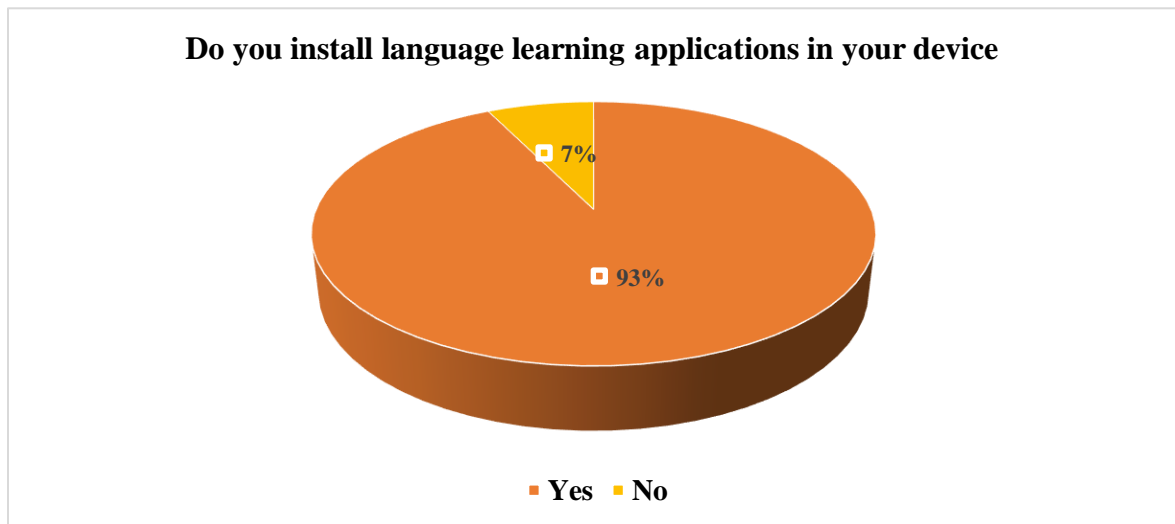


Figure 3. 6: Usage of Language Learning Applications on Mobile Devices

The question aimed to understand the prevalence of language learning application installation among English students. As indicated in Table (3.6) and Figure (3.6), a significant majority of the respondents, 102 out of 110 (93%), have installed language learning applications on their devices. This high percentage underscores the importance placed on these applications by the participants, suggesting a strong inclination towards using technological aids for language learning. On the other hand, a small minority of 8 out of 110 participants (7%) have not installed

such applications. This could be due to various reasons such as a preference for traditional learning methods, lack of awareness, or technological constraints.

Q4: Do you use the Duolingo application as a language learning tool?

Do you use the Duolingo application as a language learning tool		
Valid	Frequency	Percentage
Yes	95	86%
No	15	14%
Total	110	100 %

Table 3. 7 : student's usage of Duolingo Application as a Language Learning Tool

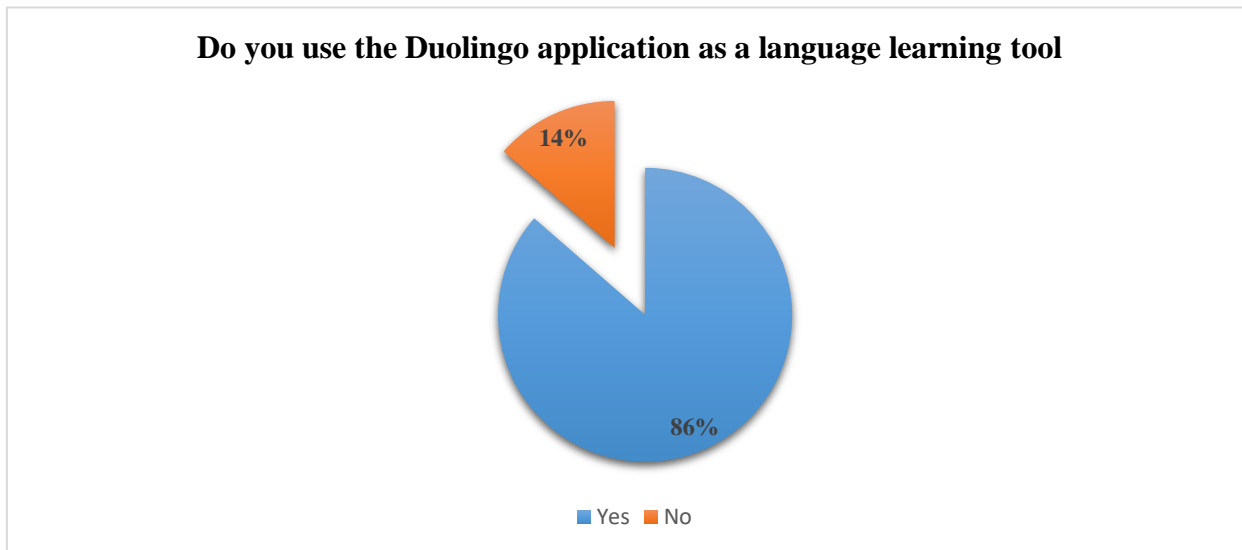


Figure 3. 7: student's usage of Duolingo Application as a Language Learning Tool

The purpose of this question was to determine the extent of Duolingo usage among individuals studying languages. The findings shown in table (3.7) and figure (3.7) that a significant majority of the respondents, 95 out of 110 (86%), employ Duolingo for their language learning needs, highlighting the app's strong approval among users and suggesting that a vast number of learners find it beneficial for their language studies. In contrast, a small minority of 15 out of 110 participants (14%) reported no longer using Duolingo. This minority may represent individuals

who either prefer alternative methods of language learning or have used Duolingo for a certain period of time , especially as beginner language learners.

Q5: Is Duolingo effective for learners of various proficiency levels?

Is Duolingo effective for learners of various proficiency levels		
Valid	Frequency	Percentage
Yes	92	84%
No	18	16%
Total	110	100 %

Table 3. 8: Duolingo effectiveness for Language Learners at Different Proficiency Levels

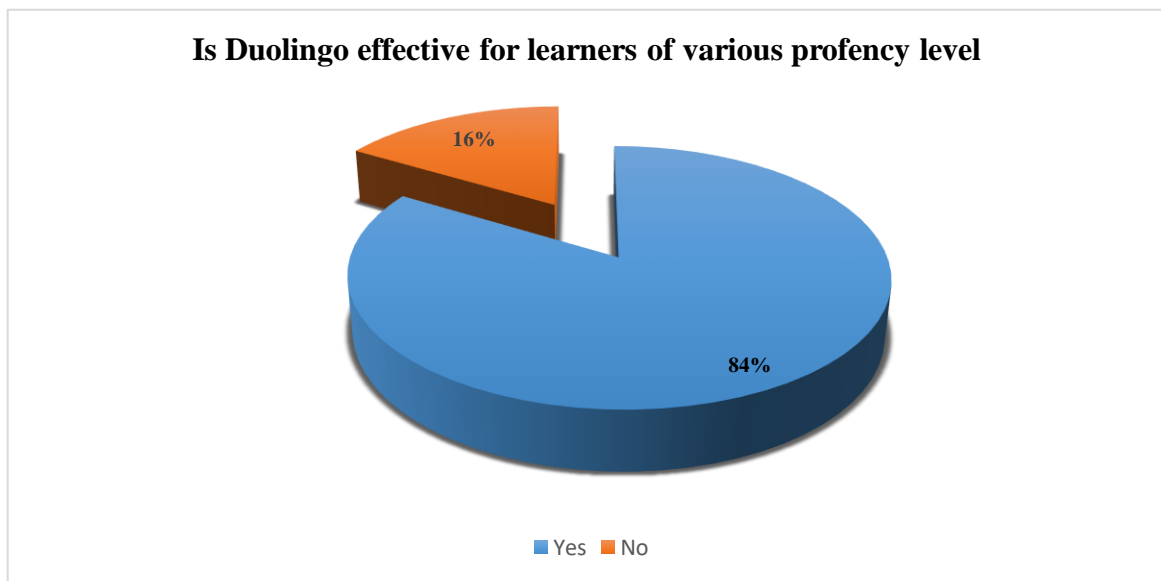


Figure 3. 8: Duolingo effectiveness for Language Learners at Different Proficiency Levels

Data presented in Table (3.8) and Figure (3.8) show that a significant majority of participants, 92 out of 110 (84%), affirm the effectiveness of Duolingo for learners across different proficiency levels. This indicates a broad acceptance of Duolingo as a beneficial learning tool. In

contrast, the remaining 18 respondents (16%) do not share this view, which may be due to a preference for traditional learning methods, a perception of the app’s gamified approach as less serious, or a need for more personalized instruction.

Q6: Does the Duolingo mobile application aid the learning process?

Does the Duolingo mobile application help in the learning process		
Valid	Frequency	Percentage
Yes	98	89%
No	12	11%
Total	110	100 %

Table 3.9: The Efficacy of Duolingo Mobile Application in Language Learning

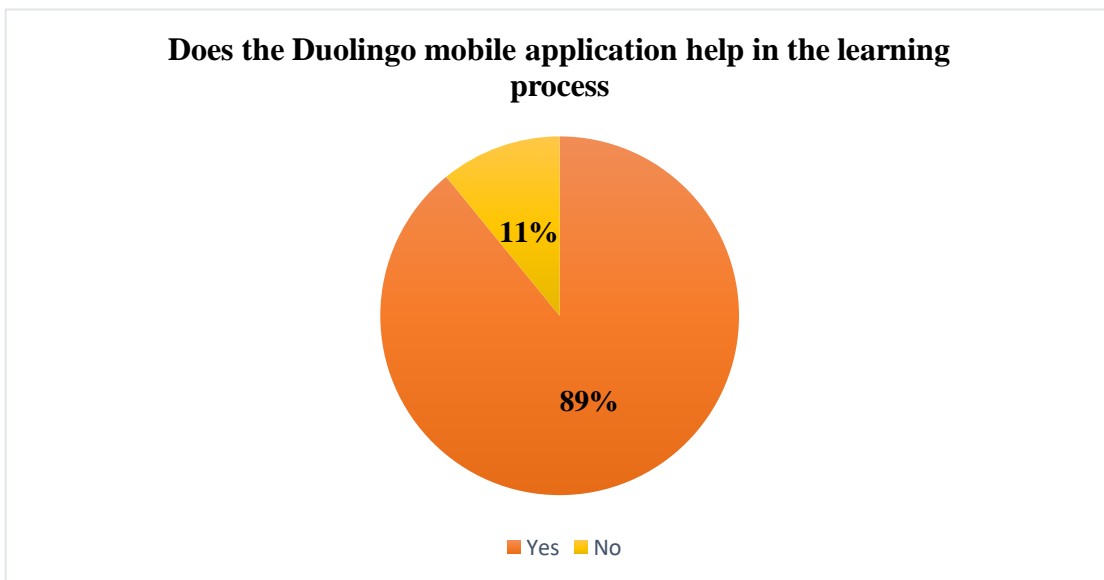


Figure 3. 9: The Efficacy of Duolingo Mobile Application in Language Learning

According to Table (3.9) and Figure (3.9), a substantial majority of the participants, 98 out of 110 (89%), confirm the efficacy of the Duolingo mobile application in facilitating the learning process. This high percentage suggests that Duolingo is widely recognized as a supportive tool for language acquisition. Conversely, a minority of 12 respondents (11%) do not consider Duolingo to be beneficial in their learning journey. From this, it can be inferred that a significant number of participants view the application as a valuable asset for language learning.

Q7: Did Duolingo motivate you to learn vocabulary?

Did Duolingo motivate you to learning vocabulary		
Valid	Frequency	Percentage
Yes	88	80 %
No	22	20%
Total	110	100 %

Table 3. 10: The impact of Duolingo on vocabulary learning motivation.

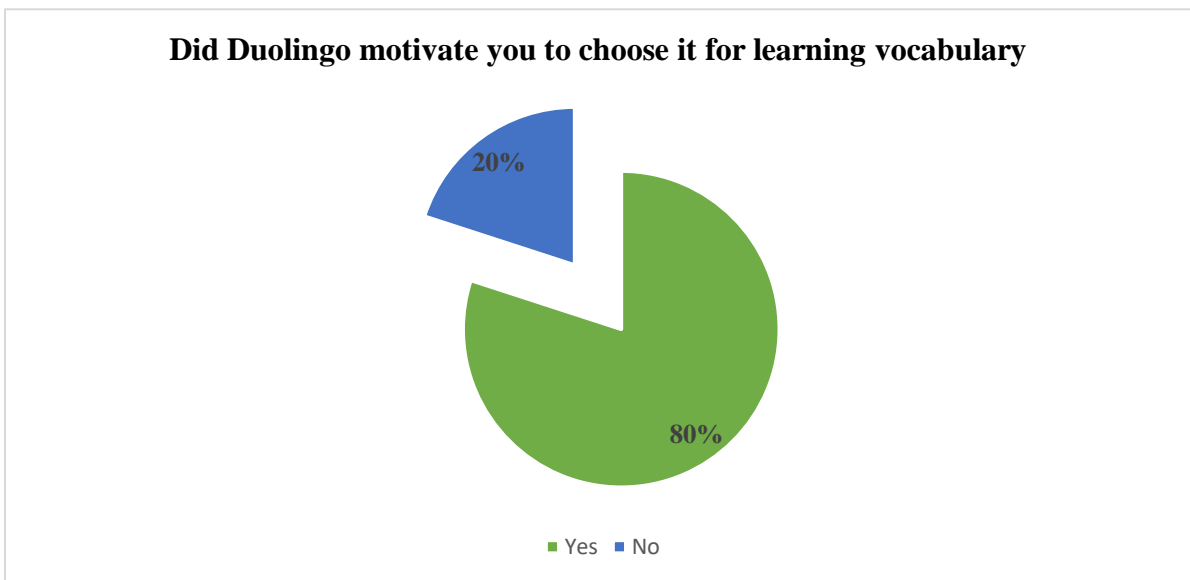


Figure 3. 10: The impact of Duolingo on vocabulary learning motivation.

The data collected from 110 respondents, as shown in Table (3.10) and Figure (3.10), reveal that 88 individuals (80%) were motivated by Duolingo to use the app for learning vocabulary, indicating a strong inclination towards the app for this aspect of language learning. However, the remaining 22 respondents (20%) did not find Duolingo motivating for vocabulary acquisition. This suggests that while Duolingo is a favored choice for the majority, there is a notable minority for whom the app does not act as a motivational tool.

Q8: What features of Duolingo do you frequently use? (You can choose more than one option).

What features of Duolingo do you frequently use? (You can choose more than one option).		
Valid	Frequency	Percentage
Interactive pictures and stories	27	24%
Quiz : to test your current list of vocabulary	48	44%
Spaced Repetition	17	15%
Vocabulary games	18	16%
Total	110	100 %

Table 3. 11: The features of Duolingo us

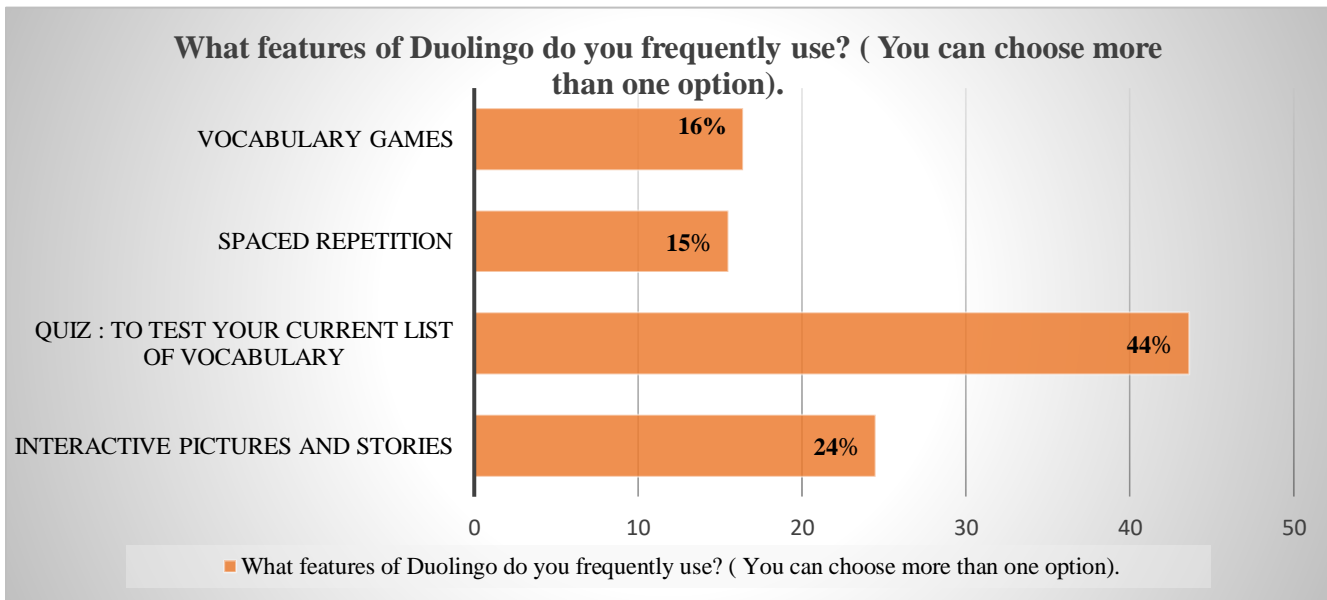


Figure 3. 11: The features of Duolingo use

Among the features of Duolingo that were frequently mentioned in table (3.11) and figure (3.11), the most popular feature was the "Quiz: to test your current list of vocabulary," which accounted for 44% of the total usage. This indicates that learners found the vocabulary quizzes helpful in assessing their knowledge and progress. Next the second most frequently used feature was "Vocabulary games," which accounted for 16% of the total usage. This suggests that learners engaged in interactive games to enhance their vocabulary skills, making the learning process more enjoyable and immersive. Additionally, "Spaced Repetition" was used by 15% of the learners. This feature likely helped reinforce learning by presenting previously learned material at strategic intervals, maximizing long-term retention.

Lastly, "Interactive pictures and stories" was utilized by 24% of the learners. This indicates that learners found visual and storytelling elements engaging and effective in language learning.

Overall, these findings suggest that learners placed a significant emphasis on vocabulary acquisition and testing, as evidenced by the popularity of vocabulary quizzes and vocabulary games. The use of interactive elements such as pictures and stories also resonated with learners, potentially enhancing their engagement and comprehension.

Section three: Student attitude toward using Duolingo

Q9: Have you noticed an improvement in your vocabulary size since using Duolingo in comparison to other learning apps?

Have you noticed an improvement in your vocabulary size since using Duolingo in compares to other learning apps		
Valid	Frequency	Percentage
Yes, I noticed	84	76%
No ,I did not	26	24%
Total	110	100 %

Table 3. 12: The improvement of vocabulary size since using Duolingo

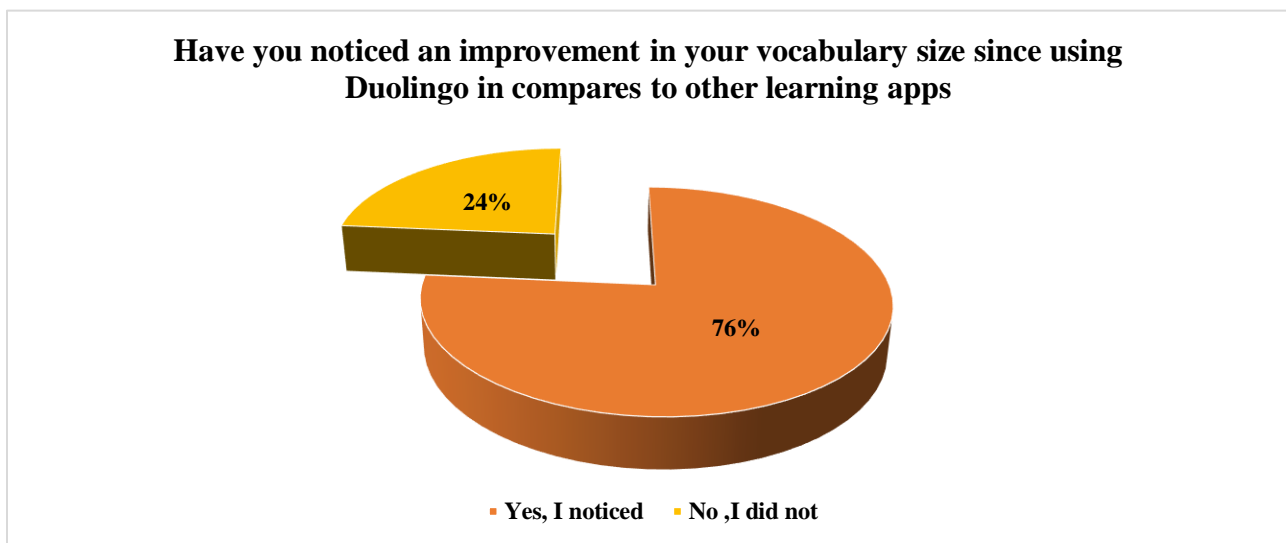


Figure 3. 12: The improvement of vocabulary size since using Duolingo

According to the table(3.12) and the figure(3.12), a significant majority of participants 84 responded (76%) affirmatively, indicating that they noticed an improvement in Duolingo vocabulary size compared to other language learning applications. On the other hand, a minority comprising 26 of the participants (23%) answered negatively, stating that they did not observe such an improvement .Therefore the majority of users found Duolingo to be effective in expanding their vocabulary compared to other learning apps. The high number of positive responses suggests that Duolingo is perceived favorably in terms of vocabulary acquisition by its users. However, it is noting that some users did not experience the same improvement, indicating that individual learning experiences may differ.

Question 10: What kind of problem do you face when you learn new vocabulary?

What kind of problem do you face when you learn new vocabulary?		
Valid	Frequency	Percentage
Memorization	39	35%
Prononciation	16	14%
Meaning	31	28%
Spelling	24	22%
Total	110	100 %

Table 3.13: The problem faced when learning new vocabulary

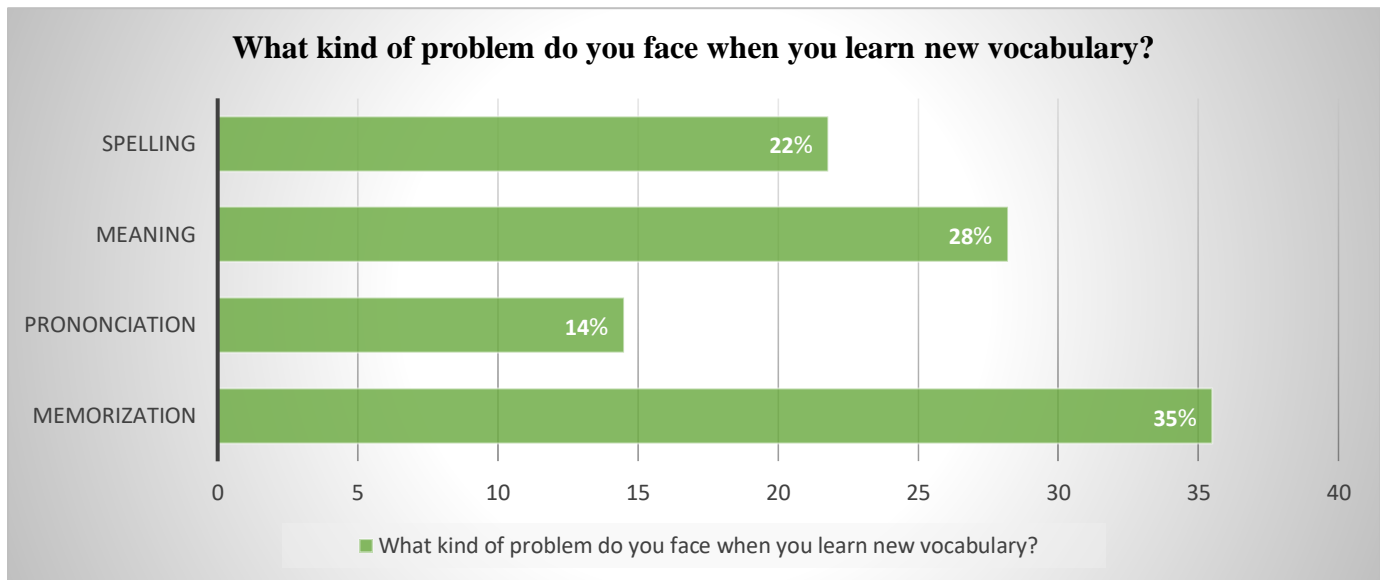


Figure 3. 13: The problem faced when learning new vocabulary

Based on the percentages provided in the table(3.13) and figure(3.13), Memorization refers to 39 participants representing (35%), this suggests that a significant portion of individuals find memorizing new vocabulary challenging.

While a smaller percentage in pronunciation refers to 16 participants representing (14%) still emerges as a notable challenge for some learners. This could indicate difficulties in correctly pronouncing new words, possibly due to differences in phonetic systems or unfamiliar sounds.

Understanding the meaning of new vocabulary appears to be a significant challenge for many. 31 participants represent (28%), this could stem from encountering unfamiliar contexts, as well as difficulty in grasping multiple meanings of words.

A notable portion of respondents struggling with spelling new vocabulary refers to 24 participants representing (22%) This could be due to similarities between words with different spellings.

In summary, the analysis of the result presents that learners face four main challenges when learning new vocabulary. These challenges are interconnected, as learners often need to memorize the spelling, pronunciation, and meaning of new words simultaneously. Overcoming these

challenges requires consistent practice, exposure to language contexts, and the use of effective learning strategies in each specific difficulty.

Question 11: Does Duolingo help you overcome your vocabulary problem?

Does Duolingo help you overcome your vocabulary problem		
Valid	Frequency	Percentage
Yes	71	64%
No	39	35%
Total	110	100%

Table 3. 14: Duolingo impact on overcoming vocabulary problem

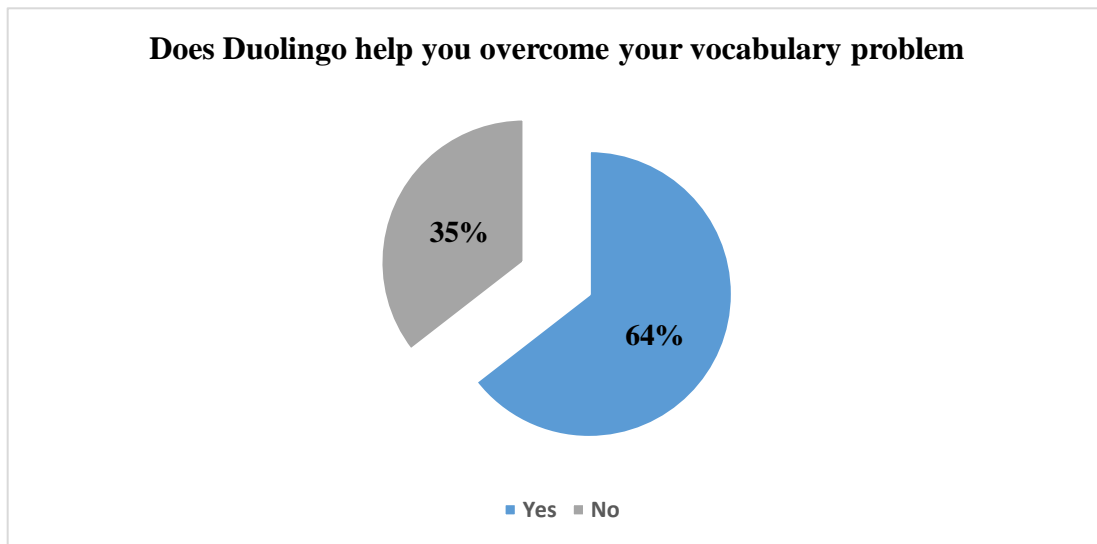


Figure 3. 14: Duolingo impact on overcoming vocabulary problem

Based on the results of the table (3.14) and Figure (3.14), the majority of respondents 71 reported (64%) that Duolingo does help them overcome their vocabulary problem. This indicates that a significant number of the participants found Duolingo to be effective in improving their vocabulary.

While the minority opinion 39 suggests that some respondents (35%) did not find Duolingo helpful in overcoming their vocabulary problem, it is important to note that this percentage is lower than the majority opinion. It implies that smaller participants experienced limitations with Duolingo in terms of vocabulary knowledge.

Question 12: How does Duolingo compare to traditional methods of language learning in terms of vocabulary growth?

How does Duolingo compare to traditional methods of language learning in terms of vocabulary growth		
Valid	Frequency	Percentage
More useful	52	47%
Equally useful	58	53%
Total	110	100 %

Table 3. 15: The comparison of Duolingo to other traditional methods in vocabulary growth

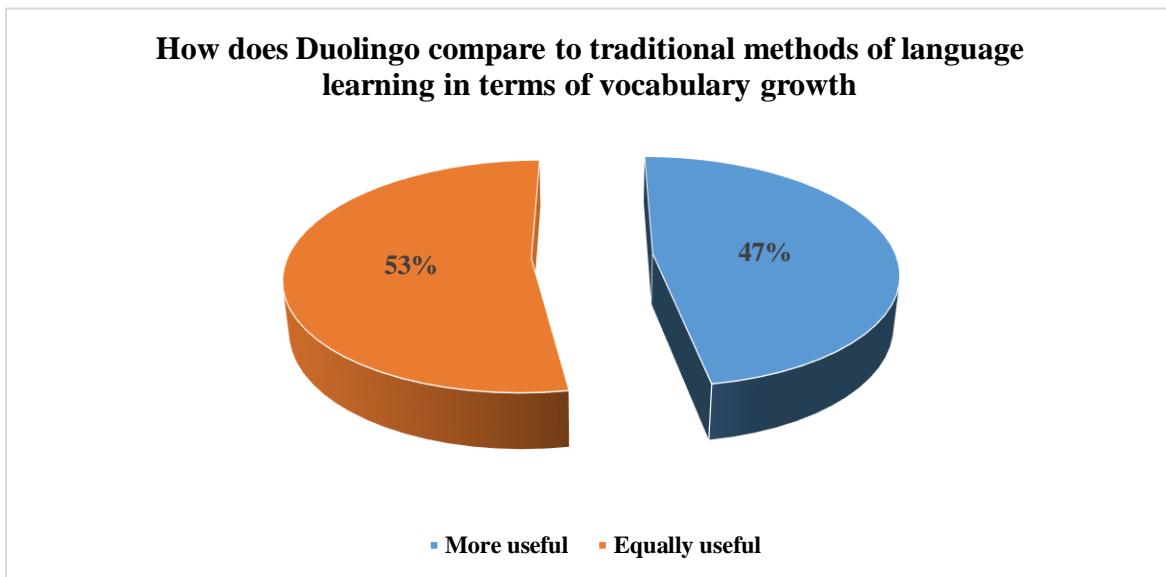


Figure 3. 15: The comparison of Duolingo to other traditional methods in vocabulary growth

Based on the information in the table(3.15) and the figure(3.15), 52 of the respondents (47%) stated that Duolingo is "more useful" for vocabulary growth, while 58 expressed the opposite opinion. (53%) of the respondents considered Duolingo and traditional methods to be "equally useful," Comparing these results, there is a slight difference between the two groups. The participants who found Duolingo to be more useful (52) are slightly lower than the participants who found it to be equally useful (58). However, when comparing the percentage of respondents who found Duolingo to be more useful (47%) with the percentage of respondents who found it equally useful (53%), that is relatively small.

This suggests that both approaches have their strengths, and the difference in perceived utility is limited. Therefore, it can be inferred that Duolingo compares closely to traditional methods in terms of vocabulary growth effectiveness, with neither being significantly favored over the other based on these results.

Question 13: Do you think that the gamification elements in Duolingo contribute to increase engagement and vocabulary retention?

Do you think that the gamification elements in Duolingo contribute to increase engagement and vocabulary retention		
Valid	Frequency	Percentage
Yes	85	77%
No	25	23%
Total	110	100 %

Table 3. 16: The gamification elements in Duolingo for increasing vocabulary retention

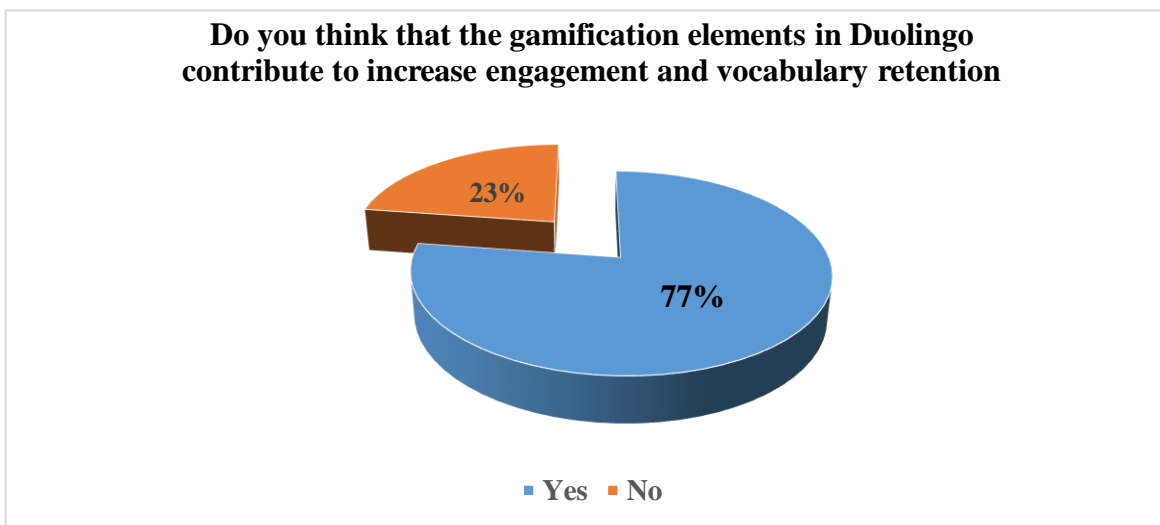


Figure 3. 16: The gamification elements in Duolingo for increasing vocabulary retention

In accordance with the results indicated in table (3.16) and figure (3.16), it seems that a majority 85 of participants represent (77%) believe that the gamification elements in Duolingo contribute to increased engagement and vocabulary retention. This indicates a strong inclination

towards the positive impact of gamification on language learning within the Duolingo platform. However, the minority opinion 25 participants represent (23%) who disagree suggests that not everyone perceives gamification as beneficial for language learning, possibly due to individual learning preferences or experiences. Overall, while the majority view supports the effectiveness of gamification in Duolingo, there is some evidence that disapproves that gamification is effective.

Question 14: Do you think Duolingo focuses on repetition and reinforcement positively impacts the retention of vocabulary?

Do you think Duolingo focus on repetition and reinforcement positively impacts the retention of vocabulary		
Valid	Frequency	Percentage
Yes	100	91%
No	10	9%
Total	110	100 %

Table 3. 17: The impacts of repetition and reinforcement of Duolingo in learning vocabulary

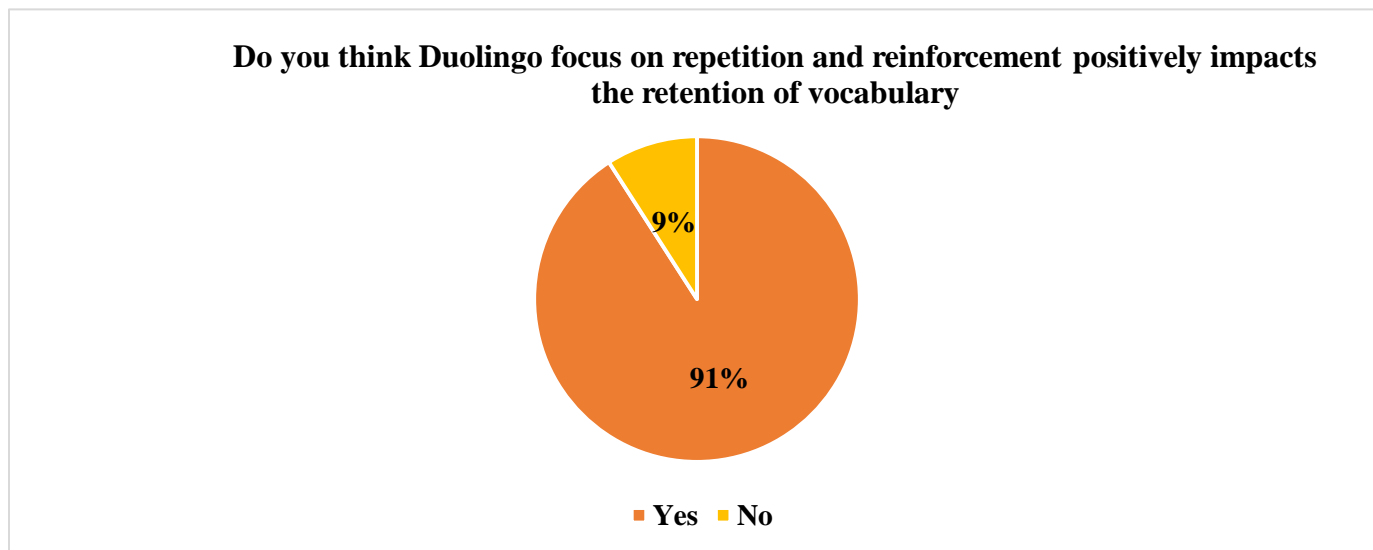


Figure 3. 17: The impacts of repetition and reinforcement of Duolingo in learning vocabulary

Based on the results in table (3.17) and figure (3.17), it seems that the respondents believe Duolingo's focus on repetition and reinforcement positively impacts the retention of vocabulary. With (91%) supporting this notion in 100 participants, this indicates that most users perceive the repetition and reinforcement techniques employed by Duolingo as effective in helping them remember and obtain vocabulary. The 10 participants who disagreed represent (9%) minority viewpoints.

The results in favor of Duolingo's approach suggests that repetition and reinforcement are viewed as beneficial learning strategies. Repetition involves reviewing and practicing vocabulary multiple times, which can enhance memory consolidation. Reinforcement, which involves exercises and quizzes, helps reinforce the learned material through active recall. The high percentage of respondents supporting Duolingo's approach may also indicate a positive user experience.

In conclusion, based on the provided result, there is strong support for the idea that Duolingo focus on repetition and reinforcement positively impacts the retention of vocabulary. However, it is important to consider individual differences in learning styles.

Question 15: Would you recommend Duolingo as an effective tool for developing vocabulary size to other languages? Why and why not (in brief).

Would you recommend Duolingo as an effective tool for developing vocabulary size for learning other languages? Why and Why not (in brief).			
Valid		Frequency	Percentage
	Yes	88	80 %
	No	22	20 %
	Total	110	100 %

Table 3. 18: The recommendation of Duolingo as an effective tool in developing vocabulary size

As shown in the table (3.18) and figure (3.18), 88 participants representing (80 %) said that they recommend Duolingo as an effective tool for developing vocabulary size to other languages. While there are 22 participants, representing (20%) they are not recommended.

Please justify your answer:

Based on the justifications provided by the participants, there are both positive and negative views regarding the effectiveness of Duolingo as a tool for developing vocabulary and learning languages.

The participants who support Duolingo argue that the app helps them learn new words in an enjoyable and engaging manner. This suggests that the interactive nature of the app, with its gamified features and interactive exercises, contributes to a positive learning experience. Others claimed that they believe the Duolingo aids in the memorization of new words. This app employs various techniques, such as spaced repetition, to reinforce vocabulary learning and enhance retention. Furthermore, Duolingo may expose learners to different contexts and situations where they can practice using new words. It can be available and accessible to a wide range of users is seen as a positive aspect. Few other participants appreciate the entertainment factor of Duolingo. By making language learning enjoyable, the app may motivate users to engage with it and their interest in learning. However, few other participants express a preference for traditional language learning methods over Duolingo. They believe that these approaches are more effective than using a learning app, because there is a teacher that can give them many ways to learn and memorize vocabulary.

6. Results of the interview:

This section outlines the outcomes of a semi-structured interview that was audio-recorded with eight (8) second-year students from the Department of English at Kasdi Merbah University of Ouargla (KMUO). These students shared their experiences with Duolingo, and the findings were analyzed using Qualitative Content Analysis (QCA) . This method assists in understanding the students' perspectives and the various factors that could have impacted their decision to either embrace or decline Duolingo as a means to improve their vocabulary.

Section one: Users primary reasons for choosing Duolingo as their language learning platform.

Question 01: what are your main goals and motivation for using Duolingo as a language learning tool?

Based on the response provided by the participants, two (2) students mentioned that their main goal is to learn more vocabulary in a funny and easy way. They value the experience while focusing especially on extending their vocabulary, where three (3) students expressed their goals as improving the four language skills, emphasizing the importance of Duolingo for proficiency development in listening, speaking, reading, and writing. The primary goal is to acquire more vocabulary for the studies. This suggests, stated by three (3) other students, that Duolingo is a valuable resource for expanding their vocabulary especially in the context of their academic education.

Section two : Duolingo impact on vocabulary enhancement

Question 02: In your opinion, how effective is Duolingo in helping you increase your vocabulary size? Elaborate

The feedback provided by the participants regarding the effectiveness of Duolingo in increasing vocabulary size was variable . Three (3) students who emphasized the importance of repetition and the use of sounds and pictures in Duolingo likely recognize its value in vocabulary acquisition. Elaboration, "*repetition is a well-known technique for reinforcing learning and improving retention*". Additionally to the use of sounds and pictures integrated auditory and visual elements to enhance vocabulary size.

Four (4) students stated that Duolingo is helpful and effective because it focuses on teaching new words to highlight a key aspect of vocabulary growth. The elaboration, Duolingo, introduces learners to a wide range of new words is crucial for expanding vocabulary size.

One student who mentioned that Duolingo's effect on vocabulary size is due to its enjoyable and time-efficient learning process presents an interesting perspective. Because language learning can be challenging, and maintaining motivation and engagement is crucial for long-term progress.

Question 03: Does Duolingo enhance your vocabulary size?

All of the interviewed say "yes" that Duolingo enhances their vocabulary size. This outcome indicates a strong agreement among the students regarding the positive impact of Duolingo on vocabulary development.

Question 04: What specific features within Duolingo have you found most effective in developing vocabulary size?

- Most of the students mentioned the features of Duolingo as :
- Repetition of the vocabulary
- Short stories
- Quizzes
- Listening to podcasts
- Vocabulary games
- Using Pictures

One student highlights two specific features of Duolingo that may contribute to its effectiveness in enhancing vocabulary size: the ability to learn multiple languages within the same account and the option to invite friends to learn together.

Overall, the mentioned features within Duolingo, including repetition, short stories, quizzes, listening to podcasts, vocabulary games, and the use of pictures, all contribute to vocabulary development. Additionally, the ability to learn multiple languages in one account and inviting friends to learn together can also enhance the learning experience by providing additional motivation and opportunities for language practice.

Section three: User perspectives on Duolingo challenges and comparison to language learning apps

Question 05: what difficulties do you face while using Duolingo?

The first two students agreed that the application is simple and easy to navigate. They did not encounter any significant difficulties while using it. However, two other users have pointed out

that the application requires an internet connection to function, which can be limiting for individuals without consistent online access.

One common difficulty reported by a user is the pronunciation of words. It seems that the application's speech recognition or pronunciation guidance may need improvement in this area to better understand spoken language. Another student expressed difficulty in learning a new language through the medium of English, suggesting a need for the application to offer instructions in more native languages.

Furthermore, the last student mentioned that the necessity to pay for certain lessons creates a barrier. This implies that the application's monetization strategy, which involves charging for specific content, may impact the overall learning experience.

Question06: how do you compare Duolingo with other language learning applications that you have used?

Based on the provided responses, it is evident that the participants hold varying opinions regarding the effectiveness and benefits of language learning applications, with a specific focus on Duolingo.

Participant A1 mentions that they find Duolingo's unique strategy of changing their learning approach from time to time helpful in avoiding boredom with language learning applications.

Both Participant A2 and Participant A3 have experienced using multiple language learning applications and have expressed a preference for Duolingo. A2 found Duolingo more enjoyable and interesting and felt that the process of learning languages was more engaging with this app. Similarly, A3 chose to stick with Duolingo after noticing substantial progress in their language skills.

Participants A4 and A5 believe that Duolingo is regarded as the best language learning application due to its effectiveness and creativity in learning methods, which they find more motivating than those of other language learning apps.

Participant A6 asserts that Duolingo is more useful than other applications due to its interesting features and beneficial aspects in the learning process.

Participant A7 claims that Duolingo is the most helpful application because it allows users to acquire new information and encourages them to continue learning and using the app compared to other apps.

Participant A8 deviates from the previous responses by mentioning that they vary using other language learning applications due to their different approaches compared to Duolingo.

Overall, the participants' responses provide a diverse range of opinions about language learning applications, particularly Duolingo. While the majority express positive views, highlighting the application's effectiveness, motivation, and progress.

Question 07: Do you have the intention to continue using Duolingo in learning vocabulary?

In response to the final question, all eight interviewees confirmed their intention to continue using Duolingo for English language learning. Some expressed a desire to further their skills and achieve professional proficiency. Additionally, other participants highlighted the platform's engaging and effective educational approach as a key factor for their future use.

7. Discussion and recapitulation of the findings:

The study conducted at Ouargla University examined the impact of Duolingo as a mobile Assisted language learning in developing vocabulary size for 2nd year EFL students. The results of both data gathering (questionnaire and interview) in the study were remarkably interesting, highlighting several positive aspects. It was observed that the students at Ouargla University extensively utilized their mobile devices as a means to learn English, particularly focusing on expanding their vocabulary. Additionally, the study provided valuable insights into the students' usage patterns and preferences when it came to mobile learning.

One of the essential parts of the questionnaire is demographic factors to consider in the student profile, which provides valuable insights into the demographic characteristics of the participants. It helps to understand the background of the students engaging with the study, including factors such as age, gender, and educational level in English. Age provides information on the developmental stage of the students and their specific needs and interests. Gender is another

significant demographic characteristic to consider. Which provide insights into potential differences in learning styles, preferences, and experiences between male and female students. Understanding these differences help tailor educational interventions to be inclusive and effective for all students. Educational level in English is an essential factor to consider, particularly in English language learning contexts. It helps assess the students' proficiency level and determine appropriate instructional strategies and materials. Analyzing students' responses offer a clearer picture of the target audience and aid in tailoring educational interventions to suit their needs effectively.

The findings regarding students' familiarity with the language-learning Duolingo application provide valuable insights into the students themselves. Students can assess their familiarity with the platform and its features, enabling them to tailor their approach accordingly. By analyzing students' usage patterns, students can determine the frequency and consistency with which they engage with Duolingo. This results helps identify the students' level of commitment to using the platform, allowing for the implementation of strategies to encourage regular usage and provide appropriate incentives or support to improve engagement. Additionally, understanding these usage patterns sheds light on potential challenges that students may encounter when integrating Duolingo into their language learning routine.

Moreover, it is crucial to consider students' perceptions and preferences regarding Duolingo. Analyzing their feedback and opinions provides valuable insights into the strengths and limitations of the app from the students' perspective. This data guides decisions regarding the integration of Duolingo into language learning courses and informs the design of instructional materials that complement and enhance the learning experience. By understanding the level of familiarity and frequency of usage among students, students can make informed decisions about integrating Duolingo into language learning courses and designing instructional materials.

By assessing students' perceptions, it gain an understanding of their subjective viewpoints, attitudes, and opinions regarding Duolingo. By exploring various aspects about Duolingo, It possesses the ability to identify what students find engaging, motivating, and helpful. Analyzing students' experiences with Duolingo provides insights into their actual usage patterns and learning behaviors. Via the analytical measure which confirms the understanding of how students engage with the platform. These results help to identify successful learning strategies, areas where students

may struggle, and patterns that contribute to effective vocabulary. Additionally, Self-reported improvements in vocabulary acquisition allow students to assess their own progress with Duolingo. By comparing their vocabulary knowledge before and after using the platform, students provide insights into their perceived growth. Although self-assessment has its limitations, it offers valuable information on the students' own experiences and is able to highlight areas where they feel they have made significant encountered challenges. Therefore, analyzing the data collected from students' perceptions, experiences, and self-reported improvements can reveal important findings about Duolingo for vocabulary development. By identifying these strengths and weaknesses, recommendations capable of enhancing the educational impact of Duolingo

The findings from both the questionnaire and the interview interpretations strongly indicate that Duolingo is perceived as an effective tool for expanding vocabulary in language learning. Students highly appreciate its features, such as repetition, visual aids, and auditory elements. The interviews revealed that students using Duolingo have diverse goals and motivations, with some seeking a fun and effortless approach to vocabulary learning, while others aim to enhance their overall language skills. It is noteworthy that students recognize the value of Duolingo, particularly in an academic context, for broadening their vocabulary. This suggests that Duolingo caters to students with different language learning objectives and provides benefits for vocabulary development.

The feedback from the students further reinforces the effectiveness of Duolingo in increasing vocabulary size. The use of repetition, sounds, pictures, and the introduction of new words emerged as critical factors contributing to its efficacy. Students appreciate the enjoyable and time-efficient learning process facilitated by Duolingo. Therefore, these findings suggest that Duolingo's design and features play a significant role in its effectiveness in acquiring vocabulary. Furthermore, all interviewed students unanimously agreed that Duolingo has a positive impact on their vocabulary size, providing a strong consensus that further supports the notion of Duolingo's contribution to vocabulary development.

During the interviews, the students highlighted various effective features within Duolingo, including repetition, short stories, quizzes, podcasts, vocabulary games, and the use of pictures. Additionally, they compared Duolingo favorably to other language learning applications, emphasizing its effectiveness, creativity, and motivational aspects. In their comparisons to other

language learning applications, the students emphasized the effectiveness, creativity, and motivational aspects of Duolingo. They believed that Duolingo stood out in terms of its ability to effectively teach languages due to its well-designed features and engaging content. The students appreciated the creative methods employed by Duolingo, such as the use of stories, quizzes, podcasts, vocabulary games, and pictures, which made the learning process more enjoyable and effective. They also found Duolingo to be motivating, as it provided a sense of achievement and progress through its interactive exercises and gamification elements. Overall, the students viewed Duolingo as a comprehensive and user-friendly language learning platform that excelled in both its instructional design and motivational aspects.

To conclude, the interpretations of the questionnaire and interview findings suggest that Duolingo is perceived as an effective language learning tool for increasing vocabulary size. The students appreciate its features, such as repetition, visual and auditory elements, and the introduction of new words. They also recognize the positive impact of Duolingo on their vocabulary development. These findings highlight the potential of Duolingo as a resource for vocabulary acquisition and its ability to cater to different language learning goals and motivations. Additionally, the students expressed their intention and recommendations to continue using Duolingo for English language learning, citing its engaging and effective educational approach.

General conclusion

General conclusion

1. Recapitulation

The integration of mobile-assisted language learning tools into the field of language education has become increasingly significant, particularly for vocabulary development which plays a crucial role in language learning, as it directly influences learners' ability to comprehend and express themselves effectively. In recent years, the integration of technology into language learning has gained considerable attention, with mobile applications such as Duolingo emerging as popular tools for learners of various proficiency levels. Duolingo, in particular, offers a gamified approach to language learning, providing users with an interactive and engaging platform. It serves as a valuable resource that not only engages EFL students but also supports the expansion of their vocabulary and word knowledge. The study focuses on examining the attitudes of EFL students studying at Kasdi Merbah University of Ouargla towards utilizing Duolingo language application as a means to improve their vocabulary. The study targets second-year LMD students at the Department of English. The objective of this research is to shed light on the efficacy of Duolingo in enhancing vocabulary among EFL learners.

The initial two chapters of this dissertation provide the theoretical foundation for the study. The first chapter focuses on the theoretical framework of teaching and learning vocabulary in English as a foreign language (EFL). It begins by examining various scholarly interpretations of vocabulary and categorizes it into two primary types: receptive and productive. The chapter emphasizes the significance of vocabulary in teaching methods and discusses four approaches to learning vocabulary. It also addresses common obstacles encountered during the vocabulary learning process. In contrast, the second chapter concentrates on the integration of Mobile Assisted Language Learning (MALL) as a whole, with a specific focus on the use of Duolingo application. This section provides comprehensive explanations of MALL, including its goals and tools, to ensure a clear understanding of its purpose. Moreover, it explores Duolingo application and its gamification approach, highlighting how the application incorporates game-like elements to enhance the learning experience. The chapter also outlines the advantages and benefits associated

with using Duolingo as a language learning tool. Finally, the third chapter centers on the fieldwork of the research, which involves analyzing data gathered from student questionnaires and interviews.

To carry out the study, we have chosen a mixed methods research approach, which involves using both quantitative and qualitative methods for collecting and analyzing data. Two main tools were utilized in this study. Firstly, a questionnaire was submitted to 110 participants who have used the Duolingo application. Additionally, a face-to-face semi-structured interview was conducted with eight (08) of these students. The selection of students was based on convenience sampling. For data analysis, the Statistical Package for Social Sciences (SPSS) computer program was used to analyze the statistical data obtained from the closed-ended questions in the questionnaire. Qualitative Content Analysis (QCA) was applied to interpret the qualitative data acquired from the open-ended questions in both the semi-structured interview and the questionnaire. These instruments were employed to gather in-depth information from the participants and to explore the opinions and attitudes of students regarding the importance and the usage of Duolingo application as a mobile-assisted language learning tool in enhancing their vocabulary size.

On one hand, the analysis of the questionnaire results indicates that the majority of students find learning vocabulary through Duolingo to be both interesting and enjoyable. They argue that it significantly enhances their motivation, provides them with a sense of accomplishment and encourages them to continue practicing and expanding their vocabulary learning. Moreover, the findings demonstrate that Duolingo presents students with a valuable learning opportunity. Students recognized the application as a convenient and accessible resource that enables them to learn at their own pace, anytime and anywhere by assisting them in overcoming vocabulary learning obstacles. Likewise, many students acknowledged that Duolingo helps them overcome difficulties they face when learning vocabulary. This is mainly because Duolingo provides various exercises, such as word translation, matching, and filling the gaps, which allow students to practice and reinforce their vocabulary knowledge in a structured manner. In addition to that students reported improvements in listening, speaking, and writing abilities, Duolingo is often recommended by the majority of students for expanding vocabulary due to its interactive and gamified approach to language learning.

On the other hand, during the interviews, participants expressed their positive attitudes towards Duolingo and highlighted its convenience and effectiveness as a vocabulary learning tool. They found the application engaging and interactive, which made the learning process enjoyable and motivating. Participants also mentioned that Duolingo's gamified approach and progress tracking features helped them stay motivated and monitor their language learning progress effectively. Furthermore, the participants acknowledged that using Duolingo had a positive impact on their academic studies. They reported improvements in their vocabulary retention, pronunciation, and the four language skills. Participants appreciated the flexibility offered by Duolingo, as they could learn at their own pace and efficiently access the application from various devices. Also, the participants expressed their continued commitment to using Duolingo as a valuable resource for vocabulary acquisition. They emphasized that the application enriched their classroom learning and provided an additional way for language practice and reinforcement. It is significant that the majority of participants in this study expressed a positive response towards the application. Their positive experiences and outcomes demonstrate the potential benefits of using Duolingo as a vocabulary learning tool and highlight its effectiveness in enhancing their academic progress.

In conclusion, the study addressed the three research questions and confirmed the three hypotheses proposed in the introduction. The findings indicate that English as a Foreign Language (EFL) students generally hold a favorable attitude towards utilizing Duolingo as a tool for vocabulary acquisition. Factors such as ease of use and perceived usefulness played a significant role in shaping their acceptance of Duolingo. However, it is worth noting that a minority of students exhibited a negative attitude towards Duolingo use. This was influenced by factors such as preferring the traditional method to learn vocabulary and hoping to focus on learning the content of their academic courses

2. Recommendations

Mobile devices have significantly expanded the opportunities for EFL teachers and learners by offering a wide range of educational applications and websites. Both teachers and learners should take full advantage of these instructional tools. Based on the findings of this study, which revealed positive perceptions regarding the effectiveness of Duolingo Application in developing

Students' vocabulary size, the following practical implications are provided for EFL students and teachers to maximize the benefits of using Duolingo Application.

For Teachers:

1. *Integrating Duolingo into the curriculum:* Incorporate Duolingo as a supplementary tool within the classroom curriculum. Design activities and assignments that encourage students to use Duolingo to expand their vocabulary and track their progress.
2. *Utilizing the "Duolingo for School" platform:* Create a collaborative learning environment using the "Duolingo for School" platform, where students can actively engage with their peers, exchange ideas, and support each other's language learning journey.
3. *Providing guidance and support:* Offer clear instructions on how to effectively use Duolingo as a language learning tool. Explain the different features and exercises available and guide students on how to optimize their learning experience.
4. *Monitoring and assessing progress:* Regularly check students' progress on Duolingo to evaluate their vocabulary growth. Consider combining Duolingo's progress tracking with other assessment methods to gain a comprehensive understanding of their language proficiency.
5. *Encouraging independent learning:* Emphasize the importance of using Duolingo outside the classroom. Encourage students to explore the app independently, set personal goals, and take ownership of their learning process.
6. *Fostering a collaborative environment:* Facilitate opportunities for students to engage in peer-to-peer learning using Duolingo. Encourage them to share their achievements, exchange vocabulary tips, and participate in discussions related to the language they are learning.

For Students:

1. *Setting clear goals:* Define your language learning objectives and set specific goals for increasing your vocabulary size using Duolingo. This will help you stay focused and motivated throughout the learning process.
2. *Agreeing between teacher and student for the use of "Duolingo for School" platform:* If your teacher extends an invitation to participate in an online classroom on the educational

platform known as "Duolingo for School," make sure you possess the knowledge of operating and establishing your account to fully utilize it.

3. *Consistency is key in developing vocabulary:* Create a regular study schedule and allocate dedicated time for practicing with Duolingo every day, engaging in different tasks. Aim for short, frequent sessions rather than infrequent, lengthy ones to maximize your learning efficiency and proficiency.
4. *Utilizing all features:* Explore the various features of Duolingo, such as vocabulary exercises, flashcards, and word lists. Experiment with different exercises to reinforce your learning and expand your vocabulary repertoire.
5. *Practicing actively:* Engage actively with the learning materials by speaking out loud, writing sentences, and using the vocabulary you have learned in context. Actively using new words will help solidify your understanding and retention.
6. *Supplementing with other resources:* While Duolingo is an excellent tool, it is beneficial to supplement your learning with other resources like reading books, watching movies or TV shows, and engaging in conversations with native speakers. This will provide a well-rounded language learning experience.

3. Limitations of the Study

The data collected from the English department of the University of Kasdi Merbah Ouargla may not be applicable to other departments within the same university or to other universities. Also, the questionnaire was distributed both in hard copy in the classroom and online via a Facebook group. While a few people answered the online questionnaire, a larger number responded to the hard copy version, which was significantly faster. Therefore, it is important to note that the sample size of 110 in the questionnaire and 8 EFL students interviewed makes the results less generalizable to all EFL students and their proficiency levels in vocabulary learning. Additionally, it should be emphasized that this research is exclusively limited on the study of vocabulary as on specific aspect of language. Other dimensions of language skills or diverse competences were not taken into consideration within the scope of this study.

4. Further Research

The integration of technology in education has transformed language learning, with mobile-assisted language learning (MALL) tools gaining immense popularity. Among these tools, Duolingo stands out as a widely used mobile application that provides an engaging and accessible platform for language acquisition. This research study aims to investigate the impact of Duolingo on developing students' vocabulary size at Kasdi Merbah University of Ouargla. Furthermore, it serves as a basis for future recommended studies, including extending the research to other language skills. Further research is needed to expand the scope beyond vocabulary acquisition and to explore the applicability of Duolingo in developing other language skills such as grammar, speaking, listening, and writing. In order to examine the broader potential of Duolingo as a language learning tool, future research can investigate the effectiveness of Duolingo across different levels of academic achievement, encompassing both high-achieving and low-achieving students. This analysis will shed light on the suitability and adaptability of Duolingo for diverse learner profiles

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Appendices

Appendices one: Questionnaire for second year bachelor students

Dear student , We are conducting research on how students can improve their vocabulary size by using Duolingo App as a tool for mobile assisted language learning in the English department at KMOU. We would appreciate it if you could complete the following questions by making a tick (✓) on the suitable box and give your feedback when needed . Your participation will be very useful for the success of our research . We assure you that all the data collected will be kept secret and confidential . thank you for your cooperation .

Part one: Demographic questions.

1. Specify your gender:

Male

Female

2. Age:

Under 18. 18_22 23_27 27+

3. Specify your level in English:

Good Average. Less than average

Part two: Using Duolingo application to learn vocabulary.

1. Which kind of mobile devices do you have?

Smart phone. Tablet. Personal computer (PC)

2. How often do you use mobile devices to learn English?

Always Often Rarely Never

3. Do you install language learning applications in your device?

Yes No

4. Do you use the Duolingo application as a language learning tool?

Yes . No

5. Is Duolingo effective for learners of various proficiency level?

Yes No

6. Does the Duolingo mobile application help in the learning process?

Yes

No

7. Did Duolingo motivate you to choose it for learning vocabulary?

Yes

No

8. What features of Duolingo do you frequently use? (You can choose more than one option).

- Interactive pictures and stories
- Quiz : to test your current list of vocabulary
- Spaced Repetition
- Vocabulary games

9. Have you noticed an improvement in your vocabulary size since using Duolingo in compares to other learning apps?

Yes, I noticed

No, I did not

10. What kind of problem do you face when you learn new vocabulary?

Memorization Pronunciation Meaning Spelling

11. Does Duolingo help you overcome your vocabulary problem?

Yes

No

12. How does Duolingo compare to traditional methods of language learning in terms of vocabulary growth?

More useful

Equally useful

13. Do you think that the gamification elements in Duolingo contribute to increase engagement and vocabulary retention?

Yes

No

14. Do you think Duolingo focus on repetition and reinforcement positively impacts the retention of vocabulary?

Yes

No

15. Would you recommend Duolingo as an effective tool for developing vocabulary size to other languages learning, Why and Why not (in brief).

****Thank you for your Collaboration****

Appendices two: interview for second year bachelor students

Dear student,

We are conducting a research study on students in the English department at KMOU to examine how the Duolingo App as a Mobile Assisted Language Learning Tool affects Students' vocabulary size. The aim of this interview is to gather second-year students' views on the reasons that motivate them to use or avoid Duolingo as a tool to improve their vocabulary size.

1. What are your main goals and motivation for using Duolingo as a language learning tool?
2. In your opinion, how effective is Duolingo in helping you increase your vocabulary size? Elaborate.
3. Does Duolingo enhance your vocabulary size?
4. What specific features within Duolingo have you found most effective in developing vocabulary size?
5. What difficulties do you face while using Duolingo?
6. How do you compare Duolingo with other language learning applications that you have used?
7. Do you have the intention to continue using Duolingo in learning vocabulary?

Thank you for your Collaboration

Résumé :

Cette recherche examine l'impact de l'utilisation de Duolingo, en tant qu'outil d'apprentissage mobile des langues, sur le développement du vocabulaire des étudiants. L'étude porte sur les étudiants L2 LMD du département d'anglais de l'université Kasdi Merbah de Ouargla. Une approche méthodologique mixte, combinant des méthodes quantitative et qualitative, est employée pour la collecte et l'analyse des données. La collecte de données implique l'administration d'un questionnaire en ligne à 110 étudiants L2 LMD utilisant Duolingo, sélectionnés par échantillonnage de convenance. De plus, des entretiens semi-dirigés sont menés auprès de huit de ces étudiants du département d'anglais. Le questionnaire comprend des questions fermées et ouvertes, tandis que les entretiens permettent d'obtenir des informations approfondies. Pour analyser les données, le logiciel SPSS (Statistical Package for Social Sciences) est utilisé pour analyser les données numériques issues des questions fermées du questionnaire. Une analyse de contenu qualitative (QCA) est appliquée pour interpréter les résultats des questions ouvertes des entretiens et du questionnaire. Les résultats de l'étude indiquent que la majorité des étudiants ont une attitude positive et tirent un bénéfice certain de l'utilisation de Duolingo comme outil d'apprentissage du vocabulaire. De plus, les données qualitatives obtenues par les entretiens fournissent des informations supplémentaires sur les aspects spécifiques de Duolingo qui contribuent à son efficacité en tant qu'outil d'apprentissage du vocabulaire. Les résultats de la recherche contribuent à la compréhension de l'efficacité des outils d'apprentissage mobile des langues, et plus particulièrement de Duolingo, dans l'amélioration du vocabulaire des étudiants. Ces résultats peuvent informer les institutions éducatives et les professeurs de langues sur les avantages potentiels de l'intégration de Duolingo dans les programmes d'apprentissage des langues, en particulier pour le développement du vocabulaire. Des recherches futures pourraient explorer d'autres aspects de l'impact de Duolingo sur l'apprentissage des langues et étudier son efficacité dans différents contextes éducatifs.

Mots-clés : Duolingo, Enseignement assisté par la technologie, Apprentissage mobile des langues assisté par ordinateur (AMALA), Développement du vocabulaire.

ملخص

هذا البحث يستكشف تأثير استخدام دولينجو كأداة مساعدة على تعلم اللغات عبر الهاتف المحمول على تنمية حجم مفردات الطلاب. تركز الدراسة على طلاب مرحلة الليسانس في اللغات الأجنبية الثانية (L2 LMD) في قسم اللغة الإنجليزية بجامعة قاصدي مرباح ولاية ورقلة. تم استخدام منهجية مختلطة تجمع بين الأساليب الكمية والنوعية لجمع البيانات وتحليلها. تشمل عملية جمع البيانات توزيع استبيان إلكتروني على 110 طالبًا من طلبة مرحلة الليسانس في اللغات الأجنبية الثانية (L2 LMD) ممن يستخدمون ديلينجو، حيث تم اختيارهم وفقًا لأسلوب العينة المتاحة. بالإضافة إلى ذلك، تم إجراء مقابلات شبه منظمة مع ثمانية من هؤلاء الطلاب في قسم اللغة الإنجليزية. يتكون الاستبيان من أسئلة مغلقة وأخرى مفتوحة، بينما توفر المقابلات نظرة أعمق لتحليل البيانات، يتم استخدام البرنامج الإحصائي للعلوم الاجتماعية (SPSS) لتحليل البيانات الرقمية المستمدة من عناصر الاستبيان المغلقة. يتم تطبيق تحليل محتوى نوعي (QCA) لتفسير النتائج المستمدة من الأسئلة المفتوحة في كل من المقابلات والاستبيان. تشير نتائج الدراسة إلى أن غالبية الطلبة لديهم مواقف إيجابية ويستفيدون من استخدام دولينجو كأداة لتعلم المفردات. علاوة على ذلك، توفر البيانات النوعية التي تم الحصول عليها من المقابلات رؤى إضافية حول الجوانب المحددة في دولينجو التي تساهم في فعاليته كأداة لتعلم المفردات. تساهم نتائج البحث في فهم فعالية أدوات التعلم بالمساعدة على الهاتف المحمول، وتحديدًا دولينجو، في تحسين حجم مفردات الطلبة. يمكن أن تفيد هذه النتائج المؤسسات التعليمية ومعلمي اللغات حول الفوائد المحتملة لدمج دولينجو في مناهج تعليم اللغات، خاصة فيما يتعلق بتطوير المفردات. يمكن للأبحاث المستقبلية استكشاف جوانب أخرى من تأثير دولينجو على تعلم اللغة ودراسة فعاليتها في سياقات تعليمية مختلفة.

الكلمات المفتاحية : ديلينجو، التعليم المعزز بالتكنولوجيا، التعلم باللغة باستخدام الهاتف المحمول ، تنمية حجم المفردات.