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The Effect of Using Duolingo Application on Learners' Vocabulary Mastery

The Case of A1 Level Learners at MY SCHOOL Academy of Languages

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DECLARATION

I, **BIKI Hadil**, do hereby declare that this submitted work is my original work and has not previously been submitted for any institution or university for a degree. I also declare that a list of references is provided forward indicating all the sources of the cited and quoted information. This work was certified and completed at Mohammed KHEIDER University of Biskra.

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ABSTRACT

Since vocabulary sustains the acquisition of knowledge, as well as the accessibility of the breadth in many academic areas, the importance of vocabulary development cannot be overestimated. A robust vocabulary is important in accomplishing appropriate and efficient communication in foreign languages. Nevertheless, and as was the case for the majority of learners of English, having an adequate vocabulary repertoire was not always guaranteed. Henceforth, striving to establish the necessary foundation for an effective strategy for vocabulary learning and teaching, the current study was an attempt to gauge the effectiveness of the Duolingo application on learners' vocabulary mastery. Methodologically, a Mixed-methods approach that encompassed a survey design along with quasi-experimentation was adopted. In this respect, and to gather relevant data, two groups; the control group (n=15) and experimental group (n=15) were pre and post-tested. In addition, One semi-structured questionnaire was also administered to novice learners (n=8), who were exposed to learning via the Duolingo application in My School, and another questionnaire was administered to teachers (n=10) in the same school. As anticipated, the research findings proved the practicality of the Duolingo application. This was statistically reflected in the experimental groups' post-test scores, which were noticeably higher than the control group's ones. Ultimately, the results also indicated that the participants demonstrated a genuine interest in this innovative strategy, disclosing positive attitudes towards its application to develop learners' vocabulary proficiency.

DEDICATION

I am utterly thankful to all those who have believed in me and have provided much

friendship, and encouragement to help me carry out this work

I dedicate this work to:

My dear parents

My brother and sister

All my friends and the ones I love

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LIST OF ABBREVIATIONS AND ACRONYMS

EFL: English as a Foreign Language

ICT: Information and Communication Technology

ESL: English as a Second Language

GPA: Grade Point Average

L2: Second Language

L1: First Language

PDAs: Personal Digital Assistance

DVD: Digital Video Disc

MALL: Mobile Assisted Language Learning

MABL: Mobile Assisted Blended Learning

ELT: English Language Teaching

APPS: Applications

SMS: Short message Services

MMS: Multimedia Message Services

SAT: Scholastic Assessment Test

ACT: American College Testing

TOEFL: Test Of English as a Foreign Language

TL: Target Language

PC: Personal Computer

DFs: Digital Flashcards

TED: Technology, Entertainment, Design

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General Introduction

Introduction

We live in the age of gadgets and smartphones, which demonstrate our technological progress. Nowadays, mobile phones play a crucial role in our daily lives. Everybody can notice their influence in all spheres of human life. With their sophisticated features, they could contribute to the enhancement of many different fields, and education is no exception. Accordingly, Nicky Hockly (2013), stated "The future is increasingly mobile, and it behooves us to reflect this in our teaching practice" (p. 4).

Mobile devices have facilitated the teaching and learning processes over the years. The use of such gadgets has provided new opportunities that are shaping how instructors teach and students learn in new directions. Mobile applications are widely used in the context of learning English as a foreign language (EFL) to develop the four language skills (listening, speaking, reading, and writing). Besides language skills, there are other components to be mastered, which are grammar, pronunciation, and vocabulary. The latter is an essential part of learning any language; it is the starting point for the development of all four language skills. Many researchers believe that, in terms of significance, vocabulary is the most important competency; learning new words and sentences is crucial to the development of any language. In other words, learning vocabulary is the foundation for learning a new language.

Language mastery highly depends on vocabulary because wrong structures or pronunciations could be understood, whereas with a lack of vocabulary, nothing can be said, or written, and both language comprehension and production will be very difficult. Because of the large amount of vocabulary to be learned within the language, students are usually discouraged, unmotivated, and may feel unexcited to learn. In addition, many teachers still use old-fashioned teaching methods like word memorization. These methods are considered

unexciting, which can be reflected in the students' laziness and lack of interest, and productivity through the process of learning. Therefore, teachers should turn towards more innovative and motivational educational methods in order to make the student an active participant in the teaching and learning process through the application of the learner-centered approach. This can make mobile applications one of the most effective methods to teach since they are autonomous and personalized. One of these applications is Duolingo.

Duolingo is a free language learning platform with 28 languages and over 300 million registered users. It has won several awards, like Google Play's "Best of the Best 2013 Award." This application is available on the web, on Android, on iOS, and on Windows. It exists as an online site or an application. By utilizing school.duolingo.com, teachers can follow the progress of students and give them feedback. Lessons can include matching, translating, speaking, and multiple choices. Duolingo is Ad free, so it is safe for young learners. Moreover, some languages are given more importance and priority than others in Duolingo. For instance, if you are an English speaker learning Spanish, you can find podcasts, interactive short stories, and even social gatherings with other students.

In summary, because of the overwhelming importance placed on information and communication technology (ICT), there has been an increase in the use of mobile applications in education. In the Algerian context, smartphones are increasingly used by students, teachers, and academic institutions for the betterment of the teaching and learning experience.

Statement of the Problem

Recent researches advocate many innovations in foreign language teaching approaches and methodologies like the shift from teacher-centered to learner-centered

approach. In fact, teaching vocabulary in particular changed from memorizing wordlists and translation to more creative teaching methods. Consequently, students are more interested and eager to learn. Every teacher has his own methods that he finds suitable for his students; however, most students are more into learning through games.

In the near past, cell phones were viewed as a distraction in the classroom. While it is still true, teachers have gradually discovered that smartphones may be used as teaching tools. Over time, phones have developed into effective teaching tools that, when utilized properly, can enhance students' learning. Therefore, one of the innovative ways for teaching is mobile applications. There is a wide range of learning applications, such as WordUp, Bilingual, Duolingo, etc. Duolingo can be regarded as one of the most famous learning applications whose main focus is vocabulary and grammar. Also, it uses game based learning, likewise, it turns learning a language into a fun game with an interesting, colorful visual design. Furthermore, thanks to Duolingo, School.com teachers could track the progress of their registered students. The tasks in this application are varied and motivating; it is suitable for young learners and especially beginners. In addition, Duolingo allows you to learn anytime, anywhere, at your own pace, with no fixed schedule.

In Algeria, English language learning is progressing to the point that it is required for a successful career. The government is giving more attention to teaching English as a foreign language, and this can be seen in its implementation as a course in the primary school curriculum. The learner should be concerned with improving his or her language skills. In fact, he should keep in mind that learning English is not an easy task and it can be really challenging. Moreover, In order to achieve a good level of language proficiency, teachers and learners should emphasize the basic aspects of language, especially vocabulary, for the better mastery of foreign language communication. Vocabulary interrelates the four language skills

together and improves all aspects of communication. Accordingly, teachers could emphasize vocabulary early in school by offering a fun and nonstressful atmosphere, and providing exciting and motivating teaching methods.

Unfortunately, despite having studied English since elementary school, many university students still struggle with the language. A large number of learners only studied English in class once a week and rarely used it outside the class. Additionally, they are hesitant to use English in their daily lives due to a lack of vocabulary knowledge in the foreign language. This is the reason there has been a rise in interest in vocabulary learning and teaching in recent years. Numerous studies have demonstrated the basic connection between vocabulary proficiency and mobile applications. In this respect, the present study suggests teaching vocabulary using the Duolingo application to middle school students.

Literature Review

Teaching is more than a lesson on a blackboard. Teachers are becoming more aware of the use of ICT in education. A large number of studies and research publications have acknowledged the effects of using technology in the teaching and learning processes. These studies proved that the use of technology in education not only improves teaching methods but also increases students' engagement and motivation. An overview of some of these studies is presented here.

To determine the role of mobile applications on reading comprehension, Pangkuh (2022) conducted a study on using Duolingo apps to improve the English reading comprehension of engineering students at the University of Borneo Tarakan. In this study, a pre-experimental design with pre- and post-tests was employed. The study used 15 students as a sample and had them use the Duolingo applications for two months at an intensity of 20

XP each day. In order to understand students' perceptions, the researcher used pre-and post-tests and questionnaires. According to the questionnaire, students said that Duolingo is a beneficial tool to use every day to learn English. Furthermore, the findings of the pre- test and post-test scores showed that there was a significant improvement in the student's performance. This can indicate that Duolingo can help students with their reading comprehension.

While the over mentioned study examined the effectiveness of mobile applications through testing, Miftakh, and Yulianti, (2021)' study used a narrative inquiry design. The researcher collected the data by using semi-structured interviews and reflective journals. The purpose of this study was to investigate how secondary students perceived and experienced learning common vocabulary through Duolingo during the COVID-19 pandemic. Three secondary students from a junior high school in Karawang who had low, medium, and high vocabulary levels participated in this study. Their teacher had been teaching them how to use Duolingo for learning general vocabulary. The results showed that Duolingo was regarded favorably by secondary school pupils as a tool for learning vocabulary. Their opinion of its efficacy can be used to determine that Duolingo was a successful and inspiring medium to teach general vocabulary.

One can infer from the aforementioned evaluation of the research that some academics concur that employing mobile applications to teach vocabulary can help students overcome the challenges of vocabulary learning. The outcomes were the same despite the fact that each of them employed various research methodologies and designs to gather the data. All of the results indicated that using mobile applications helped the participants' vocabulary knowledge. While many studies were conducted on junior high school or university students, few researchers addressed this issue with middle school students. As a result, this study aims

to help participants improve their vocabulary knowledge through Duolingo while examining the effects of mobile applications on vocabulary learning.

Objectives of the Study

- To determine whether using Duolingo in teaching vocabulary to middle school novices can improve their vocabulary level or not.

- To explore teachers' and learners' perceptions regarding the implementation of Duolingo as a teaching tool in EFL setting.

Significance of the Study

This study can assist learners in improving their vocabulary proficiency, which is a prerequisite for learning a language. Additionally, learning will be more entertaining and fun, which will raise their engagement and motivation. The enthusiasm and interest of learners can be beneficial to the teachers as well for the success of their lesson. Furthermore, it is also contributed as a reference for the reader and future researchers who want to conduct additional research in line with this research and provide sources of information about new types of media for teaching.

Research Questions

RQ1: Does using Duolingo as a vocabulary teaching tool affect the learner's vocabulary mastery?

RQ2: What are the teachers' and learners attitudes and perceptions towards the use of Duolingo application to enhance learners' vocabulary proficiency?

Research Hypothesis

H1: We hypothesize that the use of Duolingo application may work on enhancing learners' vocabulary proficiency.

H2: We hypothesize that teachers and learners will have positive attitudes towards the use of Duolingo to enhance learners' vocabulary proficiency.

Research Methodology

A mixed methods approach was selected due to the nature of this research and the research questions. Primarily, and in order to identify the effect of Duolingo application on vocabulary proficiency, learners will be pre and post tested in order to identify their vocabulary knowledge before and after the treatment is applied. In addition, questionnaires will be administered to the teachers to reflect their perceptions about teaching vocabulary through Duolingo. Learners who received the treatment will also receive a questionnaire to investigate their perspectives towards the implementation of Duolingo in learning vocabulary. Therefore, this study falls under the explanatory sequential research design.

Sample and Population

Out of 132 first year middle school students, thirty learners were purposively chosen, as the participants of this study from a private English Language Institution. A ready-made group of 15 learners was selected to receive a treatment as an experimental group and another group of 15 learners will receive no treatment as a control group. Moreover, five learners from the experimental group will receive a post treatment questionnaire. Meanwhile, the teachers' questionnaire will be administrated to 10 teachers from the same institution.

Research Tools

- Pre and post tests for students
- Questionnaire for teachers
- Questionnaire for learners

Chapter One

CHAPTER ONE: VOCABULARY PROFICIENCY

Introduction

Learning vocabulary is one of the major concerns of foreign language learning. However, EFL practitioners are uncertain about the best practices for a better teaching-learning experience. Therefore, researchers have been making enormous efforts to locate the different aspects of learning vocabulary to aid them. They have highlighted learners' need to master all aspects of word knowledge as well as the strategies of vocabulary learning suitable for their needs and styles. Moreover, to overcome this situation, much research suggested possible effective principles, methods, and strategies for vocabulary teaching in order to handle the main purpose of teaching vocabulary and to boost the learning process.

Definition of Vocabulary

Vocabulary is regarded as the core element upon which every language is built. Hence, acquiring a new language cannot be parted from learning vocabulary. According to Richards and Renandya (2002), vocabulary is an essential element of language proficiency because it serves as the foundation for how learners speak, listen, read, and write. Without a sizeable vocabulary, learners often do not accomplish their potential and may be discouraged from making use of language. For example, in reading, students will have difficulty understanding or comprehending the content if they do not know the meaning of the words in the text.

In addition, a limited vocabulary in a second language will impede effective communication. It will be difficult to communicate in a foreign language if one has a limited vocabulary. Because vocabulary is one of the elements that connect the four language skills, its definition relates to various perspectives on its nature and application. However, before delving into the definition of vocabulary and other issues concerning vocabulary learning, it is important to distinguish between the terms word and vocabulary. In this context, Richards

and Schmidt (2010) defined the term "word" as "the smallest of the linguistic units which can occur on its own in speech or writing" (p. 636), but vocabulary as "a set of lexemes, including single words, compound words, and idioms" (p. 629). In other words, a word is a form that can occur alone, forms a unit of a language's grammar or vocabulary, and thus acts as a part of the vocabulary in a language.

According to Merriam-Webster (n.d.), vocabulary is: (1) a list or collection of words and phrases usually alphabetically arranged and explained or defined; (2) a sum or stock of words employed by a language, group, individual, or work; or in a field of knowledge. Besides The Oxford dictionary defines vocabulary as: (1) all the words that a person knows or uses; (2) all the words in a particular language. Furthermore, Siriwan (2007) declared that learning vocabulary is the acquisition of a set of words that are used in specific situations. That is, vocabulary is the total number of words with meanings used by someone to express an idea in a language. Moreover, Nation (2001), a leading researcher in the field of L2 vocabulary, described vocabulary as a list of the different kinds of knowledge that the learner must master to know a word. It includes the meaning of the word, the written form of the word, its spoken form, its grammatical behavior, its collocations, its register, its association, and the constraints on its use. In conclusion, and according to those statements, vocabulary is a list of words as a basic constituent of language proficiency that has a form and consists of features, which are meaning and use.

Types of Vocabulary

Receptive and Productive Vocabulary

Receptive vocabulary is described as "the language items which can only be recognized and comprehended in the context of reading and listening material" (Redman and Gairns, 1986, p. 64). In light of this, Dakhi and Fitria (2019) added that receptive vocabulary

refers to the vocabulary that a reader encounters while reading and listening. It is through these words that readers and listeners are able to comprehend the messages that are being conveyed to them. Productive vocabulary, on the other hand, refers to the set of words used to produce the messages. Speaking and writing are two fundamental skills that naturally make use of productive vocabulary. Briefly, receptive vocabulary is the vocabulary one encounters while reading and listening. A productive vocabulary, on the other hand, consists of words that are used to convey ideas when speaking and writing.

Active and Passive Vocabulary

When considering frequency of use, it is more likely to divide the vocabulary into active and passive vocabulary. Active vocabulary consists of the words that readers and writers use most frequently because they fully comprehend them. Practically speaking, active words are those that we can use naturally when writing and speaking without pausing and making an effort to remember. On the other hand, passive vocabulary is defined as words that are partially understood, which is why they are rarely used in writing and speaking (Dakhi and Fitria, 2019). In summary, words that people typically use to communicate their understanding are referred to as "active vocabulary." Yet passive vocabulary is defined as words that are rarely used in writing and speaking because they are not fully understood.

Nation (2001) identified four categories of vocabulary in the text, including the following:

1) **High-frequency words:** These words are not marked at all and include function words: in, for the, a, of, etc. They are almost 80% of the running words in the text.

2) **Academic words:** The text is from an academic textbook and contains many words that are common in different kinds of academic texts. Typically, these words make up about 9% of the running words in the text

3) **Technical words:** These words are very closely related to the topic and subject area of the text. These words make up about 5% of the running words in the text.

4) **Low-frequency words:** These are the words of moderate frequency that did not manage to get into the high-frequency list. They make up over 5% of the words in an academic text (pp. 11-12).

Importance of Vocabulary

Vocabulary knowledge is generally viewed as one of the main elements required for EFL proficiency. It is a prior ability that has to be mastered in order to develop other language abilities. Pikulski and Tempelton (2005) stated, "Perhaps the greatest tools we can give students for succeeding not only in their education but more generally in life are a large, rich vocabulary and the skills for using those words" (p.01). Adam (2016) also claimed that a students' vocabulary influences their ability to read, write, listen, and speak. Accordingly, a wealth of research has documented the contribution of vocabulary to language skills, namely speaking, reading, writing, and listening.

Research has shown that in order to achieve successful communication and produce a comprehensible language, language learners must have sufficient vocabulary, which is considered to be the most important factor in someone's speaking ability. Schmitt (2000) noted that "lexical knowledge is central to communicative competence and the acquisition of a second language" (p. xi). Similarly, McCarthy (1990) further described the importance of vocabulary: "without words to express a wider range of meanings, communication in an L2 just cannot happen in any meaningful way" (p. viii). This assertion is also confirmed by Jamalipour and Farahani (2012), who pointed out that vocabulary is commonly viewed as the main communication tool. Similarly, Khan et al. (2018) carried out a study to identify and examine the main causes of poor performance in speaking skills. The results showed that

both teachers and students claimed that a lack of vocabulary is one of the main reasons why students struggle to speak English.

Concerning reading, Nagy (1988) stated, "Vocabulary knowledge is fundamental to reading comprehension; one cannot understand a text without knowing what most of the words mean" (p. 9). Indeed, Brooks et al.'s (2021) results emphasized this point, showing that vocabulary knowledge had the strongest correlation to the participants' reading comprehension abilities when compared to factors such as fluency or word decoding. One can conclude that readers should develop their vocabulary proficiency in order to get the meaning of the majority of the words in the text and, overall, for better comprehension of the reading material.

In order to express themselves accurately and clearly, writers should have a good amount of vocabulary to choose from to convey precise opinions, events, and ideas. In fact, Laufer (2013) explained that good lexis is an important factor in making a piece of writing effective in both native and foreign languages. Besides, Roche and Harrington's (2013) findings indicated that vocabulary was associated with both academic writing and GPA (or grade point average). In the same way, and based on findings from analytical assessments of foreign students' writing, vocabulary was significantly related to language proficiency; Astika (1993) analyzed 210 writing samples that had been holistically assessed by use of the ESL Composition Scale (content, organization, vocabulary, language use, mechanics) and found that the vocabulary section of it accounted for as much as 84% of the variance in the assessments.

Whereas the strong relationship between vocabulary and reading is extensively documented by empirical studies, less research has focused on the role of vocabulary in listening. In fact, it will be much more difficult to recognize and decode the sounds and subsequently extract the meaning if someone has never heard a particular piece of vocabulary

in a foreign language. Mahmudah (2014) suggested that vocabulary is important to fully understand someone's speech. If we only recognize the sentence structure without understanding the words, it will be very difficult to comprehend what someone is saying. According to Stæhr (2008), "learners need between 6000 and 7000 word families to cope with authentic spoken discourse" (p. 141). In his study investigating vocabulary size and the skills of listening, reading, and writing, Staehr (2008) indicated that all of the participants who were at least proficient in the 2000-word vocabulary level performed better than average on the listening test, further supporting the idea that there is a vocabulary threshold.

Furthermore, some authors believe that vocabulary is a crucial component of language proficiency and that it matters more than grammar, so poor grammar does not have the same negative effects on language meaning as poor vocabulary does. This was supported by Wilkins (2002), who stated, "Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed." In the same vein, Krashen further claims, "When students travel, they do not carry grammar books; they carry dictionaries" (as cited in Spencer 2015, p.1). Consequently, vocabulary is a key component for English language learners, as they need to have adequate vocabulary knowledge to convey meaning and improve their language abilities (speaking, writing, reading, and listening).

Aspects of Knowing a Word

This approach's foundations can be found in a research work by Richards, who outlined a variety of competencies required for word knowledge. In fact, Richards (1976) pointed out that lexical competence presupposes a certain level of lexical knowledge in his article The Role of Vocabulary Teaching. He examined word knowledge from a linguistic, psycholinguistic, and sociolinguistic perspective. These include word frequency, vocabulary growth in native speakers, collocations, register, case relations, underlying forms, word

association, and semantic structure. Hence, he highlighted eight assumptions, as cited in the table below.

Table 1.1

Aspects of Knowing a Word

1	The native speaker of a language continues to expand his vocabulary in adulthood, whereas there is comparatively little development of syntax in adult life
2	Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words, we also know the sort of words most likely to be found associated with the word.
3	Knowing a word implies knowing the limitations imposed on the use of the word according to variations of function and situation.
4	Knowing a word means knowing the syntactic behavior associated with the word.
5	Knowing a word entails knowledge of the underlying form of a word and the derivation that can be made from it.
6	Knowing a word entails knowledge of the network of associations between that word and other words in the language.
7	Knowing a word means knowing the semantic value of a word
8	Knowing a word means knowing many of the different meanings associated with a word.

Note: adapted from *The Role of Vocabulary Teaching article* by Richards, 1976, p.

Subsequent academics expanded on the concept and proposed their lists of word knowledge's components. Nation's proposed definition of the word knowledge may be the most comprehensive and famous one to date. It has eight categories of word knowledge, each of which has receptive and productive components. Nation (1990, 2001) described the most

comprehensive construct of word knowledge. He listed three main aspects of knowing a word: form, meaning, and use. Knowledge of form encompasses the ability to pinpoint the phonological and morphological elements of a word in both written and spoken modes. The knowledge of meaning entails a learner having insight into form and meaning, concepts and referents, and word associations. Finally, knowledge of use describes the places in which each word can be used and the company the word is likely to keep.

Word Form

According to Nation (2001), knowing the form of a word involves knowing the spoken form, written form, and word parts. It encompasses phonological and orthographical knowledge.

Spoken Form

Nation (2001) and Schmitt (2000) argued that knowing the spoken form of a word (phonological knowledge) includes being able to recognize the word when it is heard in a continuous flow of speech (receptive dimension) as well as being able to pronounce the word clearly in a connected speech in order to express a meaning (productive dimension). In fact, Schmitt (2000) added that if a word has more than one syllable, producing its spoken form requires the ability to articulate the sounds in the word as well as the proper syllables' levels of stress, pitch, volume, and features of the vowel.

Written Form

To acquire the written form of a word, learners are supposed to recognize the word when reading (the receptive dimension) and to spell it correctly (the productive dimension). Nation (2001) highlighted the role of the productive process by stating, "Poor spelling can affect learners' writing in that they use strategies to hide their poor spelling" (p. 70). These

include using limited vocabularies, favoring regularly spelled words, and avoiding words that are hard to spell.

Word Parts

It involves knowing word families to enable learners to derive the meaning of other words in the family as well as affixes, that is, the various ways in which the meaning of a word might change when a particular part is added or removed. For instance, if the learner comes across the word "unhelpful," he will easily get its meaning if he is familiar with its root and the significations of the affixes added to it. Nation (2001) stated, "The learning burden of words will be light if they are made of known parts, that is, affixes and stems that are already known from the first language or from other second language words" (p. 72).

Word Meaning

Learning the word form alone is not adequate; the meaning of the vocabulary item should also be encountered. Therefore, form and meaning, concepts and referents, and associations are three sub-aspects that are supplied by the word meaning aspect.

Form and Meaning

In addition to knowing the word form, learners should be able to connect it to its meaning. The degree of connection between the two will affect the speed of understanding the meaning when meeting the form and recalling the form to express a meaning (Nation, 2001). In the same vein, Webb claimed, "Being able to link form to meaning is an important step in vocabulary development because it increases the likelihood that words may be understood and used" (p. 1). For instance, if the learner acknowledges that the structure of the past continuous tense is used to signal actions and states in progress around a particular time in the past, he will be able to grasp the meaning easily and produce the correct forms when necessary.

Concept and Referents

Meaning also consists of the relationship between a word and its referent, whether it is a person, thing, action, condition, etc. This relationship is arbitrary in most cases. An example was given by Schmitt (2000), who indicated that the animal with the long neck could have been called a "glister" or a "glabnab," but when called a giraffe, it gave the word a particular meaning. However, there are exceptions where words clearly have an intrinsic connection with their referents.

Furthermore, Schmitt (2000) described the relationship between a word and its referent as not usually a tidy and direct one. Sometimes the referent is a single, distinct thing that the term can precisely describe, as in the case of proper nouns. However, more frequently, it refers to a group or category, like the word "uniform." Because there are so many various types of uniforms, no one term can adequately describe them all.

Moreover, a notable feature of words is that when they have many different meanings, as in the word "bank", we may find the bank of a river and the national bank. (Nation, 2001). Nevertheless, we can exclude proper nouns and technical vocabulary related to a certain field. To conclude, as receptive and productive dimensions, learners should be aware of the components of any concept and the objects to which it can be applied.

Associations

Nation (2001) stated, "Understanding how the lexicon might be organized is also useful for the creation of limited vocabularies for defining words and for the simplification of text" (p. 79). This means that when the learner meets a word for the first time in a specific discourse, the word's associations with other words will help him limit the possibilities of irrelevant meaning. According to Schmitt (2000), the word's meaning is influenced by the surrounding words in a sentence as well as words from the same word family that is related to one another by a shared root but have different affixes.

Word Use

In order to fully acquire a vocabulary item, learners have to be able to use it correctly and adequately. According to Nation (2001), the use of a word entails knowing its grammatical functions, collocations, and constraints on its use.

Grammatical Functions

In order to use a word, it is necessary to know what part of speech it is and into what grammatical patterns it can fit. Therefore, learners need to cover the grammatical aspect when acquiring a new word; this involves word class and morphology.

Collocations

Knowing a word involves knowing with what words it typically occurs. Schmitt (2000) wrote, "Collocation refers to the tendency of two or more words to co-occur in discourse" (p. 76). Pawley and Syder (1983) argue that we have a vast number of learned sequences stored in our brains, which is why we can speak our first language fluently and choose word combinations that sound native. We typically use these pre-made sequences rather than creating them each time we need to convey something. A commonly given example of collocation involves the expression "fast food." Despite the fact that there is no linguistic reason why the words quick and food should not go together, fast and food are said to strongly coincide.

Constraint on Use

There are several factors that limit where and when certain words can be used. Failure to observe these can result in inappropriate use. This involves register, which refers to the appropriate use of lexis in a particular situation and for a specific purpose and frequency of word occurrence.

Table 1.2

Aspects of Knowing a Word

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express the meaning?
Meaning	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concept and Referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use (register, frequency ...)	R	Where, when, and how often would we expect to meet this word?
		P	Where, when, and how often can we use this word?

Note: R = receptive knowledge, P = productive knowledge. Adapted from "*What is involved in knowing a word" book* by P. Nation, 2001, p. 49.

Vocabulary Learning Strategies

A considerable amount of research has investigated strategies for learning vocabulary. Oxford (1990) has divided them into two categories: direct and indirect strategies. Direct strategies comprise memory, cognition, and compensation, whereas indirect strategies include metacognitive, affective, and social. After that, O'Malley and Chamot (1990) classified learning strategies into three groups: metacognitive, cognitive, and social/affective strategies. In contrast, Gu and Johnson (1996) developed a list of vocabulary learning strategies that comprise: beliefs about vocabulary learning, metacognitive regulation, guessing strategies, dictionary strategies, note-taking strategies, rehearsal strategies, encoding strategies, and activation strategies.

Schmitt's taxonomy of vocabulary-learning techniques is thought to be more accurate and comprehensive. In vocabulary acquisition strategies that he adopted from Oxford's (1990) classification, Schmitt (1997, 2000) recognized the overlap of cognitive, metacognitive, memory, and social functions. Then, he went on to categorize vocabulary learning strategies into two main groups: strategies for learning new word meanings and strategies for retaining a term after encountering it. In order to acquire vocabulary items, various groupings and subgroupings are included in each class.

Determination Strategies

It includes strategies used by a learners when faced with discovering a new item's meaning by themselves without assistance from another person's expertise. There are a few strategies for learning new words when learners are confused about their meanings. To determine the meaning, learners can examine the unknown word, its component parts, or the surrounding context. Besides, identifying the part of speech to which it belongs would reveal some details about the unfamiliar word. This can also be accomplished by making an

educated assumption based on L1 equivalents or by using reference materials as dictionaries (Schmitt, 2000).

Social Strategies

It involves interaction with other people to improve vocabulary learning (Oxford, 1990; Schmitt, 2000). Learners can recourse to another person's expertise, which means that social strategies depend on interaction with other people who can provide help. Learners can ask their teachers or peers for assistance with the meaning of the unknown word, and they can help in a number of ways, such as by giving synonyms, antonyms, or translations. In the view of Schmitt (2000), in order to consolidate a word after it has been encountered, learners can seek opportunities to interact with L1 speakers or to practice meaning in a group in an attempt to use L2 among themselves outside the classroom.

Figure 1.1

Diagram of the Social Strategies
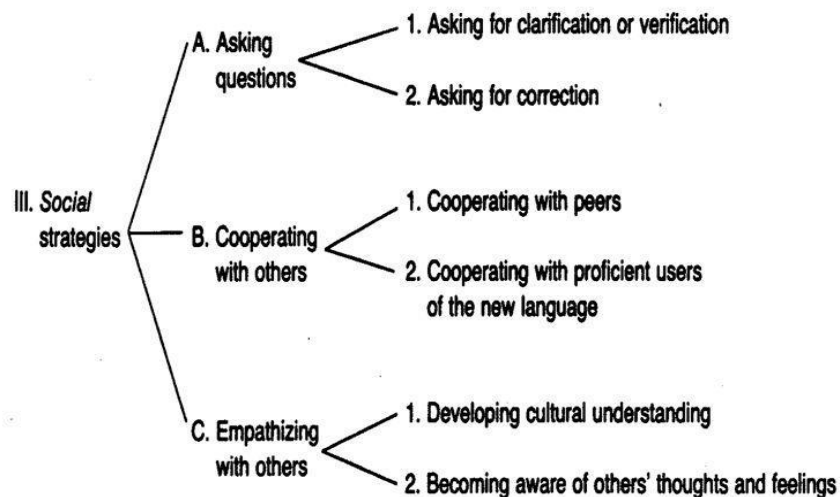
Note: From *Language Learning Strategies: What Every Teacher Should Know* (p.21), by R. Oxford, 1990.

Memory Strategies

It may be used to describe learners' capacity to organize and store vocabulary information in their memory. It involves relating the word to be retained with some previously learned knowledge (Schmitt, 2000). He asserted that a new word can be related to its synonyms and antonyms, to a previous personal experience, or to its coordinates in order to aid with word recall. Moreover, groupings are a crucial memory aid, and people frequently do so instinctively without being asked. He also added that focusing on the target word's orthographic or phonological form is another type of mnemonic technique and that students can speak the new word out loud and engage in physical activity when studying in order to facilitate retention. Schmitt (2000) stated, "If words are organized in some way before memorization, recall is improved" (p, 135). In a similar vein, Oxford (1990) presented common memory strategies in the following diagram:

Figure 1.2

Diagram of the Memory Strategies
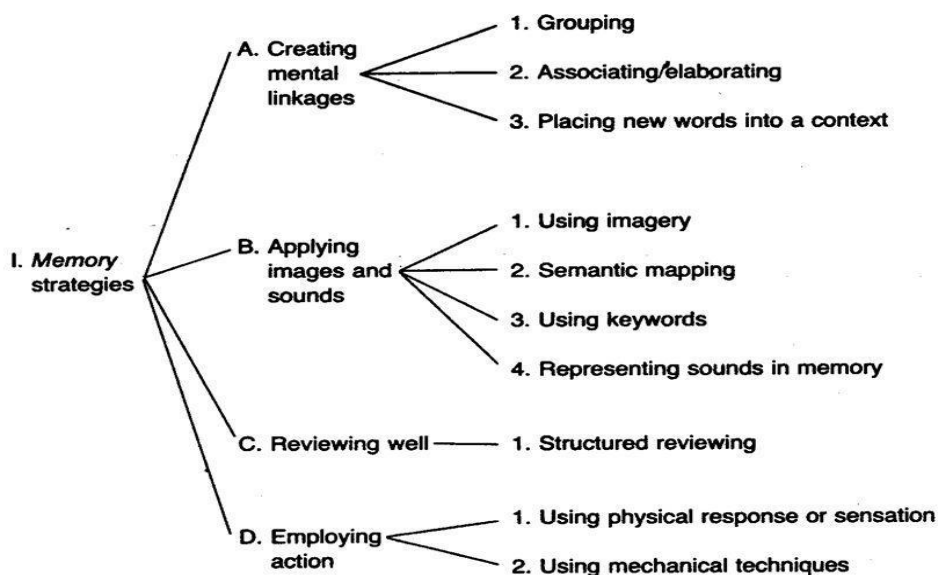
Note: From *Language Learning Strategies: What Every Teacher Should Know* (p.39), by R. Oxford, 1990.

Cognitive Strategies

Cognitive strategies refer to the "manipulation or transformation of the target language by the learner" (Oxford, 1990, p. 43). They are the mental processes that enable the student to consciously acquire a new word. The main distinction between memory strategies and cognitive strategies, according to Schmitt (2000), is that cognitive strategies put more emphasis on memorizing through the use of repetitions, vocabulary notebooks, and other mechanical methods to learn vocabulary rather than on manipulating the input. According to Oxford (1990), cognitive strategies include:

Figure 1.3

Diagram of the Cognitive Strategies
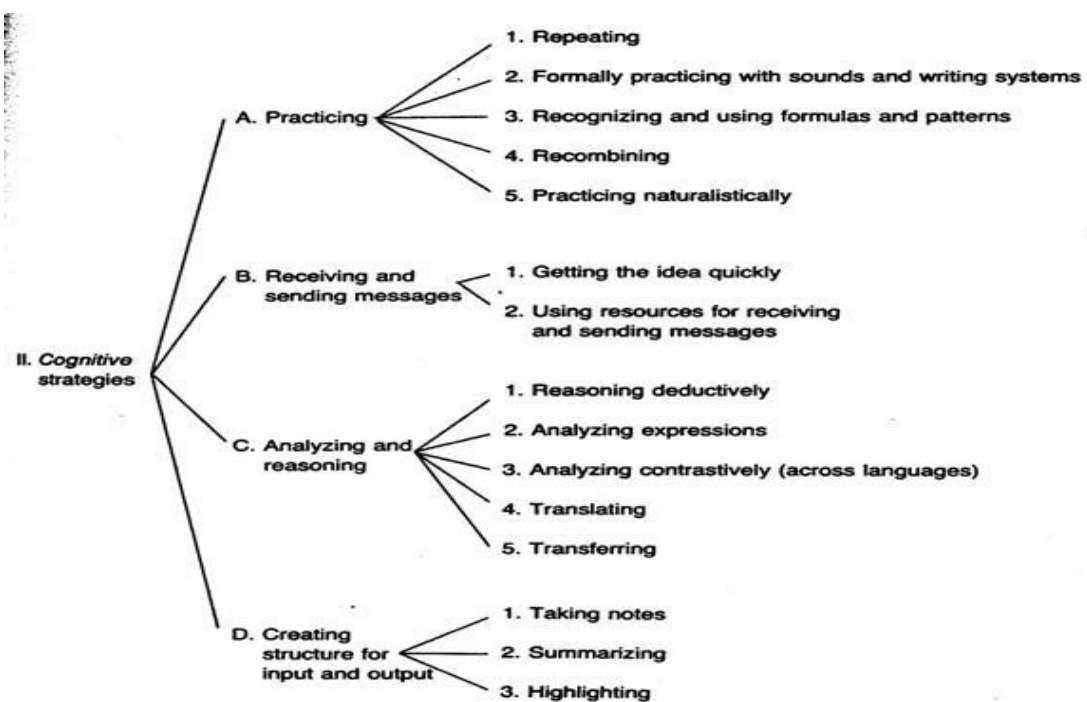
Note: From *Language Learning Strategies: What Every Teacher Should Know* (p.44), by R. Oxford, 1990.

Metacognitive Strategies

Metacognitive strategies involve a conscious overview of the learning process and making decisions about planning, monitoring, or evaluating the best ways to study (O'Malley

& Chamot, 1990; Schmitt, 2000). In other words, they refer to learners' decision-making regarding their learning process and their search for effective learning strategies. These strategies appear to be an organized method that enables students to be in charge of their learning as claimed by Oxford (1990), "It provides a way for learners to coordinate their learning process" (p, 136). Metacognitive strategies entail enhancing input accessibility, selecting the most effective study/review techniques, and assessing one's progress through testing. In addition, it involves choosing which words to study and which ones to skip, as well as using spaced word practice (Schmitt, 2000). Consequently, "students without metacognitive approaches are essentially learners without direction and ability to review their progress, accomplishments, and future learning directions" stated by (O'Malley & Chamot, 1990, p. 8). Oxford (1990)'s contribution to these strategies is presented below:

Figure 1.4

Diagram of the Metacognitive Strategies
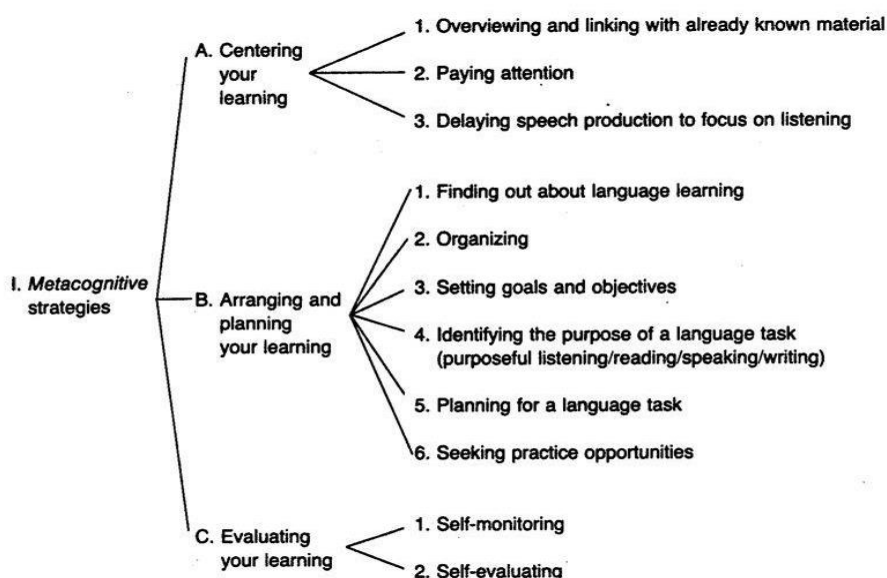
Note: From *Language Learning Strategies: What Every Teacher Should Know* (p.20), by R. Oxford, 1990**.**

Intentional and incidental vocabulary learning

According to Celce-Murcia (1991), the communicative approach in the 1970s and 1980s highlighted implicit, incidental learning. Textbooks placed a strong emphasis on deducing word meaning from context, and teachers actively encouraged students to do so as well as using monolingual dictionaries rather than bilingual ones. Researchers such as Nation (2001), Schmitt (2008), and others have argued that in addition to incidental learning, vocabulary requires a different approach that incorporates explicit instruction. They suggested that some features are best acquired incidentally while others should be treated explicitly.

Intentional vocabulary learning occurs when vocabulary acquisition is the primary objective, usually with a clear focus (Schmitt, 2008). Indeed, Celce-Murcia (1991) indicated that in explicit vocabulary learning, students engage in activities whose main focus is vocabulary. In other words, intentional vocabulary learning involves students' exposure to certain activities that aim to develop vocabulary when they are aware of the learning goals. In this respect, Ellis (1994) stated, "Explicit learning is a more conscious operation where the individual makes and tests hypotheses in a search for structure" (p. 260). A related study by Yaghoubi and Seyyedi (2017) on Iranian EFL learners showed that while both explicit and implicit vocabulary teaching-learning methods positively improved vocabulary, explicit methods outperformed implicit ones.

On the other hand, incidental learning is associated with learning vocabulary in context; it is regarded as more learner-centered and context-based. Celce-Murcia (1991) pointed out that incidental vocabulary learning takes place when the mind is focused on something else, like reading a text or using language for communication. Similarly, Ellis (1994) stated, "Implicit learning is coming to learn the underlying structure of a complex stimulus environment by a process that takes place naturally, simply, and without conscious

operations" (p. 260). That is, incidental vocabulary learning occurs unintentionally and involves exposure to some receptive activities, such as reading and listening, while the focus is not vocabulary learning but some other purposes. Some research findings highlighted the importance of incidental learning over explicit learning. For instance, Nezhad et al. (2015) reported that learners perform better when learning vocabulary incidentally than when doing so intentionally. In fact, it can be inferred that exposure to the context resulted in the acquisition of a sizable amount of vocabulary.

To conclude, each approach has its own characteristics and implementations that teachers and learners should consider. As described by Nation (2001), "The constraints on vocabulary use are more closely related to meaning and would benefit more from explicit learning. However, the grammar and collocation aspects of use involve pattern recognition and production and thus are most effectively the goal of implicit learning" (p. 59). Therefore, teachers and learners should opt for a combination of the two learning approaches in order to develop vocabulary knowledge. Likewise, Zarei and Sepahian (2015) claimed that "explicit and implicit modes of instruction should be considered complementary, and a mixed approach should be taken" (p. 31).

Principles of Vocabulary Teaching

For the betterment of developing vocabulary teaching, researchers have been making enormous efforts to locate the different aspects of teaching vocabulary to aid language teachers. Nation (2001), a leading researcher in the field of L2 vocabulary, asserted that a collection of well-founded guidelines should serve as the foundation for a language course's vocabulary section. These guidelines ought to have a significant impact on content and sequencing (what vocabulary is focused on and how it is divided into phases), format and

presentation (how the vocabulary is taught and learned), and monitoring and assessment (how learning is measured).

Content and Sequencing

The criteria used by Nation 2001 to determine what vocabulary is targeted at every given stage of a course, how it is focused, and how it is organized. Yet, there have been other considerations that have helped to shape the principled selection of language for instruction in addition to frequency and range. The capacity to associate with other words, contribute to their definition, substitute them, and other aspects of association and accessibility are further considerations. Moreover, within the sequencing phase, two sequences should be examined: first, the progression of vocabulary levels, and second, the arrangement of words in a series of lessons. (Nation & Newton, 1996). Therefore, it is crucial to choose what to teach based on frequency and relevance to the needs of the target students. Moreover, Nation (2001) stated some principles related to vocabulary content and sequencing:

- Use frequency and range of occurrence as ways of deciding what vocabulary to learn and the order in which to learn it.

- Give adequate training in essential vocabulary-learning strategies.

- Give attention to each vocabulary item according to its learning burden.

- Provide an opportunity to learn the various aspects of what is involved in knowing a word.

- Avoid interference by presenting vocabulary in use rather than in groupings of synonyms, opposites, associates, or lexical sets.

- Deal with high-frequency vocabulary by focusing on the words themselves, and deal with low-frequency vocabulary by focusing on the control of strategies. (p.574)

Format and Presentation

Once the teacher has decided what to teach, the next important step is to consider what students need to know about the items and how to teach them. Nation (2001) argues that the format and presentation aspects involve "the selection of the teaching and learning techniques and their arrangement into a lesson plan" (p. 577). In fact, it involves the teaching of preselected lexical items in the planned stage of a lesson, as described by Takač (2008). He stated some techniques used by teachers of English in presenting new vocabulary:

Using Visuals

Visuals are crucial for improving material delivery; they can keep students' attention and help them remember concepts better. These techniques are particularly useful for conveying the meaning of concrete items like food or furniture and different language categories like places, occupations, character descriptions, actions, and activities. Accordingly, they are widely used with beginners or young learners. A slightly clearer picture is found by Takač (2008), who argued that visuals include demonstration, realia, and visual aids, all of which act as cues for memorizing lexical elements. Phillips (2016) reveals in his study that students learned vocabulary words more effectively when they practiced with visuals rather than when they were taught independently. Findings showed that the intervention raised everyone's scores by 15%.

Translation

This strategy can save valuable time that might otherwise be spent on largely unsuccessful explanations. In this way, Thurnbury (2002) stated that "it has advantage of being the most direct route to a word's meaning, assuming that there is a close match between the target word and its L1 equivalent" (p. 77). This strategy is used to draw attention to L1 and L2 similarities and differences, particularly when they are likely to lead to errors such as false pairs, connotations, and sociolinguistic rules affecting word choice (Takač,

2008). An example is the word sensible in French, which, when translated into English, equals sensitive and not sensible. Based on his study findings, Asiyaban (2012) concluded that one should view translation as a technique whose application would be advantageous to both teachers and students in terms of saving time, improving "uncontrolled active" vocabulary, and expanding proficiency rather than viewing it as a barrier to second language learning

Definition

As pointed out by Takač (2008), definitions could take many forms. First, teachers may occasionally present the synonym or the antonym of a new concept to explain it. For instance, to explain the meaning of "admire," teachers can use the synonym "love" or the opposite of "hate." Likewise, he may use the analytic definition (X is a Y which), taxonomic definition (autumn is a season) or the grammatical definition (worse comparison of bad) when necessary. In a similar vein, there are plenty of vocabularies that can be introduced by giving examples or the superordinate term (a rose is a flower); they are excellent means of making the meaning of unknown words clear. Moreover, definitions by function (a pen is used to write), by connection (danger lives have not been protected), as well as by classification (a family is a group of people) are all employed in order to explain the meaning of a new concept. Finally, the teacher may opt for the so-called full definition, the one resembling word definitions in monolingual dictionaries. However, definitions are insufficient on their own to convey meaning, and examples that are properly contextualized are typically needed to make the item's limitations evident (Redman &Grains, 1982)

Guessing Meaning from the Context

Most research on vocabulary learning techniques has revealed that these are among the most common strategies employed by students when trying to understand unknown words. It involves making guesses and inferences about new words based on world

knowledge and the context in which they occur. According to Mart (2012), words in context improve the likelihood that students will understand not just their meaning but also their normal contexts, namely their linked collocations or grammatical structures.

Drilling

Drilling is the process of repeating what is heard after listening to a model read aloud by the teacher, a tape, or another student. While presenting new language concepts to their students, many teachers still employ the repetition drill technique. In fact, they are commonly used for teaching language through dialogue; they emphasize student habit formation through repetition, grammatical structure retention, and tense transformation using the target language and the culture in which it is spoken (Fransiska, 2016)

Eliciting

The teacher can elicit vocabulary items from students so as to increase their engagement in the class. For instance, he may ask them, "What is your father's occupation?" Their participation will add to the content of the lesson and the overall classroom discussion. Eliciting helps the teacher develop a learner-centered classroom and a stimulating environment. Accordingly, Sasmita et al. (2013) confirmed that it is a crucial method used by teachers to encourage participation from their pupils, elicit their responses, and encourage class discussion. The class is no longer teacher-centered while adopting this strategy since students are encouraged to actively participate in the lesson by interacting with the teacher.

Scales

Once a student learns two contrasting or related gradable items, this can be a useful way of revising or feeding in new items (Brewster et al., 1992). In order to acquire a new vocabulary item, learners need to make connections between the new information and knowledge they already have. The scaling strategy encourages them to make varied degrees

of connections between the new word and the ones they already know. The new word finds a position in the mental schema by producing an antonym and considering other words that are connected to it in a graduated manner, as in the case of frequency adverbs (Azevedo, 2021).

Mime, Expression, or Gesture

It is commonly acknowledged that gestures and facial expressions capture attention and make the lesson more dynamic. Alqahtani (2015) further claimed, "In addition to supporting comprehension, teaching gestures may also be relevant for learners'memorisation process" (p.28). According to Redman and Grains (1982), these techniques are often used to supplement other ways of conveying meaning.

Monitoring and assessment

The development of lexical knowledge is now seen by researchers and teachers as being essential to learning a language, and consequently, vocabulary tests are used for a wide range of purposes (Read & Chapelle, 2001). In fact, teachers must place great importance on the two elements while creating a vocabulary test. Vocabulary depth and breadth are of great importance to vocabulary learning in general and to vocabulary assessment in particular. As mentioned above, vocabulary knowledge depends not only on how many words a person knows, but also on one's ability to understand the meaning of the word. Put simply, vocabulary assessment is concerned with the number of words a learner has at a certain level (vocabulary breadth) and how well he knows these words (vocabulary depth).

According to Read (2007), and in order to determine whether a word is known or not, vocabulary size measurements often call for a sizable sample of words that represent a specific frequency range. The most popular vocabulary test is the Nation's Vocabulary Levels Test, which asks test-takers to match words with their synonyms or brief definitions. The second significant factor in vocabulary assessment is the depth of vocabulary knowledge. This factor assesses how well students remember specific words using techniques like the

word association format and the Vocabulary Knowledge Scale as developed by Paribakht and Wesche in 1997. Furthernore, Nation (2001) indicated some options for the assessment of vocabulary, as mentioned below.

Diagnostic assessment

This type of assessment is frequently used at the start of the course and occasionally to group students appropriately. According to Nation (2001), it is crucial to know whether learners should concentrate on high-frequency, academic, technical, mid-frequency, or low-frequency words in order to set the precise goals of a course, because the teacher needs to approach high-frequency and low-frequency words relatively differently, and this is best determined by diagnostic testing. In addition, diagnostic assessment is employed to identify areas where students are struggling so that remedial steps may be taken. This may also entail assessing how adeptly students can employ vocabulary-learning and coping strategies.

Short-Term Achievement Test

To see whether a recently studied group of words has been learned effectively. Short-term achievement tests need to be easy to make, easy to mark, and fair because they should relate to what was studied predictably and should not expect too much for a short learning time. Thus, the words that go into a short-term achievement test come from the course material. The results of such a test do not tell the teacher how many words the learners know in the language or what vocabulary they should be working on; the results tell the teacher and learners how successful their recent study has been.

Long-Term Achievement Test

It has to be based on a sample of the words that have been studied. Such a test is usually given at the end of a course to determine how well and how much vocabulary has been learned and retained and to help plan the next course. When choosing the words for a

long-term achievement test, the teacher needs to consider what the results of the test will be used for. Most commonly, they are used to evaluate the student's learning and to help give them a grade for their work on the course. The results may also be used to evaluate the course to see how well it has done what it set out to do. It has also to be based on a sample of the words that have been studied. Such a test is usually given at the end of a course, but in long courses, there may be a mid-course test.

Conclusion

To conclude, vocabulary acquisition is considered to be an integral and fundamental area of language teaching and learning. Therefore, EFL learners should be aware of the key notions of vocabulary learning in order to help them develop their lexical knowledge. In fact, much research has shown that learners have to gain vocabulary knowledge that includes an understanding of the forms, meanings, and practical uses of words, as well as effective vocabulary learning types and techniques. As EFL practitioners came to realize the significant importance of vocabulary learning, educators shed light on adopting innovative teaching strategies. The recent rise of technology has made it possible to use digital learning devices for vocabulary learning, and this can be integrated into vocabulary teaching as well.

Chapter Two

CHAPTER TWO: DUOLINGO APPLICATION

Introduction

People live in a technologically advanced world. Therefore, the majority of educators are searching for innovative tools and resources to improve language learning. This sheds light on mobile-assisted-language learning (MALL) in general and mobile-assisted blended learning in particular (MABL). As a result, mobile applications are a viable option for fusing the benefits of the two modes of learning. One of the popular and in-demand software is "Duolingo". It is a platform for language learning that may be accessed through a website or a mobile application. In addition to the awards it gained, this application has had more than 50 million active monthly users throughout the previous 11 years. The users of Duolingo go through a sequence of lessons in one of the languages that the program supports. Each lesson consists of a series of exercises designed to improve a specific language skill. Additionally, language learners can easily and quickly create an account by following a few steps. Similar to students, teachers can take advantage of this program's features by utilizing Duolingo for schools to monitor their students' progress and spark their interest. Finally, as with everything, nothing is picture-perfect, there are some obvious benefits and drawbacks.

Blended Learning

In order to keep up with new educational technologies, the learning environment has changed to one where technology and face-to-face instruction coexist. This relatively new situation has led to the exploration of blended learning processes. There were different interpretations and terminology used to define the term "blended learning". Nevertheless, it seems that it is most commonly used to refer to the integrated combination of traditional learning with web-based online approaches (Oliver & Trigwell, 2005). 'Traditional learning' here is classroom teaching or 'face-to-face' language lessons. The delivery of the online part of the course is usually through ICT. In other words, it is the process in which in-class tuition

is combined with an online environment in which some of the course content is delivered online. "Blended learning implemented in a language classroom can maximize students' exposure and practice. The implementation includes a shift in teachers' roles into a more passive one, and the learners become more active as they take charge of their learning". Rovai and Jordan (2004) also stated, "Blended learning is a hybrid of classroom and online learning that includes some of the conveniences of online courses without the complete loss of face-to-face contact" (p.1). According to researchers, blended learning is used:

> To support face-to-face teaching approach, to support collaboration, and communication through social networking, increase the accessibility of learning materials, reduce class time, create interesting lessons, create a student-centered learning environment, create a motivating learning environment, it is flexible (as regards the learning time and location), it develops independent learning skills, and creates individually tailored solutions. (As cited in Siew-Eng and Muuk, 2015, p. 295)

Mobile-assisted language learning

The increasing use of m- learning in the language education field has given origin to what is known as MALL, or language learning facilitated by the mobility of the learner and portability of mobile devices (Chinnery, 2006). MALL refers to any kind of language learning that utilizes portable technology, including mobile phones, MP3/MP4 players, PDAs, palmtop computers, portable radios, DVD players, and electronic dictionaries (Kukulska-Hulme & Shield, 2008).With the numerous features found in mobile devices, MALL enables language learning to take place anywhere and anytime. Another benefit of adopting MALL is that it promotes independent learning, individualized learning, collaborative and interactive learning, synchronous and asynchronous engagement, and content that is motivating. (Kim and Kwon, 2012). With the help of MALL, learners can

engage in a variety of interactions with teachers, mobile devices, and other learners, as well as learning activities that promote creativity and autonomy. Additionally, acknowledging the unique differences of each learner promotes self-directed learning.

Mobile-assisted blended learning

Blended learning and mobile-assisted language learning (MALL) have recently become more popular, as their potential is regarded as highly beneficial to the learners if their challenges and issues can be overcome. Pyo and Lee (2022) indicated that "MALL and blended learning can be efficiently combined to make a better learning environment, as they are compatible and can support each other." According to them, mobile-assisted blended learning is the environment in which the beneficial traits of MALL and blended learning are mixed, bringing to blended learning the portable and broad traits of MALL and mobile-assisted learning, the ability to monitor students' learning outside the classroom, and the ability to offer sufficient instructional support. Baek (2021) introduced the specific definition of MABL as follows:

> Meaningful learning experience through increasing teacher-learner and learner-learner interaction and maximizing language exposure and practices anytime, anywhere, with mobile devices and apps by using the ubiquitous advantages of mobile learning to create blended learning that combines the advantages of online and offline classes. (Pyo & Lee 2022, p. 1179)

The attempt to combine blended learning and MALL is not new in ELT. Kim (2014), for instance, explores how offline classes can be integrated with the mobile community (Mocafé) and Kakao Talk applications to teach writing. According to the study, the experimental blended learning strategy improved both the amount and quality of students' written work. He added that a mixed learning strategy stimulated social interaction and

student participation while positively influencing peer and instructor evaluation. Additionally, Jin (2014) examined the effects of smartphone-based blended learning on Korean students' grammar knowledge development and utilized the Naver Band app for group discussion and observing the students' out-of-class learning. He concluded that smartphone-based blended learning extended learning opportunities beyond the traditional classroom and increased students' involvement in learning activities.

Mobile Applications

Mobile technology has become popular worldwide with a broad range of users, including students from all levels of education. In fact, because of the great number of mobile phone users, there has been an establishment of a great number of software-making industries that have taken the world by storm recently. Therefore, a new marketplace for software known as "apps" is spreading quickly along with the expansion of the well-designed features of mobile phones. According to A Study of Mobile Application Usage in Bangladesh (2015), "mobile applications" (apps) are "software developed for use on mobile devices and made available through app stores."

Furthermore, mobile applications are small programs that enable wireless access to a variety of services, including those that support distance education via the Internet or interactive activities like quizzes and games. In our time, hundreds of thousands of specialized apps are available to extend the functionality of mobile technology. The use of these apps is not only revolutionizing communication but also bringing innovations to education in different ways that facilitate teaching and learning. These innovations raised interest among educators to implement these new tools into educational activities.

According to the Unesco Physical Document (n.d.), "Not only are developers now able to bypass institutions and sell content directly to learners, but students, teachers, and

schools alike will be able to make small, incremental investments in micro-sized pieces of content" (p. 14). They added that as more educators use mobile devices in formal education settings, apps will likely become an important part of the learning system. A recent study found that 270 million apps linked to education were downloaded in 2011. However, the majority of educational apps are primarily meant for informal learning, with only a tiny percentage of them being curriculum-mapped and created for usage in contexts like assignments or classes.

In English language instruction, mobile learning apps are considered dominant and essential resources for distance foreign language students. According to Benahcene and Chenih (2020, p.12) and Hossain (2018, p.2), mobile apps can offer many benefits, which can be listed as follows:

- Enhance students' interest and motivation toward language learning.

- Allow learners to engage in self-learning.

- Allow the students to use the app in and out of school.

- Allow students to build positive attitudes towards the course.

- Enable teachers and learners to obtain knowledge and information outside of course time.

- Offer additional learning opportunities.

- Provide the students with interactive opportunities to participate in learning activities.

- Improve the acquisition of knowledge easily and rapidly.

- Transmit information to all parts of the world.

- Deliver online and offline learning to learners.

- Allow learners to control, assess, and evaluate their learning process.

- Practice any item of the language anytime, anywhere.

- Learners can take tests on the different skills of the target language.

- Learners can share their proficiency with their friends through the same device.

- Learners can have knowledge and fun together.

- Learners can be technologically and linguistically advanced simultaneously.

Mobile-Assisted Vocabulary Learning

Vocabulary learning has long been known as one of the major challenges for L2 learners, and the portable features of mobile technologies have made it possible to digest a great number of words within short periods of time (Sung et al., 2016). Some researchers found that L2 vocabulary learning is the most frequently selected skill to have been explored in the current MALL studies. In this context, scientists such as Thornton and Houser (2005), Liu and Chu (2010), Wu (2014), Lu (2008), etc. have examined mobile-assisted language learning's effects on vocabulary learning. They used many technological learning aids and platforms to conduct their studies (e.g., SMS, WhatsApp, language-learning apps, etc.).

For instance, Wu (2014) conducted a study in which smartphones were integrated into learning vocabulary in order to find out the effect of smartphones on students. This study was conducted among 32 college students in the form of an experimental and a control group. The result showed that smartphones have a considerable effect on second language vocabulary learners. Thus, among the various strategies developed for learning words, flashcards provide learners with a fast and effective way to improve their vocabulary knowledge (Nation, 2013).

With the growing availability of smartphone devices for language learners, digital flashcards (DFs) have attracted increased interest from researchers in recent years. Xodabande et al.'s (2022) study results supported Nation's ideas. He conducted a study to examine the effects of using digital flashcards (DFs) for mobile-assisted vocabulary learning.

In three full courses at a private language school in Iran, the data were gathered from 44 adult English as a Foreign Language (EFL) students. Pre-, post-, and delayed post-tests were used to assess the participants' vocabulary knowledge, and the results showed that using DFs for outside-of-classroom vocabulary acquisition significantly improved participants' knowledge of high-frequency words over the short- and long-terms.

On the other hand, Lin & Lin (2019) introduced that short message services (SMS), multimedia message services (MMS), and mobile applications are the most common methods used in the research on mobile-assisted L2 vocabulary learning that is backed by situated learning theory, cognitive mechanisms of L2 word retention, behaviorism, and social constructivism. Supporting this stand, Suwantarathip and Orawiwatnakul (2015) conducted an experimental study that compared the effect of in-class paper-based vocabulary exercises with SMS messages sent to students outside the classroom to teach and practice new vocabulary for a 6-week period. The study reported that the participants in the experimental group outperformed the control group.

Similarly, Minatun & Oktaviani, 2019, expressed that their study was conducted in English for a business class of a management major and was intended to find out students' points of view on using the Memrise application to boost their vocabulary mastery of English for business. The result showed that the use of Memrise has helped students learn new English vocabulary as well as the meaning, the spelling, how they are pronounced, and how they are used in a sentence. These results were backed up by Guo et al. (2022). He stated that "using mobile word-learning applications could help improve word retention results as well as enhance learners' learning interest through word games, flashcard reinforcements, and well-designed online language learning programs" (p. 2).

Types of Vocabulary Learning Applications

There are plenty of vocabulary learning applications that have proven their efficacy, such as:

Memrise.

"Memrise," a learning platform that uses flashcards as memory aids and creative ways to recall vocabulary, is an amazing and recent mobile software that can provide free chances and insights into EFL learners' language acquisition (Fathi et al., 2018). To increase learning speed, Memrise employs spaced repetition of flash cards (Sue, 2015). All Memrise members can participate in the creation of content and resources.

Babbel

A mobile app with eight "display languages" that can be used to access the fourteen learning languages it currently offers. Babbel's educational approach is built upon taking tiny, manageable steps, involving the learner's particular interests and meeting their communication needs in order to build a love of speaking a foreign language.

WordUp

WordUp aims to encourage its users' acquisition of English vocabulary through extensive exposure to new words used in real-world contexts. The learners are placed at the proper level by this application, which introduces them to some new terms from its 25,000 most commonly used English words, organized from the first thousand most useful words to the 25th thousand most frequently used words. The application's strongest characteristic is the comprehensive range of real-world examples and the effective technique for helping learners remember the terms.

Duolingo Application

Duolingo is a gamified language learning application accessible for both Android and iOS systems and available as a website. This program was founded by Luis Von Ahn and Severin Hacker and was introduced in November 2011. Von Ahn wrote on Quora in 2016 about the idea of his application.

The whole affair began as research work at Carnegie Mellon between him and Severin Hacker, one of his Ph.D. students. He mentioned that he had just sold his second business to Google and that they both desired to work on an educational project. In his essay, he stated that because education is so broad, his team chose to focus on language education, which is in high demand everywhere. (What Made Luis Von Ahn Start Duolingo? n.d.) Moreover, the Pittsburgh-based company's app has been downloaded more than 500 million times since its 2012 launch, making it the most-downloaded education app in the world for eight years running (Ryan, 2022). The app has 40 million monthly active users, and von Ahn says more Americans are learning a new language on Duolingo than in high school due to many reasons. Initially, Duolingo was technically an educational tool, but von Ahn and his team made sure that it didn't feel like that. "We realized early on that the hardest thing about learning a language by yourself—or learning anything by yourself—is staying motivated," says Von Ahn. "So we spent a lot of effort making Duolingo as fun as possible." (The Universal Language: Duolingo Co-founder and CEO Joins CNBC's Disruptor 50 Summit, 2020)

In the same way, a free English literacy software for kids ages 3 to 6 called Duolingo ABC was released in March 2020 by the business. Due to the coronavirus epidemic, the firm decided to release the software earlier than expected in order to assist parents who are now working remotely and homeschooling their children. The app is accessible in the United States, Canada, the United Kingdom, Ireland, Australia, and New Zealand and is ad-free. It

has more than 300 brief lessons that cover the fundamentals of reading and writing. (De León, 2020). The Duolingo platform was also awarded Google Play's Best of the Best 2013 for innovation due to its effective gamification strategies.

The Duolingo English Test is an online exam that candidates can take to determine how well they can read, write, speak, and listen in English. The test is adaptive, which means that the questions on this computer-adaptive test get harder or easier as you go along, depending on how you respond to earlier inquiries. To assess your spoken and written English abilities, you respond to both multiple-choice and open-ended questions. The system grades each question you answer and every response. You can also choose between writing a sample and filming a video interview.

The Duolingo English Test is an affordable and convenient language certification test that is accepted by thousands of institutions worldwide. Coursera (2023) wrote, "Many colleges and universities in the United States require proof of English language skills for prospective international students. This test has become a popular alternative to the SAT (Scholastic Assessment Test), ACT (American College Testing), or TOEFL (Test of English as a Foreign Language) for this purpose."

The Application's History

According to When Duolingo Was Young: The Early Years (2018):

Duolingo's First Year

Duolingo was founded by Ahn, who is a professor at Carnegie Mellon University, and his graduate student at the time, "Hacker." The idea for this application came after von Ahn's company, reCAPTCHA, was bought by Google in September 2009. Four months after its founding, on January 26, 2010, the Duolingo.com domain was registered. Duolingo was originally meant to be accessed primarily via the web, with a mobile app as a special feature.

Duolingo's Second Year

One year and five months after its founding, Duolingo is given a full write-up by TechCrunch, in which the publication speculates about Duolingo eventually being acquired by Google as well.

"The solution was to transform language translation into something that millions of people want to do, and that helps with the problem of a lack of bilinguals: language education," von Ahn says. He added that over 1 billion individuals are reportedly learning a foreign language. As a result, they decided that the website they have been working on, Duolingo, will be a free language-learning platform where users may learn by translating the Internet. In other words, they pick things up through experience.

Duolingo's Third Year

Two years and one month after its founding, in October 2011, Duolingo was incorporated in Pennsylvania. In the same month, Duolingo raised $3.3 million from Union Square Ventures, Ashton Kutcher, and Timothy Ferriss. Then, two years and two months after its founding, Duolingo started its private beta on November 30, 2011. Over 300,000 people signed up, thanks to a TED talk that von Ahn gave at the time, which was viewed by more than one million people. Finally, after two years and 10 months since its founding, on June 19, 2012, Duolingo was launched to the general public. It was originally available in English, Spanish, French, and German.

Duolingo's Fourth Year

In September 2012, three years after its founding and three months after its launch, Duolingo raised $15 million from New Enterprise Associates, with Union Square Ventures participating. Then Duolingo has 250,000 active users per week, with around 20 percent coming from Latin America. After one month, in October 2012, Duolingo added support for Italian. After that, in November 2012, Duolingo launched its iPhone app, and in May 2013, it

launched its Android app, giving the app roughly 3 million users. Then, the number of users increased to 4 million in June and 5 million in July 2013.

Duolingo's Fifth Year

Four years after its founding and one year and four months after launch, Duolingo launches its incubator to allow users to add their languages and lessons to the platform. After one month, Duolingo has 10 million users, adds its sixth language, "Portugese," and has begun translating international content for CNN and BuzzFeed. In this context, Jonah Peretti, BuzzFeed Founder & CEO, say in a statement, "Social is increasingly global, so building new audiences who speak different languages and helping spread that language at the same time is a natural expansion for BuzzFeed." "We're so thrilled to be working with Luis and Duolingo to power this international experiment." Finally, in November 2013, Duolingo had 15 million users. In December 2013, Duolingo was awarded App of the Year by Apple and has been downloaded 10 million times.

After one year, Duolingo introduces "The Coach," a motivational and goal-tracking feature. In January 2014, Duolingo added support for Polish, Dutch, Hungarian, Russian, and Turkish speakers to learn English. After one month, Duolingo wins "Best Education Startup" at the Crunchies Awards, raises $20 million from Kleiner Perkins Caufield & Byers, and arrives with 20 million users and over 10 million active users. Two years and nine months after its launch; Duolingo is available in 18 languages. In June 2014, Duolingo reached 30 million users.

Duolingo Today

Duolingo now has 68 different language courses across 28 languages. The app has roughly 200 million registered users. The company has raised $108.3 million, including a $25 million round in July 2017 that valued it at $700 million. (When Duolingo Was Young: The Early Years, 2018)

Duolingo for Schools

Teachers can track their students' Duolingo progress on school.duolingo.com, which can help them with issues like vocabulary gaps and low motivation in their pupils. Additionally, it can help the teacher provide some comments to the students on the online discussion board so that they are more motivated to learn English and can improve their proficiency in the language. School.duolingo.com is aware that students need to be encouraged to use this platform again and have more fun learning languages. Duolingo employs a variety of techniques to keep users interested, such as mixing up the activities so that users can speak, listen, and translate in a user-friendly environment. Students who make friends via email might compete with others. As a result, the author is interested in discussing the way senior high school students might learn English using "school.duolingo.com" as a substitute e-learning platform. Because Duolingo is fun to use, students can learn English using it as an alternative to traditional online learning. (Mulya & Refnaldi, 2016).

Creating a Duolingo Account

Users can sign up by creating a new Duolingo account using their email address or by using their existing Google or Facebook account, according to the Duolingo website (n.d.).

To create a new account, click on the green "Get Started" button and follow the instructions to create your Duolingo profile and start learning. This includes choosing a learning language, selecting a daily goal, starting with the basics or a placement test, and building your profile with a username and email address.

If you already have a Duolingo account, you can click the "I Already Have an Account" button to enter your email, username, and password. In case you do not remember your password, simply click on "Forgot password" and provide your email address.

Figure 2.1

The Interface of Duolingo
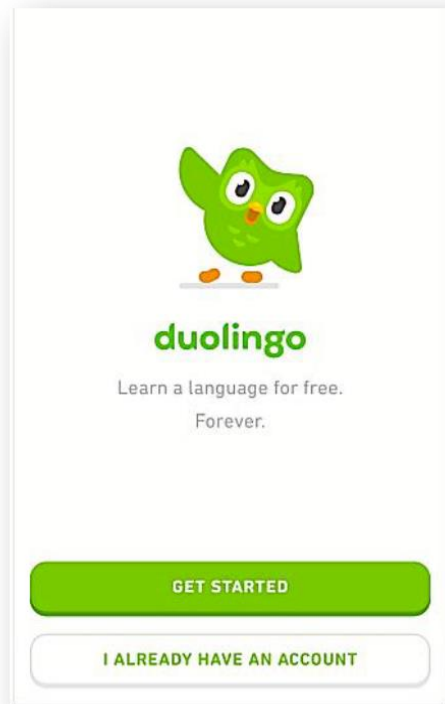
Note: Picture of the log in window on Duolingo. From *pinterest.*

      Later, a window will appear to pick "your daily goal." It regards how long students want to train with Duolingo. The time is already established.

Figure 2.2

Pick a Goal Window
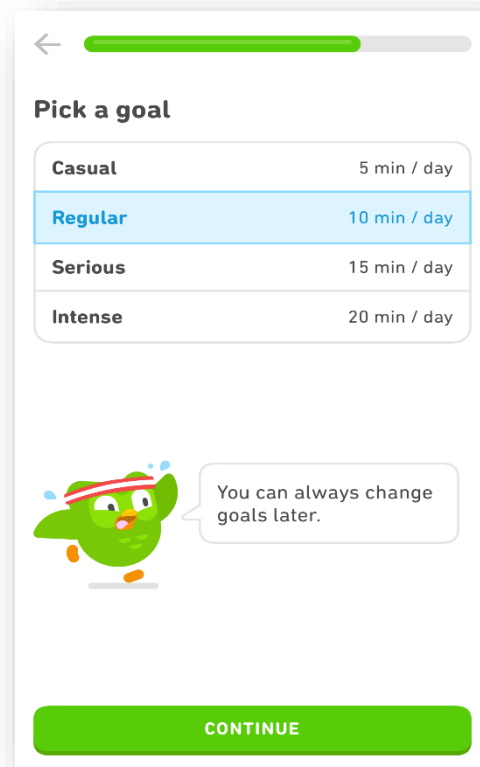
Note: Picture of setting daily goals before starting the learning phase. From *How to Use Duolingo for Language Learning. Duolingo Blog,* by Blanco, C, 2022.

Ones done with the inscription phase, users can start learning via units and lessons as presented in the following picture

Figure 2.3

Duolingo Home Screen
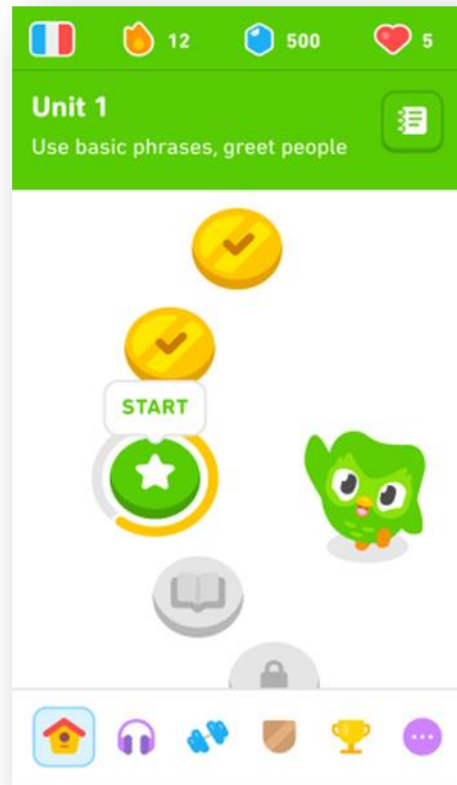
Note: Picture of duolingo homepage containing lessons and units. From *How to Use Duolingo for Language Learning. Duolingo Blog,* by Blanco, C, 2022.

Duolingo's exercises

There are many different types of exercise, each one aimed at helping users learn differently: Wagner et al. (2015, p. 322) said that "there are four separate tasks on Duolingo, such as a vocabulary task, a listening and transcription task, a sentence completion task, and a speaking task." As indicated earlier, because the test is computer adaptive, the order and number of times each task appears may differ for each test taker based on his or her responses. Nushi and Eqbali (2017) stated the following tasks:

- **Arrange all the words:** users are presented with a shuffled sentence in their target language, and they have to rearrange the words to form a grammatically correct sentence.

- **Complete the translation:** A sentence is presented, and its translation is missing a word, so users must type it.

- **Mark the correct meaning:** users are asked which of several sentences in one wrong alternatives are not even grammatically correct.

- **Picture flashcard matching:** users are presented with several words and corresponding images in one language and asked to choose which one matches a word in the other language.

- **Picture flashcard translation (labeled)** (Which one of these is "word"?) Users are presented with a word in one language and are asked to translate it into the other language with the help of a few relevant pictures.

- **Read and respond:** There is a sentence in the learners' target language with a highlighted word and three alternatives (sometimes in the target language, sometimes in your base language) with their meaning.

- **Select the missing word:** learners are presented with a sentence with a blank, and they are asked to choose the correct word or phrase to complete it. Sentence completion is the task that is labeled to complete sentences. Here, the test taker will present some short text arranged in several sentences. There are five blank spaces in the assignment, and it should be chosen by clicking on the blank space to answer the question from a list of eight answers provided. This assignment is identical to a selected-response or rational-close task. In completing this assignment, it has the rule that the test taker only has three minutes.

- **Sentence shuffle (labeled) Write this in language:** learners are presented with the text of a sentence in one language and a shuffled sentence in the other. You have to rearrange the words to form the correct translation. There are two variations of this exercise:

- **Speak this sentence:** users are presented with the text of a sentence and asked to speak it into their microphone. Duolingo's speaking exercises use AI voice recognition to grade how close the pronunciation is to the goal, so they get real-time feedback about how they are doing! Each word then turns blue when the pronunciation is successfully recognized. This task also has the rule that you only have one minute to complete it.

- **Tap the pairs:** An even number of boxes, half in the learners' native language and half in their target language, are shown. They must select the pairs. They may select a box in either language and then its translation.

- **Translation:** users are presented with the text of a sentence in one language and are asked to translate it into the other.

There is a translation from the learners' native language to the target language and vice versa. There are two ways to translate sentences. First, the learners just choose the right translation of the words provided and then arrange those into the right sentence. Second, learners must type the right translation based on the sentences.

- **Type what you hear:** learners are presented with the audio of a sentence and are asked to transcribe it. A button labeled with a turtle repeats the sentence slowly. The test taker should complete the assignment, and they can hear the audio text up to three times. The test taker only has one minute to finish this assignment.

- **What do you hear?** Learners are presented with the audio of a word or sentence and several transcriptions as alternatives.

The Duolingo website claims that Duolingo courses contain a variety of audio exercises to help students improve their listening skills. The listening activities in the app are designed to progressively accustom users to hearing and understanding without the aid of reading. This helps them build the skills they need, such as listening to music, Face Timing with friends who speak the language, and watching their favorite gamers. When lessons introduce new words, users will see them written to help them make connections between the written and spoken form of the language As they progress, they will get more audio exercises without any text at all to help train their ears. In many courses, new exercises focus on linking the sounds of the language with how they are represented in writing. This is also a good way to pay attention to some of the sounds that do not exist in the learner's native language. Finally, the Duolingo podcast is available in Spanish, French, and English. It is a great listening practice for intermediate learners, and it is especially useful for learning about culture and accents. There are also full transcripts available for each episode.

The purpose of using Duolingo

Lionetti (2013, p. 4) states that there are some objectives of the Duolingo application, as follows:

1. To teach users to speak another language for free.

2. To understand and be able to speak a phrase or sentence in another language

3. To listen to a phrase or sentence the target language and type it out

4. To be able to write the correct words for the matching pictures

5. To develop the skills to translate words and sentences from the chosen language to English.

6. To be able to translate words and sentences from English to the chosen language

7. To help users online translate as much of the web as possible.

8. To provide a gamified learning experience for users

The Advantages of Duolingo

- According to White and Siracusa (2013), Duolingo provides its users with numerous opportunities for enjoyment, rewards, and success while also providing each learner with powerful customization. This allows learners to connect their L1 and the target language (TL) through translation.

- Additionally, it encourages students to keep going and exceed their prior marks. It also allows them to engage in friendly competition with their classmates. The students may also gain experience points (XP) to track how much they use Duolingo to complete tasks, advance through levels, and set themselves apart from their peers. They then gain lingots, which they can use to upgrade their Duolingo by buying extras like bonus lessons or changing the icon.

- Duolingo itself can be accessed on PC and also on Android by downloading it from the Play Store. The interface is explicit and very easy to use. There is also a nice balance between translation, listening, matching words, and speaking exercises. The voice recognition program is not too bad, and the students can still hear what the speaker said.

- One of the most significant and motivating aspects of learning anything is the possibility of seeing success, progress, and development, which are the necessary tasks of each teaching subject. This learning project has an interesting way of recording the process of education. Students can learn gradually and monitor their results and progress.

- Duolingo pays impressive attention to feedback. Feedback is an essential part of effective learning. It helps students understand the subject being studied and gives them clear guidance on how to improve their learning.

- Due to its colorful and interesting design, Duolingo can keep learners motivated. It is presented with engaging and appealing audio and visual elements that can help users and students remember and comprehend what has been taught through the learning process (Mayheilla et al., n.d.). Munday (2016) states that Duolingo is a very modern-looking gaming application.

- There is a fascinating feature in the Duolingo activities that can assist students with listening tasks. The turtle image has a slow-down button that students can click to slow down the audio they hear. Therefore, if the students get lost after hearing the native speaker's audio, they can slow down the audio and listen to it more than once.

- Duolingo also has a super-sophisticated flagship feature, which is an alarm feature that will remind the learner of the study schedule that they have previously set.

The Disadvantages of Duolingo

Despite these good features of Duolingo, there are a few cautionary notes.

- For all of its listening exercises, Duolingo employs a digital speech system, preventing the students from being exposed to the sounds of the language. The voice is clear and dry, and it does not have any rhythm. However, speaking with native speakers of their target language is the most crucial aspect of language learning. There is no substitute for it, and as of right now, there is no mechanism for users of Duolingo to communicate with native speakers. In other words, Duolingo may offer users the impression that they understand a word's

pronunciation and meaning, but because they have not really utilized the words or phrases they have learned, their lexical knowledge is simply passive and difficult to recall.

- Duolingo does not offer any explanation of grammatical structures as part of its dashboard. Grammar is a significant part of language learning, and it makes the students have some difficulties doing the task. Siregar (2019) stated, "In terms of grammar, Duolingo does not offer any explanation whatsoever on grammatical use" (p. 28).

- The sample sentences from Duolingo are blatantly odd. Learners may encounter phrases like "I am not you," "Their elephant drinks milk," and "We come from that woman" in their very first lessons, which only confuses them further.

- Duolingo's method of teaching another language by using one is a significant drawback as well. For instance, if you wish to learn English, you must first be fluent in a language that offers English courses. The learner will, however, be unable to acquire any other languages if, for example, Persian is their mother tongue and they are illiterate in any other tongues. This will reduce the number of users for the app. In addition, if learners learn the target language through a second language, they are always prone to being dependent on the second language and may never be fully able to express themselves in only the language they have learned (Carreres, 2006, as cited in Nushi & Eqbali, 2017).

Conclusion

In recent years, the Algerian educational system has largely adopted a blended learning approach. However, the online aspects of learning are characterized by a lack of interactivity and individualization. Given the growing demand for English language learning,

mobile-assisted language learning is a promising prospect in supporting a blended foreign language curriculum. One of the technological learning facilities are mobile applications. An example of language learning mobile applications is Duolingo. It has various features to support users in learning, especially vocabulary. This app provides features that are attractive and easy to use so that it increases users' motivation, understanding, and retention

Chapter Three

Fieldwork and Data Analysis

CHAPTER THREE:FIELDWORK AND DATA ANALYSIS

Introduction

The third chapter provides analyses of the data gathered through tests and questionnaires. It is split into three sections. The first section is concerned with the study of the data gathered by the data collection tools and the discussion of their outcomes. The summary of the outcomes and their interpretation in light of the research questions and hypotheses is covered in the second section. Moreover, the third and final section addresses educational implications and recommendations. Additionally, this chapter attempts to examine the validity of its hypotheses and respond to the research questions put forth in the current study. As a result, the information obtained from the research instruments will be coded and examined using tables and graphs. Thus, results will be discussed and presented, and some pedagogical implications will be inferred.

Research Approach

The current research study operates under the mixed methods approach, which strived to provide a comprehensive analysis of the research problem. This approach is used to redound and reinforce the purpose of the investigation which attempted to investigate the effect of using the Duolingo application as a teaching tool on students' vocabulary proficiency, as well as discovering the teachers' and learners' attitudes regarding the use of this application. Thereby, to provide a deep understanding of the research problem, a survey research design along with the quasi-experimental design were used. Clearly, our decisions, which in turn complied with the objectives of the research, were undoubtedly influenced by the nature of the investigation.

Data Collection Tools

As far as the current investigation is concerned, three data collection tools were chosen in the course of collecting and gathering data in order to answer the research questions and to fit the aims of this research. This incorporated the tests (pre-test and post-test), the teachers' questionnaire to highlight the different perceptions of teachers about the usefulness of using Duolingo application to teach vocabulary, and the post-treatment questionnaire administrated to learners to investigate their perceptions about using Duolingo application to learn vocabulary

Tests

In this study we first administrated a pretest to the pupils to measure their vocabulary repertoire. Then a posttest was administrated after four sessions of treatment. The aim of the posttest was to explore the effectiveness of implementing Duolingo application in teaching vocabulary to young learners. Both tests were written.

Description of the Quasi-Experiment

The Pretest

The pretest was held on 24th March 2023. It was allocated in thirty minutes. It was administrated to two groups; a control group with 15 students and an experimental group which consisted of the same number. The vocabulary used in the test was taken from the application that we used in the treatment later. The test contained four tasks with different instructions. The first task aimed to determine students' comprehension of each vocabulary category (food, animals, clothes, family, and jobs) and what each word refers to out of context. The second task was about naming the pictures in order to test students' ability to produce and spell the words in isolation. The third task consisted of five sentences and students were given four choices for each sentence and were asked to fill in the gaps with the

appropriate one. This task aimed to assess students' comprehension and their ability to connect each word to its appropriate context. Finally, students were given five vocabulary items and asked to write small sentences using each of the given words. This task is used to test students' ability to produce comprehensible sentences using the target vocabulary. The tasks were prepared by the researcher and approved by the supervisor. (See Appendix 1).

The Treatment.

The treatment was in the form of four lessons incorporating the use of Duolingo application (See Appendix 2)

The Post-test

The post-test was a week after the treatment. It was allocated in thirty minutes and administrated to both groups. It has the same structure as the pretest with a small change within the first task where students had to cross the odd word out of each vocabulary category given. (See appendix 3)

Analysis of Tests

With an emphasis on assigning people to the scores actually attained, the information contained in the following tables seeks to highlight the participants' performances across the two major treatment stages.

Table 3.1

Experimental Group Pretest Posttest Scores

	Pre-test scores (x)	Post-test scores (y)	Difference (x-y)
Student 1	14	19	-5
Student 2	12.25	18.75	-6.5
Student 3	11.25	18.75	-7.5
Student 4	11	19	-8
Student 5	9.75	18	-8.25
Student 6	9.5	16	-6.5
Student 7	9	17	-8
Student 8	8.75	19	-10.25

Student 9	8.25	18.75	-10.5
Student 10	8.25	18.75	-10.5
Student 11	8	15.75	-7.75
Student 12	6.75	17	-10.25
Student 13	4.5	15.75	-11.25
Student 14	2.25	12.75	-10.5
Student 15	0.75	9.25	-8.5
N =15	Sum=124.25	Sum=253.5	

Figure 3.1

Experimental Group Pretest Posttest Scores
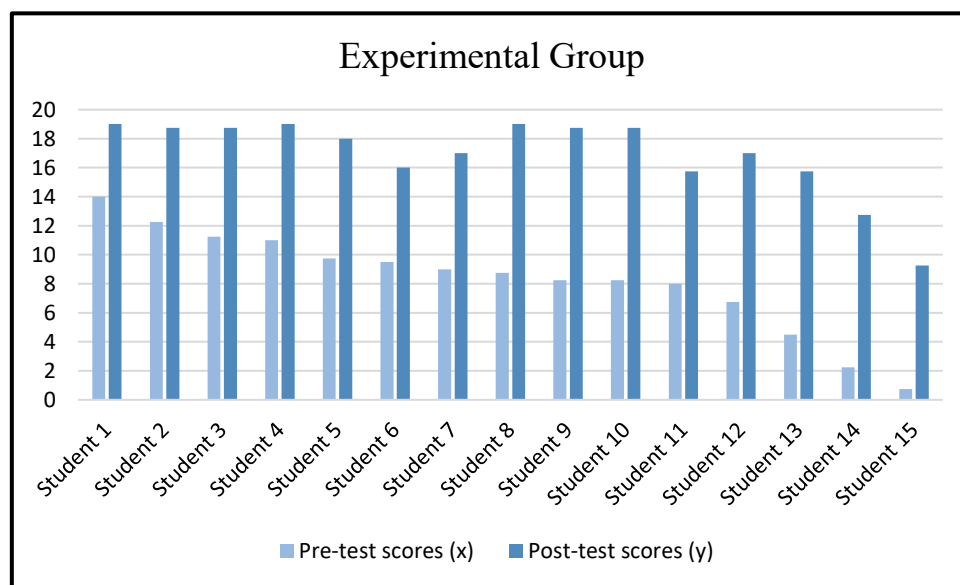
The above data represents the pretest and posttest scores of the participants who were assessed on how well they met the criteria presented in the marking grade (see Appendices 1,3). A closer look at these scores shows that there is a variation, which is mainly apparent in the post-test. In addition, the sum of the post-test scores overpassed twice the sum of the pretest scores with a difference of 129.25.

From the graph, we notice that the pretest scores show a great discrepancy with a peak of 14 (highest mark) and a difference of 13.25 marks (the distance between the highest mark and the lowest mark or simply the range). On the other side, the post-test scores are less

variant with a peak of 19 (highest mark) and a minimum value of 9.25 (difference of 8.75 marks)

These data also reveal that a total number of 11 students (73%), which is significant to be highlighted, are below the average (the mark 10) while only 4 out of the 15 students were successful in the pretest which represents a proportion of 27 %. This stands as an indication that most participants lack vocabulary proficiency. Subsequently, the task of the treatment was mainly to reduce this proportion (73 %).

An inspection regarding the second part of the table reveals that the scores in the posttest are far higher than the pretest since all participants overpassed their pretest score with at least 5 marks. It is also noticeable that only one of the pupils scored below the average (9.25) but still improved with 8.5 marks. Besides, we find that roughly 13 students scored above 14, which was initially the highest score in the pretest. Surprisingly, participant 13 who got 4.5 in the pretest, showed a dramatic improvement with a difference of 11.25 marks. Overall, what stands out is the apparent improvement in the scores between the pretest and posttest.

Statistically, one common method for comparing distinct numerical data sets is through the comparison of both means (The mean refers to the average of the scores). As a measure of central tendency, it is a typical number that somehow represents the center or the middle of all numbers. The following formula illustrates how to calculate it by adding together all the values in the data set and dividing by the total number of values:

$$\overline{X} = \frac{\Sigma x}{N}$$

Where:

Σx is the sum of the scores and N is the number of scores

For the above-mentioned purpose, we need to calculate the pretest mean, posttest mean, and the mean difference

Table 3.2

Experimental Group Pretest Posttest Means and the Mean Difference

x̄pre	**8.283333333**
x̄post	16.9
Mean Difference	8.616666667

Figure 3.2

Experimental Group Pretest Posttest Means and the Mean Difference
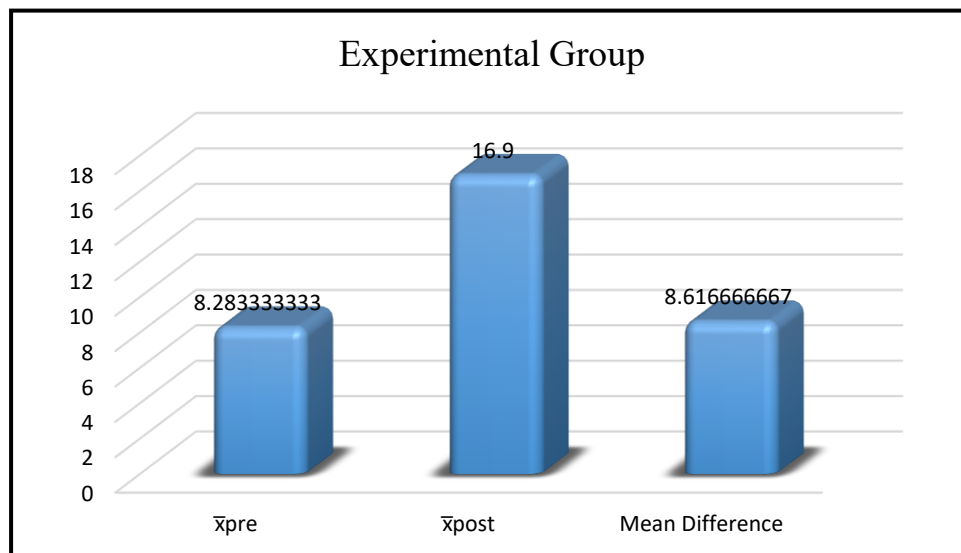
From Table 3.2 and Figure 3.2, it is apparent that the mean difference is greater than zero (a positive number). Moreover, we observe that the posttest mean is higher than twice the pretest mean. Consequently, we can infer that posttest scores are statistically much higher than pretest scores and that students performed better in the posttest due to the application of the study's treatment.

Table 3.3

Control Group Pretest Posttest Scores and the Score Difference

	Pre-test scores (x)	Post-test scores (y)	Difference (x-y)
Student 1	13.25	16.25	-3
Student 2	12	10	2
Student 3	11.5	15.5	-4
Student 4	11.25	12	-0.75
Student 5	11	12.25	-1.25
Student 6	10.75	9.75	1
Student 7	9	9.75	-0.75
Student 8	8.5	10.5	-2
Student 9	8	11	-3
Student 10	6.75	10.25	-3.5
Student 11	7.5	11	-3.5
Student 12	5.75	11.25	-5.5
Student 13	5.5	8.75	-3.25
Student 14	3.75	7	-3.25
Student 15	2	5.25	-3.25
N =15	Sum=126.5	Sum=160.5	

Figure 3.3

Control Group Pretest Posttest Scores
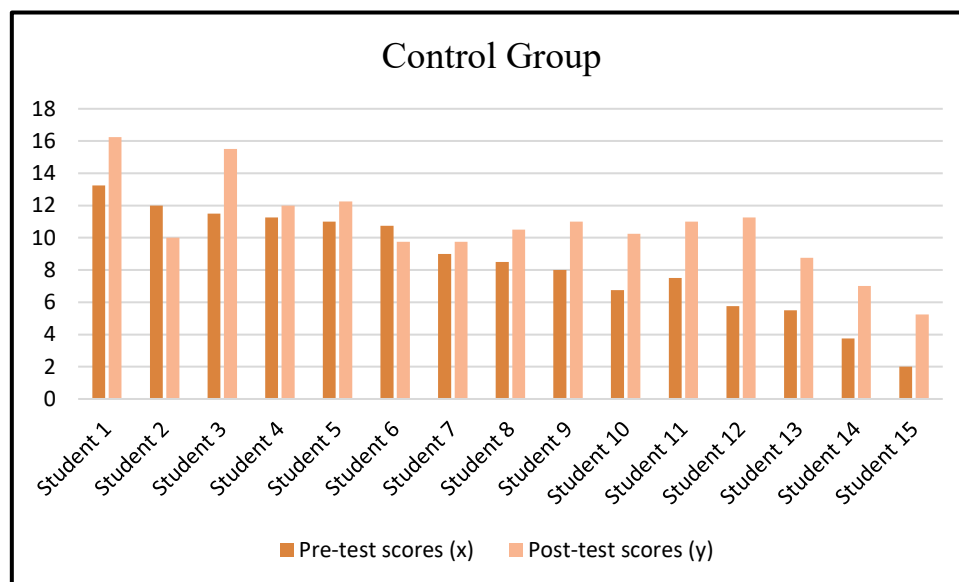
The above mentioned data displays the scores obtained by the control group after a thorough analysis of the final papers presented by the students. In general, the students displayed different behaviors toward the grading criteria proposed by the researcher. The control group tends to get low to average marks in the pretest with 13.5 being the highest score and 2 being the lowest. Besides, one can observe that six scores were above the average which makes 40% while 9 scores were below the average (60%). This demonstrates that the majority of participants were not highly skilled in vocabulary.

As the above data indicate, the post-test scores were slightly higher compared to their previous counterpart. It is reasonable to expect this development due to the participants' exposure to a number of vocabulary items. The score values in the posttest range from 16.25 to 5.25 with 10 scores above the average. In fact, five pupils failed to get 10, and two others scored less than the pretest which is important to be noted. Another remarkable element is the score gap between the pretest and posttest of participant 12. His score has grown from 5.75 to 11.25.

Table 3.4

Control Group Pretest Posttest Means and the Mean Difference

X̄pre	8.433333333
X̄post	10.7
Mean Difference	2.266666667

Figure 3.4

Control Group Pretest Posttest Means and the Mean Difference
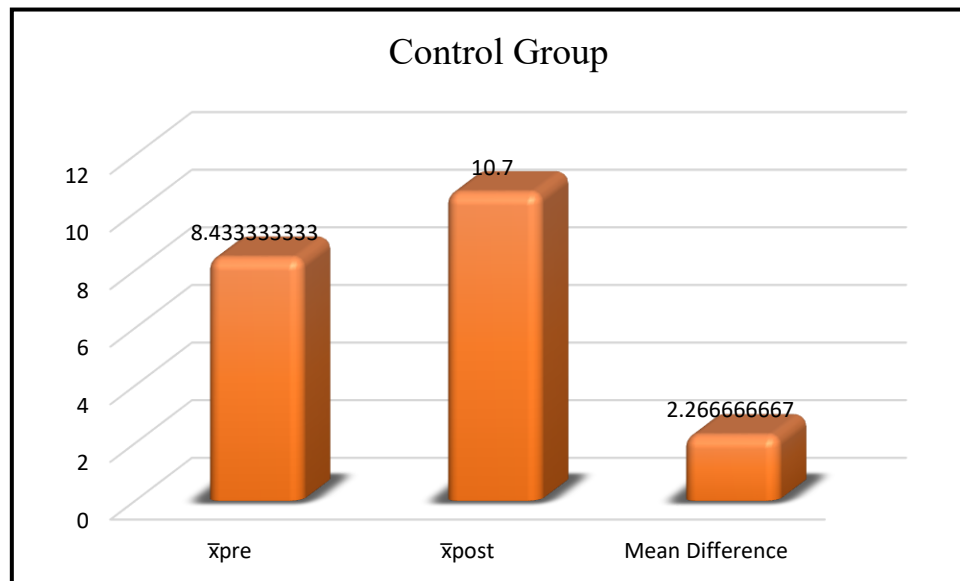
The above table and graph demonstrate the control group's mean scores. A slight development is clear between the pretest and posttest mean. That is, the mean difference represented by 2.26 indicate a progression in the pupils' post-test scores which is considered logical since the control group had tuition sessions.

Figure 3.5

Experimental Group and Control Group Pretest Scores
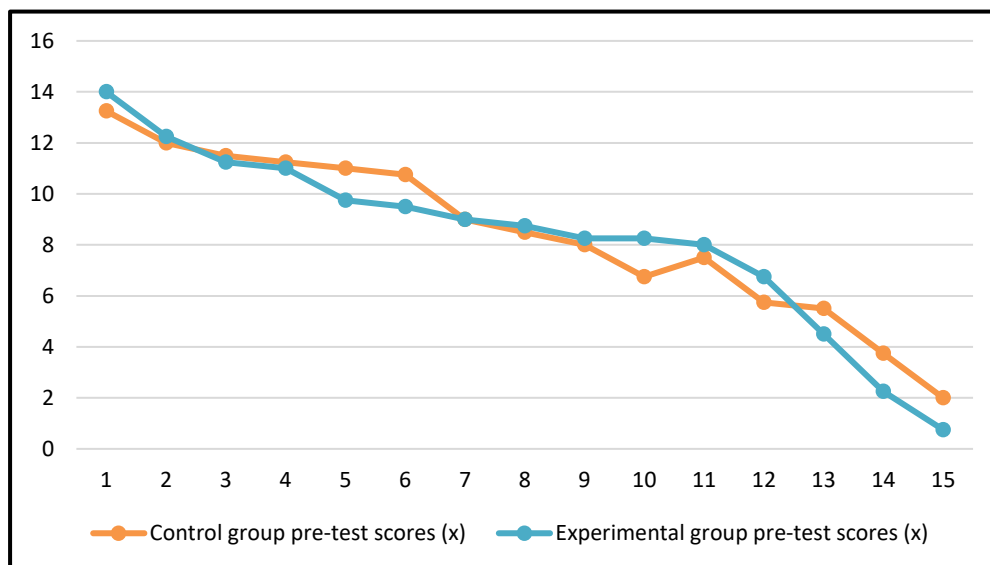
A comparison of the pretest scores shows how close both groups are in terms of general scores. It can be observed that the two curves are identical at some points indicating similar scores. Additionally, the peak and the low point of the experimental group pretest scores are highly comparable with the control group ones since the difference is only 0.75 and 1.25 respectively. Therefore, one can claim from this convergence that the vocabulary level is nearly the same for both groups and that the groups are homogenous. Hence, any further over-scoring in the posttest will be due to the interventions.

Figure 3.6

Experimental Group and Control Group Posttest Scores
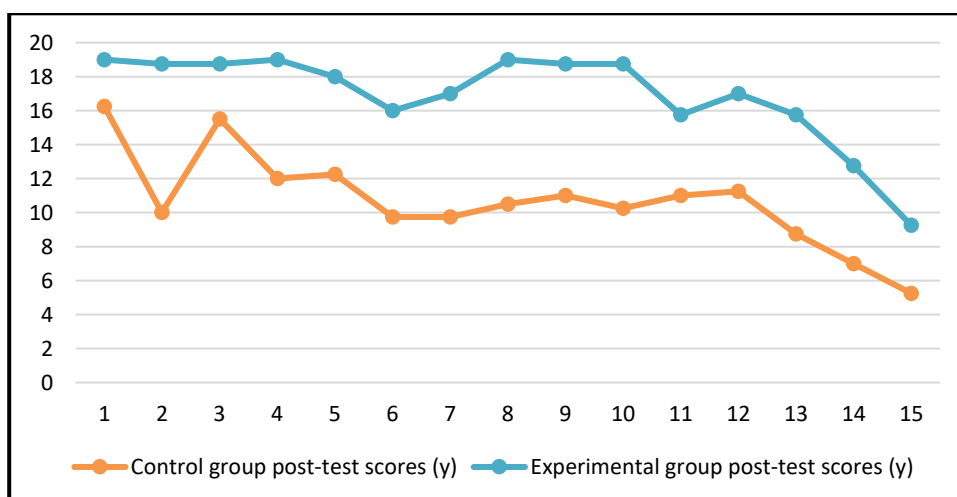
This graph highlights that the experimental group recorded significantly higher scores than the control group which means that the group that studied vocabulary using Duolingo remarkably outperformed the group that received normal tutoring. Almost all of the experimental group participants' scores are located above the average line (10) whereas the control group curve is rather turbulent with many ups and down. However, the control group pupils demonstrated some kind of progression as they showed some logical development.

Figure 3.7

Control Group and Experimental Group Pretest Posttest Means
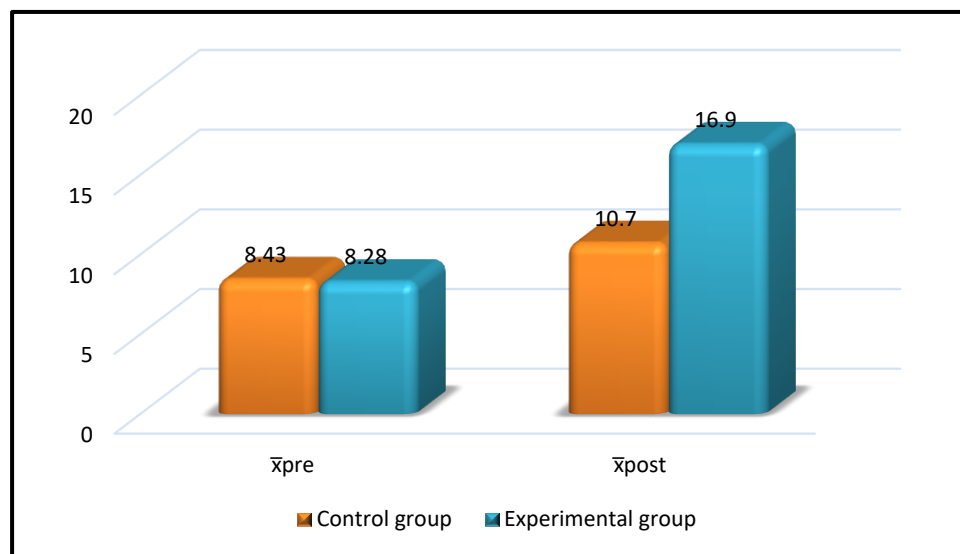
The above graph presents the difference in mean scores, for both groups, in the pretest and posttest. This chart highlights the final outcomes of the tests. It can be interpreted from the bar graph above, there is almost no difference (only 0.15) in both groups' pretest mean. This similarity is evidently observable in the close mean scores obtained by both groups where the experimental group pretest mean reached 8.28 and the control group one achieved 8.43. This insignificant over -scoring can determine how the two groups are close together.

Based on the other part of the graph, we can infer that the two groups had a significant improvement in the post-test. That is, when it comes to comparing the mean scores of the two groups in the pretest, $\overline{x}$= 8.28 for the experimental group, and $\overline{x}$= 8.43 for the control group, with the ones in the posttest $\overline{x}$= 16.9 for the experimental group and $\overline{x}$= 10.7 for the control group, it is obvious that both groups showed better results. However, the above chart clearly indicates that the experimental group outperformed the control group after the intrusion of the treatment. This can be interpreted from the mean difference of the post test results (6.2). Therefore, one can conclude that the treatment had a positive effect on students' vocabulary proficiency.

Quasi- experiment Discussion

Through the results obtained, a recognizable effect on the learners' performance is clear in both groups. Nevertheless, the participants in the experimental group showed better performance than the ones in the control group. Indeed, the students' vocabulary was boosted to varied degrees. The slight improvement in the results attained by participants in the control group is regarded as a logical interpretation of the normal tutoring sessions. As a result, it can be concluded that the lessons provided through the Duolingo application significantly affected the experimental group's post-test results. The participants in this study received high marks on the vocabulary tests, demonstrating that the Duolingo application may increase vocabulary comprehension and production both inside and outside the classroom. Therefore, when the appropriate units and lessons are chosen and used in a well-planned and balanced manner, young learners will acquire the target features of the language. In a different put, using Duolingo application for teaching vocabulary enable young learners to understand their meaning and use.

Teachers' Questionnaire

This part is devoted to the analysis of the questionnaire for teachers. The purpose behind the use of a questionnaire as a data- gathering tool is that it has the power to provide useful information about teachers' views concerning teaching vocabulary. Additionally, to gain a deep understanding of the strategies teachers use in teaching vocabulary, and to know their attitudes towards using technology in general and mobile applications in particular. Finally, to know their views towards the Duolingo application as a tool for teaching vocabulary.

Administration of the Questionnaire

Most questionnaire copies were handed directly to the teachers on the 5th of May 2023. It was given to ten (10) teachers from the same private language learning institution. All teachers who answered this questionnaire are teaching English.

Piloting and Validating

To check out the reliability and validity of the questionnaire and to avoid any difficulty in obtaining appropriate feedback on the questionnaire, we carried out a piloting stage that was two days before submitting the final version of the questionnaire to the teachers. It was distributed randomly to three teachers. Who confirmed that the questions were clear and not repeated as well as they found the layout attractive. The questionnaire was also examined and agreed on by the supervisor.

Description of the Questionnaire

The teachers' questionnaire consists of three parts and it includes thirteen questions organized in gradation from general to specific questions. The questionnaire is a semi-structured questionnaire which is a combination of close-ended questions requiring the teachers to pick up the appropriate answer, from a number of choices and open-ended questions where brief explanations or justifications are necessary. The questionnaire is described as follows:

- **Section one:** General information (Q1- Q3): it gives information about the teachers' experience in teaching English.

- **Section two:** vocabulary teaching (Q4- Q9): it aimed to seek information on the teachers' views about vocabulary teaching, the different aspects that students have problems with, and the strategies they use for effective vocabulary instruction.

- **Section Three**: Duolingo application (from Q10 to Q13): The final part was devoted to collecting data regarding the use of mobile applications in teaching English and specifically aimed at highlighting their opinions concerning Duolingo application.

Analysis of the Teachers' Questionnaire

Section One: General Information

Item 1. How long have you been teaching English?

Table 3.5

Teachers' Experience in Teaching English

Options	Respondents	Percentage
a. 1 to 5 years	4	40%
b. 5 to 10 years	5	50%
c. More than 10 years	1	10%
Total	**10**	**100%**

Figure 3.8

Teachers' Experience in Teaching English
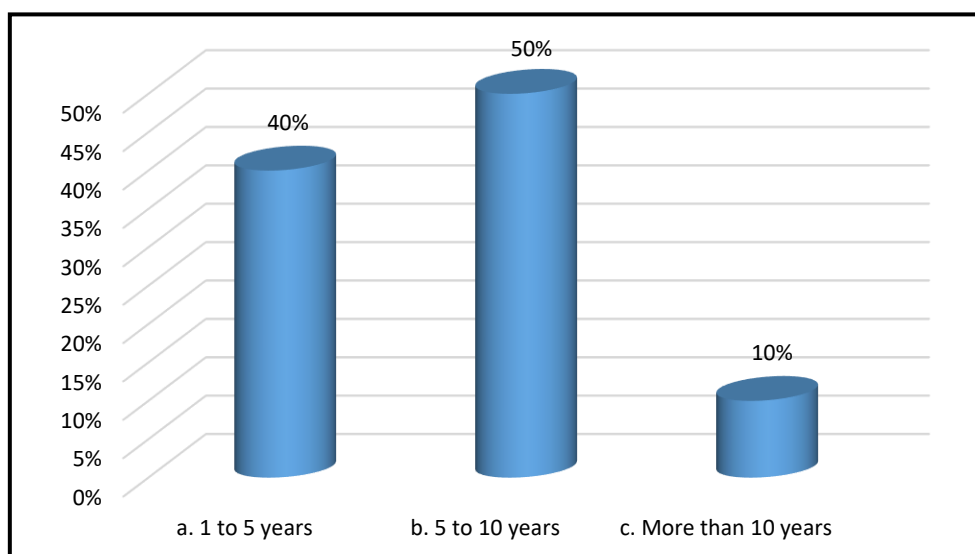
As the data demonstrates, four respondents (40%) claimed that they have been teaching English for less than five years. On the other hand, 50% of them have from five to ten years of teaching experience. Finally, 10% of teachers have been teaching English for more than 10 years. This indicated that the majority of the respondents are novice and junior teachers; however, few of them are seniors.

Item 2. Do you find teaching English via educational technology beneficial?

Table 3.6

Teachers' Responses about Whether They Find Teaching English via Educational Technology Beneficial or Not

Options	Respondents	Percentage
a. Yes	10	100%
b. No	0	0%
Total	**10**	**100%**

Figure 3.9

Teachers' Responses about Whether They Find Teaching English via Educational Technology Beneficial or Not
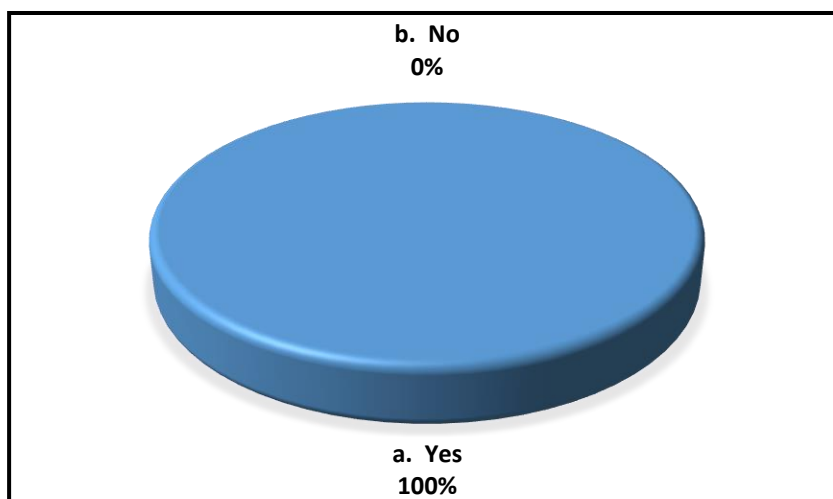
Teachers' justifications:

1. Because it can facilitate the educational process.

2. I think students like to use technology in class so that will make the session more attractive and fun.

3. Using TV can help students getting the information more easily than the board.

4. A nice change of pace offers versatility.

5. Students are more engaged.

6. People nowadays are exposed to technology more than before. Learning/teaching English via educational technology make it easy.

From the analysis of the pie chart and the teacher's answer to this open-ended question, one can assert that teachers are aware of the benefits of the educational modern technology.

Item 3. Have you ever used technology in teaching?

Table 3.7

Teachers' Responses about Whether They Use Technology in Teaching or Not

Options	Respondents	Percentage
a. Yes	10	100%
b. No	0	0%
Total	**10**	**100%**

Figure 3.10

Teachers' Responses about Whether They Use Technology in Teaching or Not
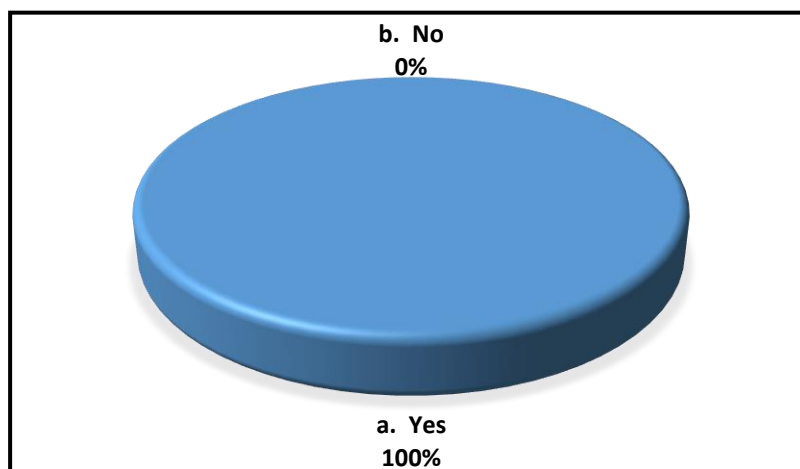
Item 3.1. If yes, what tools have you used?

Table 3.8

Teachers' Main ICT Tools for Teaching English

Options	Respondents	Percentage
a. Mobile phones	1	10%
b. Computers	3	30%
c. Tablets	0	0%
d. All of them	3	30%
a+b	3	30%
Total	10	100%

Figure 3.11

Teachers' Main ICT Tools for Teaching English
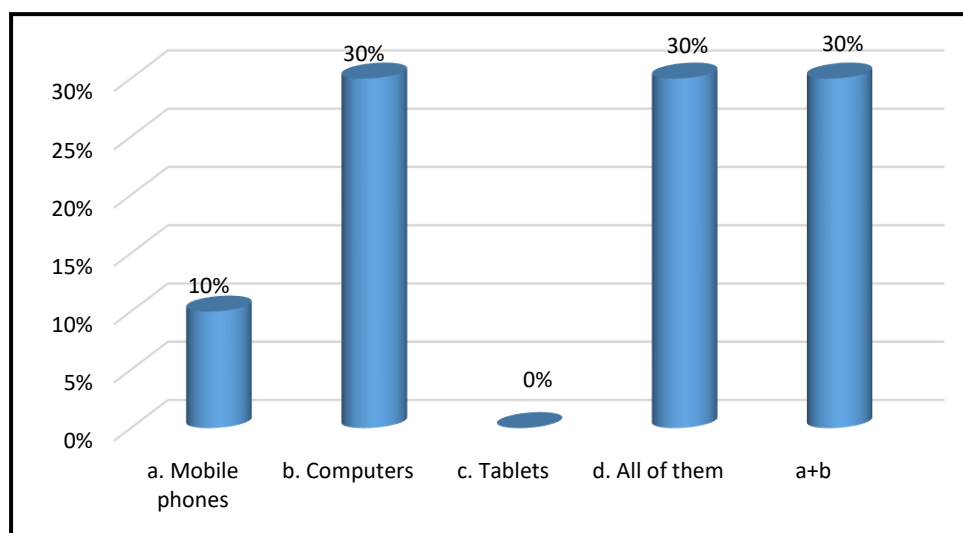
Others:

- TV+ VR technology

Items 2, 3, and 3.1 collectively sought first to explore the number of respondents who are aware of the importance of technology in education and the technological tools they use in teaching. As demonstrated in the teachers' answers of items 2 and 3, 100% of teachers agreed upon the importance of technology, and indicated that they make use of some technological tools to facilitate teaching. As far as the choice of ICT tools is concerned, 10% of teachers indicated that they use mobile phones while 30 % of them stated that they use computers to teach English. Equally, 30% of respondents vary the technological teaching

tools from computers, tablets, and mobile phones. In addition, another 30% of teachers merge between computers and mobile phones to teach English. However, none of the respondents exclusively uses tablets. Finally, three teachers added that they utilize TVs as well.

Section Two: Teachers' Views of Vocabulary Teaching

Item 1. To what extent is vocabulary important in foreign language teaching and learning?

Table 3.9

The Degree of Importance of Vocabulary in Foreign Language Teaching and Learning

Options	Respondents	Percentage
a. Very important	9	90%
b. Important	1	10%
c. Not important	0	0%
Total	**10**	**100%**

Figure 3.12

The Degree of Importance of Vocabulary in Foreign Language Teaching and Learning
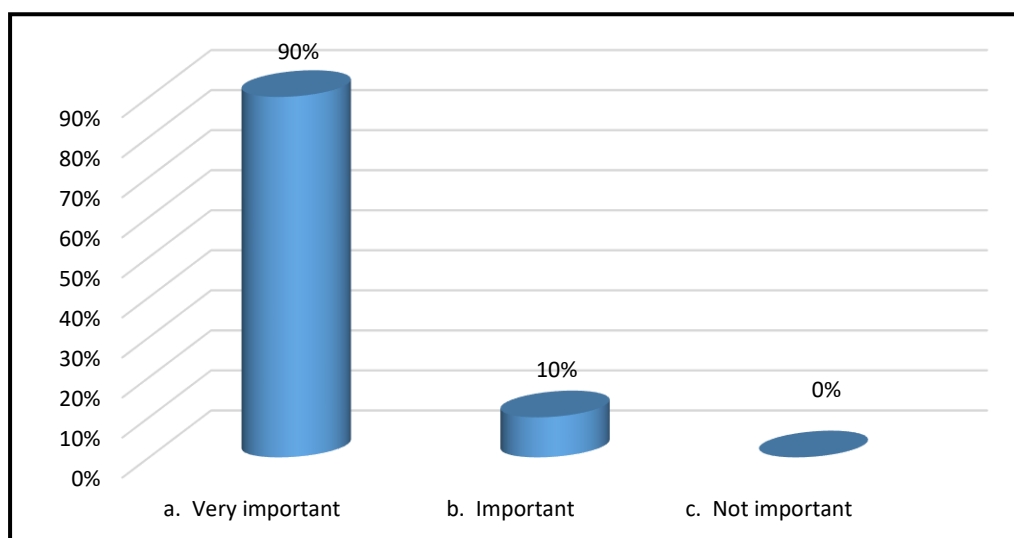
As it is shown in the above table, 90% of teachers stated that vocabulary is very important to foreign language teaching and learning. Similarly, the other 10% still believe that vocabulary is important. This was justified as follows:

Teachers' justifications

1. The richest student's vocabulary is, the more comfortable he/she is with the language.

2. Without vocabulary, how would any learner speak or write. It is very essential to express their thoughts.

3. For me, I think in every language, the most important part is vocabulary.

4. In order to master any language, you have to have a great amount of vocabulary.

5. I think it is very important, as it is the key element that students need to express themselves and become fluent.

6. You can't possibly talk without vocabulary.

From the analysis of the teacher's answer to this open-ended question, one can assert that teachers are aware of the importance of the vocabulary to foreign language teaching and learning.

Item 2. How do you evaluate your students' writing performance?

Table 3.10

Teachers' Evaluation of Their Students' Writing Performance

Options	Respondents	Percentage
a. Poor	1	10%
b. Average	8	80%
c. Good	1	10%
Total	**10**	**100%**

Figure 3.13

Teachers' Evaluation of Their Students' Writing Performance
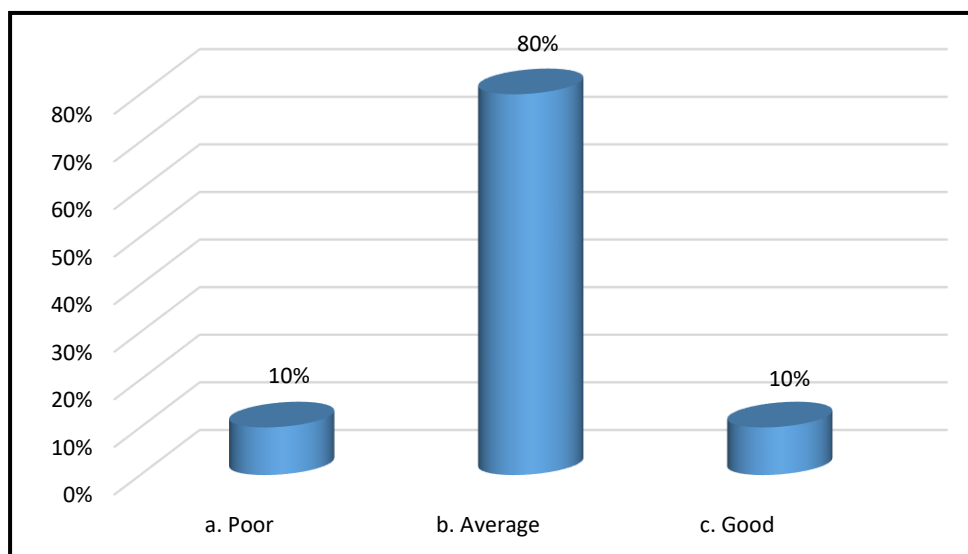
Item 3. In case their level is not good, what do you think are the main reasons? (You can tick more than one answer)

Table 3.11

Teachers' Point of View about the Main Reasons Behind Students' Poor Level

Options	Respondents	Percentage
a. Lack of vocabulary	1	10%
b. Poor grammar	0	0%
c. Word spelling	1	10%
d. All of them	1	10%
e. Other	3	30%
a+b	1	10%
a+c	2	20%
b+c	1	10%
Total	**10**	**100%**

Figure 3.14

Teachers' Point of View about the Main Reasons Behind Students' Poor Level
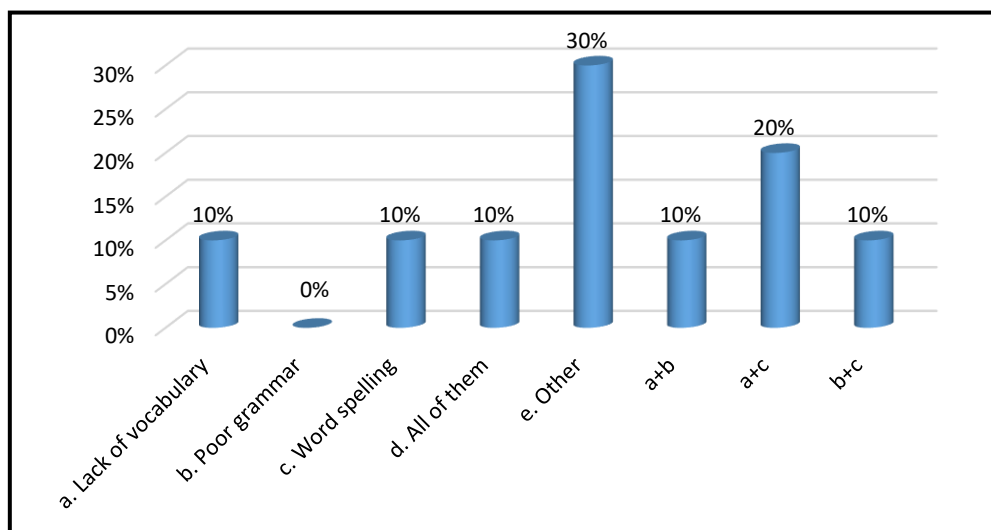
Other:

1. Syntax

2. Lack of interest in writing

3. Lack of reading

This question sought to know how the teachers under the current investigation evaluate their students' writing performance. According to the table 3.11 and the figure 3.14, the large majority of teachers, representing 80% of the respondents, confessed that their students have an average level in writing while only 10 % have a good level. Similarly, 10% of teachers considered their students' level as "poor". This implies that the majority of the students find difficulties or rather challenges to write in English. Therefore, we can truly consider this issue a serious problem.

Afterward, to generate data, the teachers were additionally asked to elaborate on the answer given within the closed question. As indicated in the table 3.11 the and Figure 3.14, almost the majority of teachers (three teachers, 30%) labelled the students' poor level with other reasons such as the "lack of interest in writing", "syntax", as well as the "lack of

reading". Besides 20 % of the respondents indicated that their students face difficulties due to the lack of vocabulary along with word spelling. Ten percent (10%) of teachers linked their students' poor level to the lack of vocabulary. The same proportion of teachers indicated that word spelling is the main reason that leads to poor writing. Equally, 10% of the respondents answered that all the mentioned reasons contribute to the poor writing level. Finally, 10% labelled the students' poor level with the lack of vocabulary together with poor grammar while the last 10% related it with the poor grammar along with word spelling.

Item 4. How do you evaluate your students' speaking performance?

Table 3.12

Teachers' Evaluation of Their Students' Speaking Performance

Options	Respondents	Percentage
a. Poor	1	10%
b. Average	7	70%
c. Good	2	20%
Total	10	100%

Figure 3.15

Teachers' Evaluation of Their Students' Speaking Performance
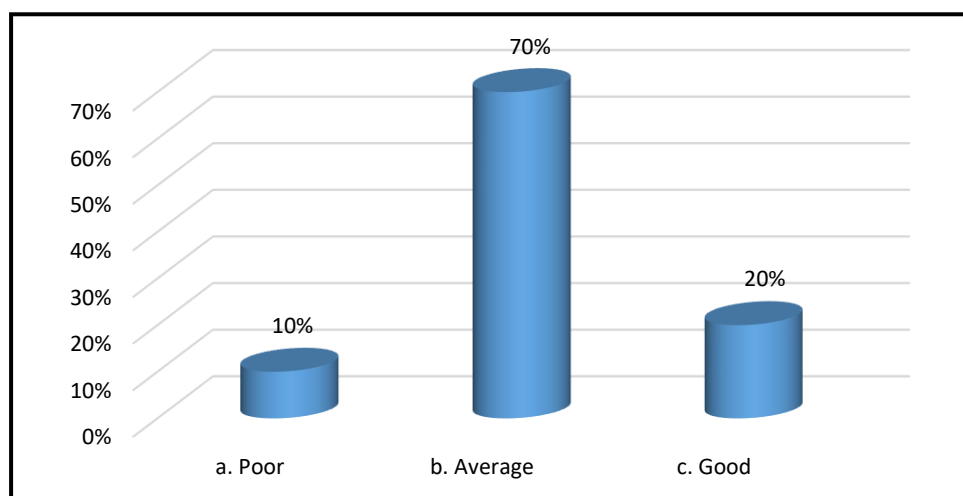
Item 5. In case your students' speaking performance is not good, what do you think are the main reasons?

Table 3.13

Teachers' Opinion about the Main Reasons Behind Students' Speaking Poor Level

Options	Respondents	Percentage
a. Shyness and inhibition	0	0%
b. Lack of vocabulary	3	30%
c. Fear of negative feedback	1	10%
d. All of them	2	20%
e. Others	2	20%
a+c	1	10%
b+c	1	10%
Total	8	100%

Figure 3.16

Teachers' Opinions about the Main Reasons Behind Students' Poor Speaking Level
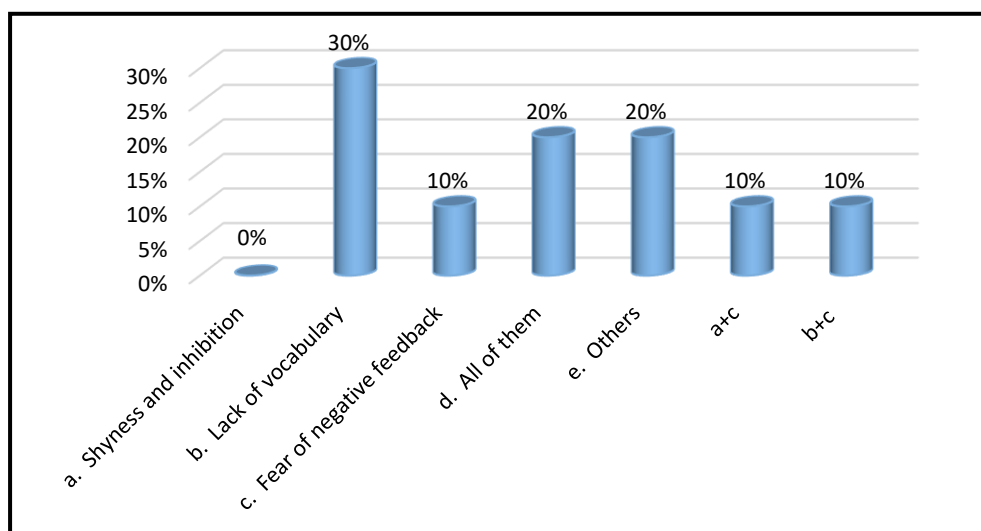
Other:

1. Syntax and poor grammar

Items 4 and 5 are to be grouped together since they are interdependent. While the first question set out to discover whether the participants' students have good, average, or poor speaking performance. The above data reveals that the majority of teachers (70%) claimed that their students have an average speaking level. While 20% of them stated that, their

students' speaking performance is "good". The rest of the respondents 10 % described their students' speaking performance as "poor". On the other hand, the second question strove to uncover the main reasons behind the students' poor speaking level. From Table 3.13, it is obvious that most of the respondents believe that the lack of vocabulary is the main reason for their students' poor speaking performance, which makes a percentage of 30%. However, 10% stated that the fear of negative feedback is behind it. Two participants (20%) stated that all the mentioned reasons contribute to poor speaking. This is immediately followed by another (20%) who reported other reasons as syntax and grammar. While 10% identified shyness and inhibition as well as the fear of negative feedback, 10% specified the latter in addition to the lack of vocabulary

Item 6. What kind of vocabulary teaching activities/techniques do you find more effective? (You can tick more than one answer)

Table 3.14

Teachers' Most Effective Activities/Techniques for Teaching Vocabulary

Options	Respondents	Percentage
a. Repetition	0	0%
b. Reading	0	0%
c. Translation	0	0%
d. Miming	0	0%
e. Synonyms and Antonyms	0	0%
f. Dictionaries	0	0%
g. Using visuals	0	0%
a+b+g	3	30%
a+b+d+e+g	4	40%
a+c+d+g	1	10%
b+g	1	10%
a+b+d+g	1	10%
Total	**10**	**100%**

Figure 3.17

Teachers' Most Effective Activities/Techniques for Teaching Vocabulary
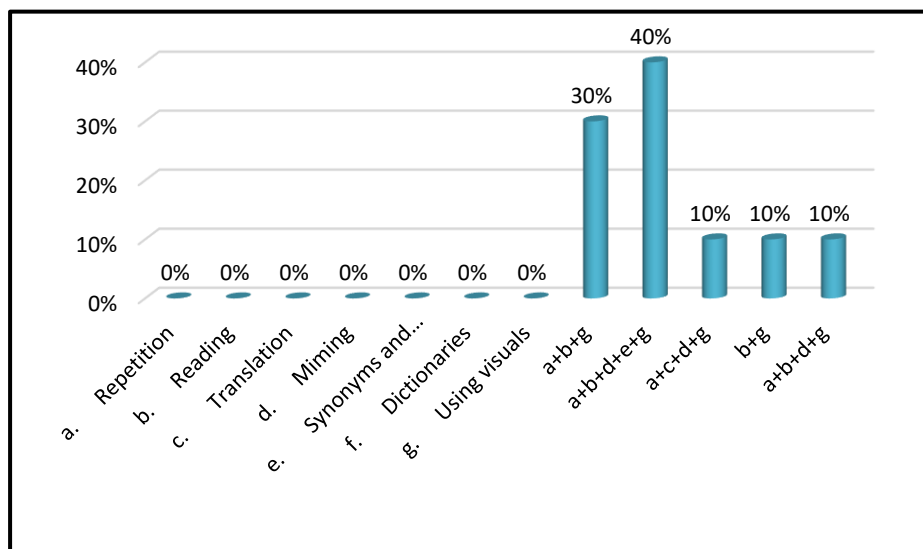
Other:

- Student-student interaction+ listening+ games

As it can be interpreted from the above data, most teachers (40%) argue that they use repetition alongside reading, miming, synonyms, antonyms, and visuals because they believe that the previously mentioned strategies are the most effective ones. Nonetheless, others (30%) stated that in order to enhance their student's vocabulary level they use repetition, reading, and visuals. Additionally, some of them (10%) claimed that they use repetition and translation alongside miming and visuals. Other 10% use repetition, reading, and miming as well as visuals while the rest (10%) use reading and visuals.

Section Three: Teachers' Attitudes toward Teaching Vocabulary via Duolingo

Item 1. Do you encourage your students to use mobile applications to learn English?

Table 3.15

Teachers' Responses about Whether They Encourage Their Students to Use Mobile

Applications to Learn English or Not

Options	Respondents	Percentage
a. Yes	8	80%
b. No	2	20%
Total	**10**	**100%**

Figure 3.18

Teachers' Responses about Whether They Encourage Their Students to Use Mobile
Applications to Learn English or Not
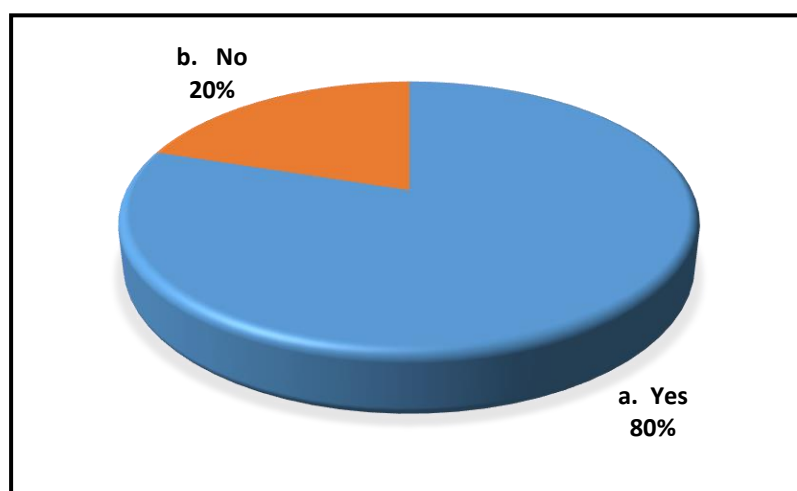
Item 1.1. If yes, name some of these applications

1. Duolingo

2. Duolingo+ Youtube

3. Duolingo+ Club house

4. Duolingo

5. ZAmerican English+ Duolingo+ Coursera

6. Club house

The table 3.15 and Figure 3.18 show that the majority of respondents, which includes

eight teachers (80%), stated that they encourage their students to use mobile applications to

learn English. Around 63% of them specified Duolingo application as an example of these apps. In fact, other apps like Clubhouse and ZAmerican English were mentioned by other respondents. However, 20% of teachers claimed that they do not encourage their students to use mobile apps to learn English. Clearly, the great majority of teachers are open to the integration of mobile applications into the teaching progress.

Item 2. Are you familiar with Duolingo application?

Table 3.16

Teachers' Familiarity with Duolingo Application

Options	Respondents	Percentage
a. Yes	9	90%
b. No	1	10%
Total	**10**	**100%**

Figure 3.19

Teachers' Familiarity with Duolingo Application
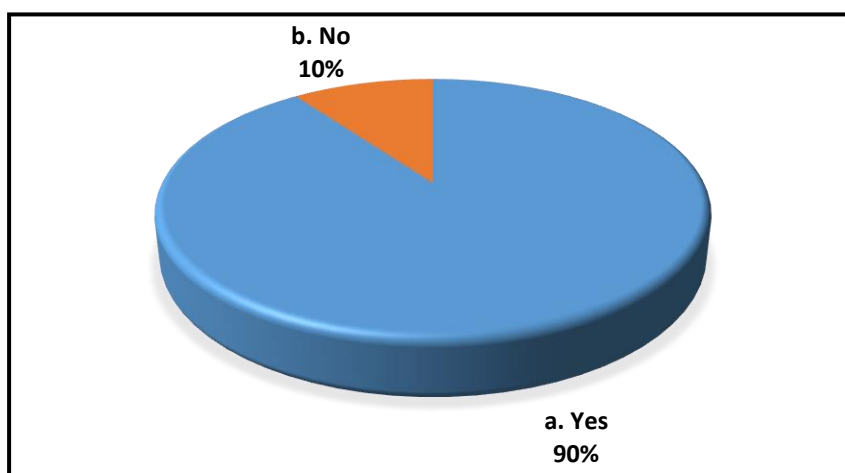
Item 2.1. What do you know about it?

1. It is an application that helps learners learn new language.

2. It breaks down the target language and helps the learners take baby step based on repetition and chunking techniques.

3. It's a language's app based on vocabulary and levels.

4. For me, I found it useful and funny.

5. It is an application which is primarily focused on vocabulary.

6. It is an application that is used to learn languages from zero. It mainly focuses on enhancing vocabulary.

7. It is a mobile application to learn English. It helps them overcome their vocabulary learning problems (speaking, pronunciation, etc).

8. Based on stages with a sense of competition.

This item appeared to allow the respondents to exhibit their familiarity with Duolingo application. Clearly, in Table 3.16, 90%, which represents a total number of nine teachers, are familiar with the app. However, one teacher did not know the application. As a completion to this question, they reported various answers that stood behind their viewpoints of Duolingo. Based on the justifications provided by teachers, they seem to recognize the main aspects of Duolingo application, mainly its contribution to vocabulary learning.

Item 3. Do you think that the use of Duolingo application can help students improve their vocabulary level?

Table 3.17

Teachers' Attitudes toward the Use of Duolingo Application in Improving Students' Vocabulary Level

Options	Respondents	Percentage
a. Yes	10	100%
b. No	0	0%
Total	**10**	**100%**

Figure 3.20

Teachers' Attitudes toward the Use of Duolingo Application in Improving Students' Vocabulary Level
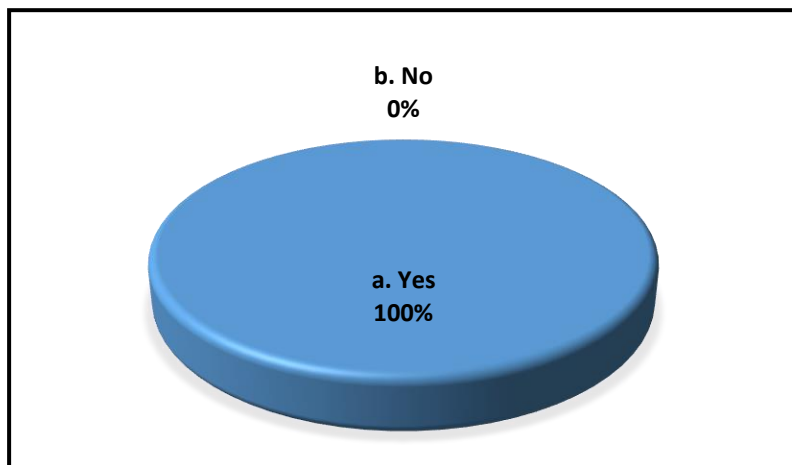
This question is designed to identify whether or not the respondents agree with the usefulness of Duolingo application in improving students' vocabulary level. The results revealed that all the respondents, representing (100%), recognized the utility of this app in one way or another. In fact, one of the teachers stated, "It is good as it uses repetition and there are a lot of vocabulary that sometimes you can't cover in class, so using Dualingo will solve this problem". Another respondent linked the usefulness of the application with the use of visuals and repetition. In fact, many teachers think that this latter is a good feature of the app that helps in vocabulary development. Other answers are listed below:

1. Because it gives them a teacher everywhere, any time with motivation.

2. Because it is based on vocabulary and new words for each new mission there are a lot of words.

3. It can simplify the content for them adding to the repetition the vocabulary can be easily memorised.

4. Teaching the different topics, so they can get new vocabulary.

5. For some students, the app is like a game. Students spend a lot of time on the app that repeat a lot of vocabulary

Item 4. Tick the right answer

Table 3.18

Teachers' Opinions on the Given Statements

Statements	Strongly Agree	agree	disagree	Strongly disagree
a. **Duolingo is easy to use for young learners.**	40%	60%	0%	0%
b. **Doulingo follows a systematic order of presenting lessons and units.**	20%	50%	30%	0%
c. **Duolingo uses clear and relevant instruction to the learners' level.**	40%	60%	0%	0%
d. **Duolingo uses visually appealing aids.**	20%	70%	10%	0%
e. **Duolingo focuses on all the language skills.**	10%	60%	30%	0%
f. **It increases students' tolerance and motivation.**	10%	60%	30%	0%
g. **It helps students to overcome their vocabulary learning problems (spelling, pronunciation ...etc.)**	40%	50%	10%	0%
h. **Duolingo is useful for autonomous learning.**	20%	70%	10%	0%

Figure 3.21

Teachers' Opinions on the Given Statements
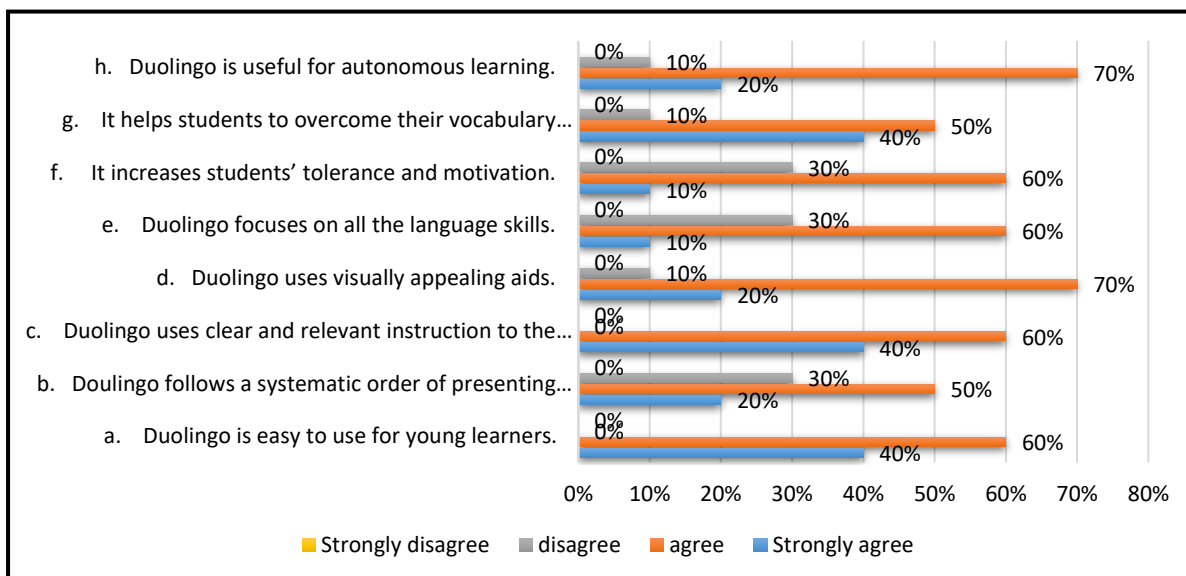
This question is intended to pinpoint the aspects Duolingo fosters. We wanted to appraise its efficacy with respect to such elements as ease of use, the lessons' order, and the motivational aspect. We also sought to ascertain whether it uses visually appealing aids and clear instruction in relevance with the learner's level. Finally, we wanted to know whether it focuses on all the language skills, helps students to overcome their vocabulary problems, and whether it is useful for autonomous learning. Table 3.18 and graph 3.21 show that the majority of participants responded positively to all the suggested elements. Interestingly, without any exception, 70% of the sample chose to answer with 'agree' when it came to 'autonomous learning and visual aids while 20% of them "strongly agreed" with the two statements (h and d). Concerning statements "a" and "c", 60% of teachers answered with agree and 40% of them "strongly agreed" with them. Besides, 60% of teachers agreed that Duolingo increases students' tolerance, motivation, and focuses on all the language skills. Five of them (50%) believe that Duolingo follows a systematic order of presenting lessons and units. Finally, the majority of respondents (90%) reported that Duolingo helps its users to overcome their vocabulary problems (40% strongly agreed on the corresponding statement and 50% also agreed on it).

Discussion of Teachers' Questionnaire

The outcomes acquired from the teachers' questionnaire uncover the fact that instructors know about the significance of vocabulary; therefore, they vary the vocabulary teaching techniques. Teachers concur that regardless of whether they do their best to encourage learners, they still face challenges generally in speaking and writing mainly due to the lack of vocabulary. Teachers attempt to make a pleasant and attractive learning climate that facilitates the learning process through the utilization of various technological tools, especially mobile apps. This is because they assert that utilizing apps in general and Duolingo application in particular in teaching improves pupils' vocabulary dominance due to many

features. This was agreed upon by teachers and that is the significant focal point of our current investigation.

Learners' Questionnaire

The aim of this data collection tool was to investigate learners' attitudes about using Duolingo application to learn vocabulary and to explore the difficulties they encountered in the treatment phase. The researcher administrated the questionnaire to five learners from the experimental group after four sessions of treatment and the post-test. The questionnaire was presented in both English language and the pupils' native language (Arabic) in order to facilitate their understanding.

Description of the Questionnaire

The first Section includes three questions aimed to identify pupils' attitudes and feelings towards the lesson presentation and implementation. Section two involves four (04) questions. It aims to explore pupils' opinions towards Duolingo application. The third section of the questionnaire includes two questions. It points out the pupils' challenges and general perceptions towards the experience of using Duolingo.

Validating and Piloting the Learners' Questionnaire

After designing the first draft of the students' questionnaire, it was sent to the supervisor via email to check its content. The supervisor suggested some modifications, which were taken into consideration while designing the final draft. After validating it, it was piloted with two students (within the same sample).

Analysis of Learners' Questionnaire

Section One: Lesson Presentation and Implementation

Item 1: Please specify which of the following vocabulary learning techniques you find more beneficial. You can tick more than one answer.

Table 3.19

The Vocabulary Learning Techniques Learners Find More Beneficial

Options	Respondents	Percentage
a) Visuals (photos,videos..etc.)	0	0%
b) Mobile applications	1	12.5%
c) Educational games	0	0%
d) a+b+c	4	50%
e) b+c	3	37.5%
Total	8	100%

Figure 3.22

The Vocabulary Learning Techniques Learners Find More Beneficial
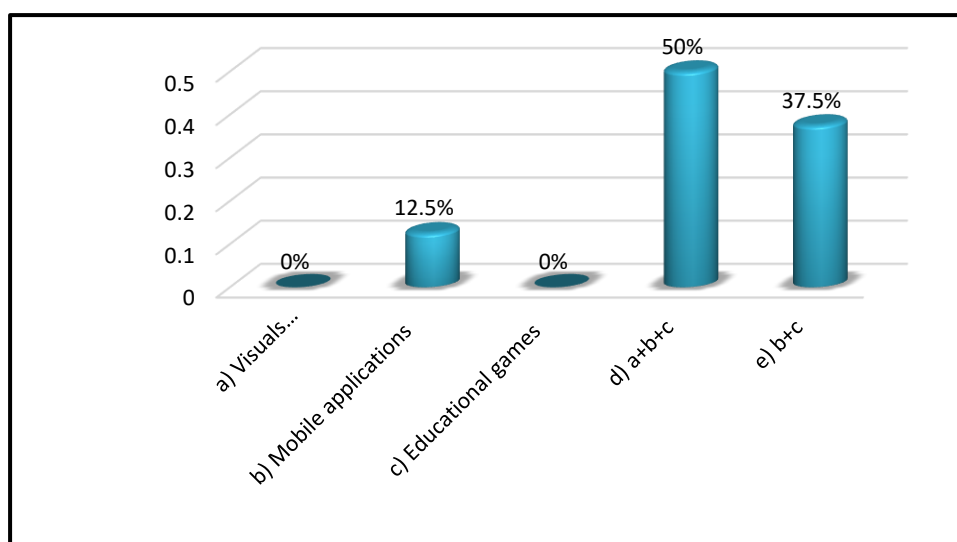
This item is intended to capture the primary facets related to the Duolingo application class. Principally, we aimed to discern which of the aspects related to the implementation of

visuals, mobile apps, and educational games learners were most satisfied with. Based on the table 3.19 and graph 3.22, it is indicated that the top area the students reported was the combination of the three techniques (50%). Out of eight participants, three chose to couple two choices (a+b), and one chose mobile apps. Therefore, we can understand that the lessons delivered were well thought of in terms of the variety of techniques.

Item 2: When it comes to using Duolingo, which of the following stages you find mostly difficult ?

Table 3.20

Stages That Learners Find Mostly Difficult

Options	Respondents	Percentage
a) The inscription stage	2	25%
b) The learning stage	1	12.5%
c) Both	1	12.5%
d) None	4	50%
Total	**8**	**100%**

Figure 3.23

Stages That Learners Find Mostly Difficult
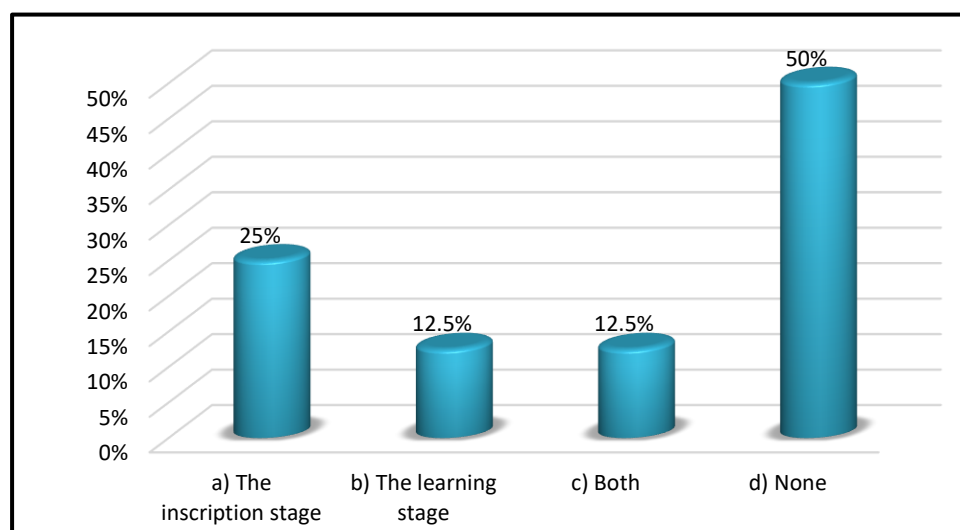
Undoubtedly, students may experience some level of difficulty when using the Duolingo application for the first time. This is why we asked the question, which normally attempts to identify the challenging stage (s) of using Duolingo application strategy. Evidently, as shown in the table 3.20, two out of eight students (25%) reported that it was the inscription stage of this strategy that they found most difficult, while 12.5% of participants identified the learning stage. One more student (12.5%) found that both stages were equally difficult. However, the majority (50%) found difficulty neither in the inscription stage nor in the learning stage.

Item 3: Have you found any problems when using Duolingo at home?

Table 3.21

Learners' Opinions about Whether They Found Problems When Using Duolingo at Home

Options	Respondents	Percentage
a) Yes	3	37.5%
b) No	5	62.5%
Total	**8**	**100%**

Figure 3.24

Learners' Opinions about Whether they Found Problems When Using Duolingo at Home
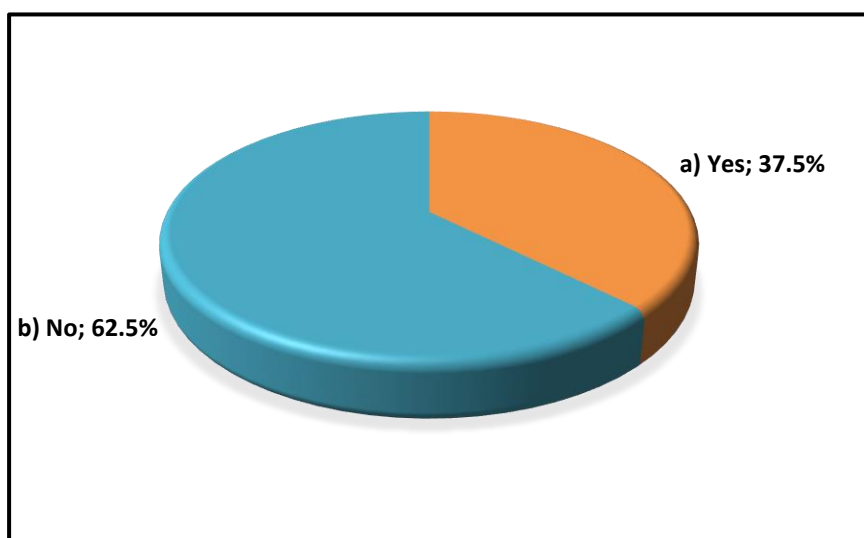
Table 3.21 shows that the majority of respondents (63.5%) reported that they have not faced any difficulties when using Duolingo at home, and three responded that they have (37.5%). This implies that the blended learning method was successful.

Section Two: Duolingo Application

Item 4: Please tick (√) the appropriate box.

Table 3.22

Learners' Opinions on the Given Statements

Statements	Yes	No
a) Duolingo application is easy to use.	100%	0%
b) Duolingo fosters students' motivation, interest, and engagement in language learning.	100%	0%
c) The use of Duolingo application helps students to pronounce the words correctly due to the clear audio exercises.	100%	0%
d) Duolingo application is helpful to learn the word spelling.	100%	0%
e) Duolingo application stimulates students to learn the language independently anytime and anywhere.	100%	0%
f) The slow down feature (small turtle button) of speech helps to grasp the correct pronunciation of the audio exercises	100%	0%

This inquiry aimed to identify the qualities that Duolingo application promotes. In other words, we intended to evaluate its effectiveness in relation to aspects like easiness, motivation, pronunciation, word spelling, as well as autonomous learning. Table 3.22 shows that all the participants responded positively to all the suggested elements. Interestingly, without any exception, the entire sample chose to answer with 'yes' (100%) to all the statements. More precisely, the use of Duolingo application helped them with motivation,

pronunciation, and word spelling in addition to autonomous learning. Moreover, all learners claimed that Duolingo application is easy to use. These answers can determine the effectiveness of this app on the side of learners.

Item 5: In which one of the following aspects do you find Duolingo more beneficial? You may choose more than one option

Table 3.23

Duolingo Aspects Learners Find more Beneficial

Options	Respondents	Percentage
a) **Pronunciation**	0	0%
b) **Vocabulary**	1	12.5%
c) **Fluency**	0	0%
d) **Grammar**	0	0%
e) **a+b+c**	3	37.5%
f) **b+c+d**	2	25%
g) **a+b+c+d**	2	25%
Total	**8**	**100%**

Figure 3.25

Duolingo Aspects Learners Find more Beneficial
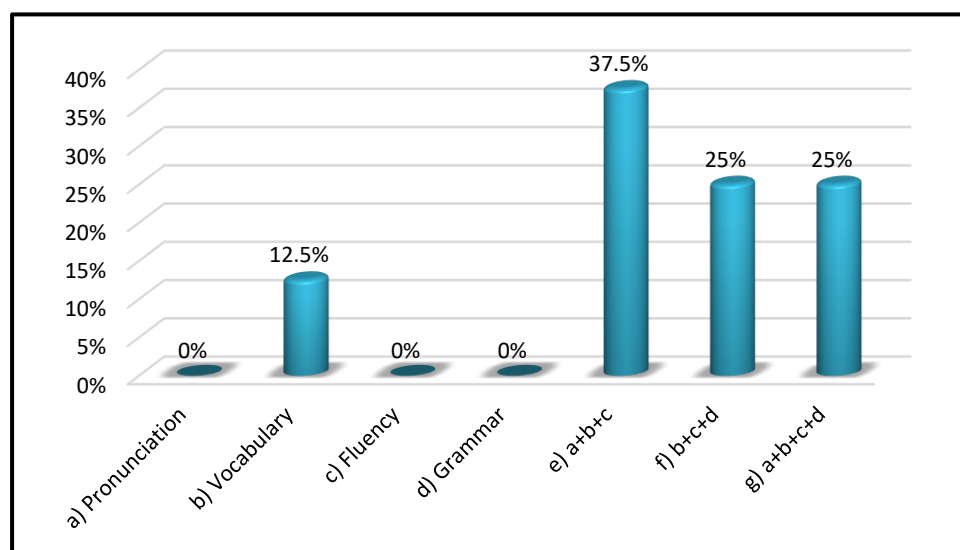
If you have others, please state them   .(None)

This question aims to investigate the aspects of Duolingo application that learners find more beneficial. Based on the graph 3.25, it is evident that each suggested element was chosen more than once, yet at different rates. It is indicated that the top three areas the students reported were pronunciation, vocabulary, and fluency (37.5%). In addition, 25% of participants reported the four areas together, while the other 25% stated vocabulary, fluency, and grammar. Finally, 12.5 % of learners believe that Duolingo application is more beneficial when it comes to vocabulary. It can be noted that vocabulary was chosen by all participants, which indicates that it is the primary aspect that Duolingo aims to develop.

Item 6: Do you think that Duolingo offers a good opportunity to learn vocabulary that traditional methods cannot offer?

Table 3.24

Learners' Opinions about Whether Duolingo Offers a Good Opportunity to Learn Vocabulary that Traditional Methods cannot Offer

Options	Respondents	Percentage
a) Strongly agree	3	37.5%
b) Agree	5	62.5%
c) Disagree	0	0%
d) Strongly disagree	0	0%
Total	8	100%

Figure 3.26

Learners' Opinions about Whether Duolingo Offers a Good Opportunity to Learn Vocabulary that Traditional Methods cannot Offer
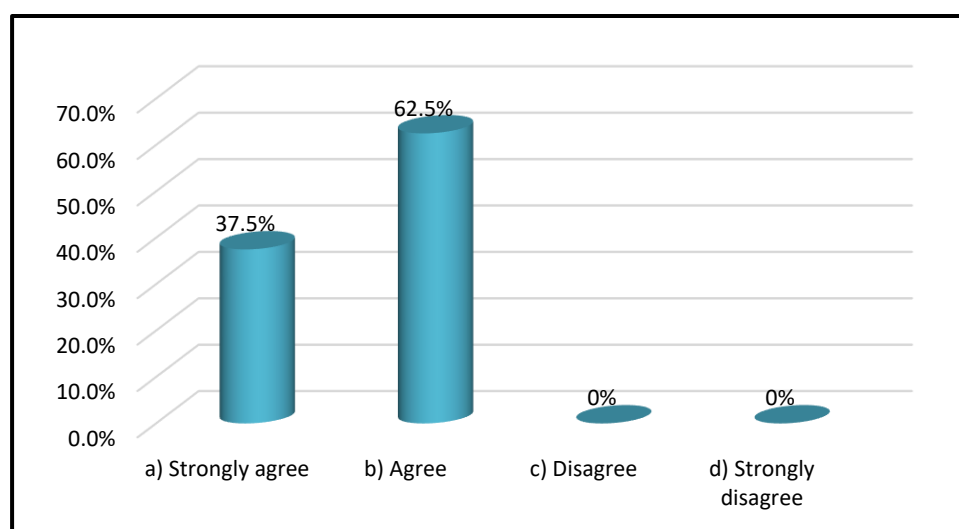
To begin with, Table 3.24 demonstrates that all respondents considered it to be more useful than the traditional ways of learning vocabulary. While three students representing 37.5% strongly agreed with the statement, 62.5% chose to agree. That is to say, their answers ranged from 'strongly agree' to 'agree'. This clearly explains the effectiveness this strategy yields

Item 7: Will you use Duolingo application to learn other languages?

Table 3.25

Learners' Opinions about Whether They Will Use Duolingo to Learn Other Languages

Options	Respondents	Percentage
a) Yes	6	75%
b) No	2	25%
Total	**8**	**100%**

Figure 3.27

Learners' Opinions about Whether They Will Use Duolingo to Learn Other
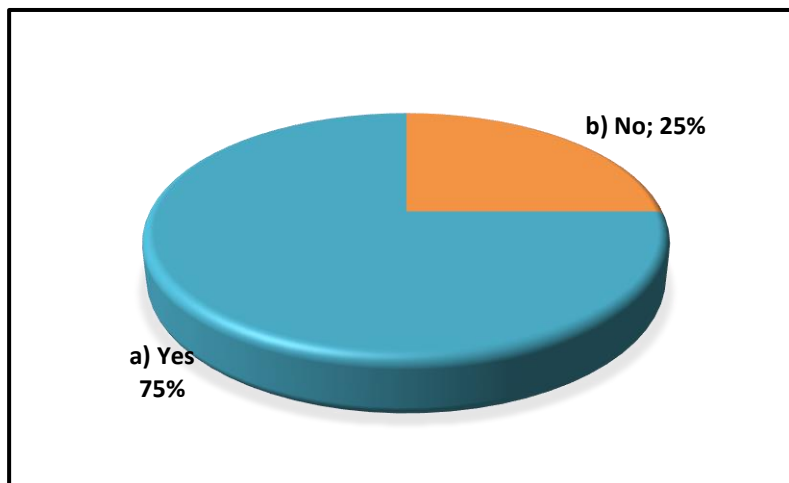
Languages

-If no, please justify your answer.

- I am only interested to learn English.

- I do not want to learn other languages.

As indicated in the above data, the majority of learners (75%) reported that they would use the application to learn other languages, except for two respondents who stated that they would not because they are not interested in other languages. However, we understand from the majority of the answers that the pupils would like to study with Duolingo application.

Section Three: Challenges and Further Suggestions

Item 8: Did you face any challenges and constraints during the process of learning via Duolingo?

Table 3.26

Learners' Opinions about Whether They Faced any Challenges and Constraints during the Process of Learning via Duolingo

Options	Respondents	Percentage
a) Yes	2	25%
b) No	6	75%
Total	8	100%

Figure 3.28

Learners' Opinions about Whether They Faced any Challenges and Constraints during the Process of Learning via Duolingo
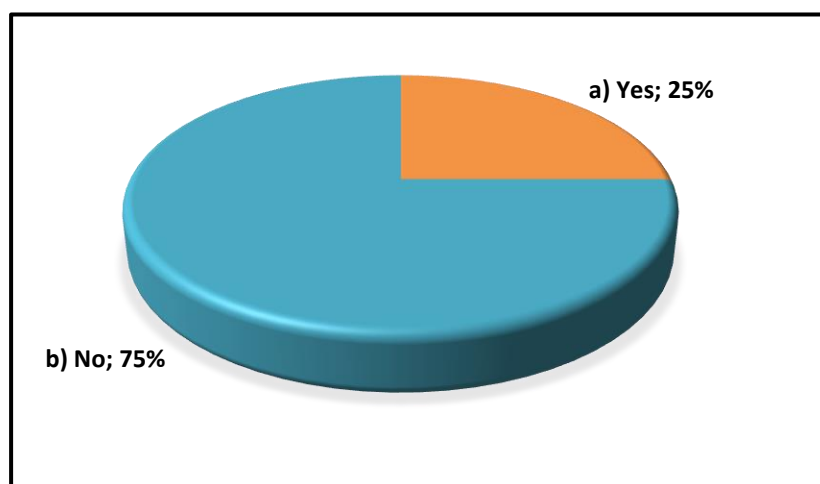
If yes, what kind of difficulties?

- The progress is slow.

- The diversification of levels.

- Irregularity in asking questions from easy to difficult.

Table 3.26 demonstrates that, except for two respondents (25%) who reported that they did face some challenges during the process of learning via Duolingo, the majority of learners (representing 75%) claimed that there were no difficulties. The justification section was included to provide the respondents with the opportunity to reveal the difficulties, as well

as the challenges they encountered in the course of receiving the treatment, thereby allowing us to unravel the limitations of the proposed strategy. One participant reported that the progress was slow, while the other one reported both the diversification of levels as well as the irregularity in asking questions from easy to difficult.

Item 9: Describe your learning experience using Duolingo.

By incorporating this question, we meant specifically to determine the respondents' attitudes and feelings regarding the issue under investigation. That is, we attempted to give them an additional chance to manifest their thoughts and voice their opinion about the strategy used. More specifically, we were driven by the desire to uncover how they found the use of the Duolingo. Importantly, through the inspection of their answers, the respondents appeared to share common responses yet expressed them differently. All the respondents agreed that the experience was "amazing". Interestingly, they acknowledged that, in addition to being beneficial to learn the language, it was also interesting and fun. Some revealed that it is the best way to learn languages since it is not boring. Another issue that emerged after the inspection of their answers was the joy this strategy brings about to learning English. One respondent maintained, "It was really an amazing experience. It was like a game, as if we were not studying." Another stated, "It is really fun experience that I recommend every student to try". Therefore, we can say that all participants had a positive attitude toward the use of the Duolingo application.

Discussion of Learners' Questionnaire

After the treatment had been completed, the analysis of the learners' posttreatment questionnaire responses portrayed that the top aspect participants were mostly satisfied with was the combination of visuals, mobile apps as well as educational games. Besides, they reported that Duonlingo was mostly beneficial for learning vocabulary in the first place in addition to pronunciation and fluency. Since our sample has been introduced to Duolingo

application for the first time, it seemed necessary to take into account of their mental abilities and degree of interest. Predominantly, the majority of participants demonstrated genuine feedback regarding the features of Duolingo. Moreover, they reported that the experience was fun and beneficial. Consequently, many of them regarded it as more useful than the traditional ways of learning vocabulary and stated that they would use the application to learn other languages. Summing up, we can conclude that the majority of participants had a positive attitude towards the use of the Duolingo application to learn vocabulary.

Findings and Results

This research was initiated as an attempt to enhance the vocabulary mastery of young learners at a private language learning institution via Duolingo application. More specifically, it was undertaken to examine the paramount effects of using Duolingo on learners' vocabulary level. In addition, it attempted to specify the attitudes and perceptions of both teachers and learners regarding the use of this strategy. Within this framework, our study did not reflect a purely qualitative or quantitative perspective, but rather a combination of both. Therefore, a Mixed-methods approach was employed to address the research questions. There were two principal research questions addressed in this study. These questions, along with the matching hypotheses will be discussed in the subsequent section.

Research Question 1: Does using Duolingo as a vocabulary-teaching tool affect the learners' vocabulary mastery?

This question was designed expressly to review the effect of using Duolingo application as a strategy on learners' vocabulary proficiency. It was hypothesized that the use of Duolingo application may enhance learners' vocabulary proficiency. As far as this part of the study that involved the process of manipulating the independent variable was concerned, quasi-experimentation with a control group and an experimental group pre-test-post-test

design was used as the research design for this investigation. Following this design, the participants were tested before and after the implementation of the treatment by means of pretest and post-test, respectively. Correspondingly, we can say that the experimental group's post-test scores were significantly higher than the control group scores, as introduced in the discussion of results. In this regard, we can shed light on the real association existing between the dependent variable (vocabulary mastery) and the independent one (the Duolingo application), stressing that the results so far gained were due to the implemented treatment and not extraneous variables or chance. That is to say, the statistical significance between both groups' results was noted, and the treatment had a significant effect on the experimental group. It was accordingly clear, then, that the implementation of the Duolingo application to learn vocabulary yielded positive outcomes, which confirmed the first hypothesis.

Research Question 2: What are the teachers and learners' attitudes and perspectives towards the use of Duolingo application to enhance learners' vocabulary proficiency?

This question was designed to disclose the attitudes of both teachers and the participants who consented to the participation in the current inquiry. In light of the ample literature that manifests the varied benefits Duolingo application yields, it was hypothesized that teachers and learners may have positive attitudes vis-à-vis the implementation of Duolingo application. Chiefly, they all emerged with positive attitudes towards its effectiveness in improving vocabulary proficiency, which confirm the second hypothesis.

Conclusion

The present chapter discussed the fieldwork and the data analysis in this current study. Firstly, it provided a theoretical background on the research methodology underlying the study. Fundamentally, three data collection tools were used to collect and analyze the data. The obtained results gathered from both tests and questionnaires were analyzed and

discussed at the end of this chapter. It was an attempt to validate the suggested hypotheses. At the end of this investigation, a set of valuable and insightful conclusions have been reached.

General Conclusion

General Conclusion

At the dawn of the 21st century, the mastery of the English language is no longer a choice, but a must. As a point of fact, vocabulary mastery and motivational aspects are to be emphasized when it comes to novice learners. For that reason, the main concern of this study is to investigate the effectiveness of integrating Duolingo application on the development of vocabulary proficiency. Hence, this study is carried out to answer the research questions and to confirm or reject the research hypothesis. In this regard, the fundamental purpose of this research is to show whether the integration of Duolingo application can help and, thus, motivate learners to improve their vocabulary level.

The current work consists of three distinct, but interrelated chapters. To begin with, the first two chapters are devoted to the literature review. Throughout the first chapter, the researcher attempts to highlight the most important elements related to vocabulary whereas the second chapter dealt with Duolingo application. The third chapter outlines the overall structure of the undertaken study by highlighting the research approach and instruments, as well as the analysis and the discussion of the results along with some pedagogical implications and suggestions.

To approach answers to the research questions and test the research hypotheses, action research was pursued. In this vein, a mixed-method approach was adopted, with three research instruments. First, a quasi-experiment that involved two-group (pretest-intervention-posttest design). Moreover, the researcher carried a descriptive study in which she used a semi-structured questionnaire for both learners who received the treatment (experimental group) and teachers. The questionnaires were handed to eight learners of "My School" and ten teachers. The questionnaires aimed to investigate learners' and teachers' attitudes towards enhancing learners' mastery of vocabulary using Duolingo application.

It was revealed, through the tabular and graphical presentations that the treatment was helpful and yielded positive outcomes since it engendered a noticeable increase in the experimental group's post-test scores that were statistically higher than the control group's scores. Besides, the practicality of the Duolingo application was further reflected in their responses to the questionnaire questions. In other words, most participants revealed a positive attitude vis-à-vis the use of the Duolingo application, thereby regarding it to be more useful than the traditional ways of learning vocabulary. Subsequently, and in spite of the multiple and discrete causes that may likely stand against the integration of mobile applications in the teaching of varied aspects, the teachers who received the questionnaire in this study emerged to be satisfied with the specificities of this innovative strategy, reflecting positive attitudes towards its application to develop learners' vocabulary proficiency.

Pedagogical Implications

- Teachers should be open to integrating mobile apps into the classroom.
- Teachers are advised to consider their pupils' interests and preferences before selecting methods of teaching.
- Vocabulary should be given much more attention because it contributes to the development of all language skills
- Since it was found that, at least at the level of our sample, learners faced some difficulties when using Duolingo, the introduction of this application should run smoothly and gradually. That is, both the inscription stage and the learning stage should be explained systematically.
- Duolingo application is at the disposal of teachers who may employ it as an activity to introduce new vocabulary or as a drill. It can assist the ones who wish to use a

motivating and effective tool that helps with vocabulary comprehension, production, and memorization.

- Duolingo application might be used to enhance learners' pronunciation, fluency, and word spelling, as reported by the sample of the study.

- Integrating assignments and homework on a regular basis in the course of instructing units or lessons and inciting learners to use the application is necessary to increase the opportunities for practicing this tool as well as fostering the vocabulary level.

- The more the learners are committed to using the app inside and outside the classroom and can make it a daily habit, the better it will help them in their academic attainments in general and vocabulary proficiency.

- Learners should develop independence and self-reliance in that they should not wait for the teacher's assignment to boost their language, instead they should create further opportunities for practice.

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Appendices

APPENDIX 1: The Students' Pre-test

Pretest

Student's full name**:……………………………………….**

Task 01: classify the following words into the category table below.

Duck – bread- sister- lawyer- father- shirt - cow- pants- dog- turtle-actor- milk -student-

parent.

Food	Animals	Family	Jobs	Clothes

Task 02: Name the following images.

…………………… …………………. …………………… …………………..

…………………. …………………. ……………......... ………………….

………………… ………………… ……………....... …………………….
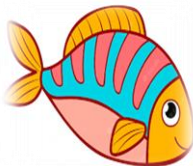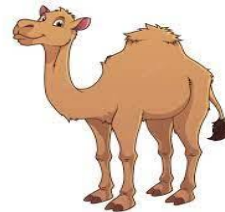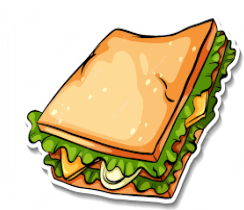
Task 03: Fill in the gaps with the appropriate word (a, b, c, or d).

1. We drink …..........................in the morning.

   a)-book   b)-milk   c)-turtle   d)-woman

2. My mother is a ………………

   a)-shirt   b)- sister   c)-lawyer   d)-menu

3. She wears ……………………

   a)-a shirt   b)-coffee   c)-a book   d)-an apple

4. He eats …………………..

   a)-rice   b)-water   c)-barber   d)-coffee

5. I ……………….a cat

   a)-have   b)-wife   c)-eat   d)-speak

Task 04: write a simple sentence using the following words.

Meat:………………………………………………………………….

Dinner:………………………………………………………………….

Pants:………………………………………………………………..

Duck:…………………………………………………………………

Actor:…………………………………………………………………

APPENDIX 2: The Lessons' Plan

Lesson Plan

Lesson: one

Teacher: Miss Hadil BIKI

Target of vocabulary: Food

Objectives At the end of the lesson, the students will be able to:

- Mention names of food and use the verb "To eat" with words like (girl, woman, boy, man)

- Match the names and pictures

- Express simple sentences like "The boy eats a sandwich"

	Activity	Explanation	Time advocated
Warm up and introduction	Food guessing game.	The teacher plays pictures of people (man, girl, boy or woman) eating food in class and ask students to try to guess what the food is.	
			10 min
	Elicitation (teacher elicit food names from students)	Teacher asks students about what other food they know in English and writes those words on the board. then, he surveys the whole class as to whether or not they like those foods.(the answer is by yes or no)	10 min
Presentation		The teacher presents the food words by introducing the same pictures and the pronunciation of each item and then asking students to repeat after him. After that, he asks students to try to say the words on their own. Once students have practiced enough, teacher drills some more with the simple sentences (e.g. the girl drinks milk). He introduces the words (woman, girl, man, boy) implicitly in the sentences	30 min

Practice	Printable board game	The teacher divides the students into small groups. Each group of students will be given one board game and one dice to play. To begin, students should place their eraser on the 'Start' square. Then one student should roll the dice and move his/her eraser. If they land on one of the food pictures, then the students should make a simple sentence using that picture. For example, if a student lands on the apple picture, then he/she may state "the woman eats an apple" or "the man eats an apple". The aim of the game is to get to the center star to win a point. The only way to get to the center star is to land on the middle squares. After arriving at the middle star, the student gets one point and then moves his/her eraser back to the start. The game stops after 10 minutes, and the student with the most points is the winner.	15 min
Review (control group)	Line Bingo game	Teacher gives one set of cards to a pair of students. Next, he asks students to place the cards in a horizontal line in any order they wish. To play this game, the teacher must choose one of the foods and then say that word aloud. For example, if the teacher chooses the 'water' card, he/she would say, "water". Then, students must look at their cards and find where the water flashcard is. If it is on the left or right end of the line of cards, then the students turn it over and say, "I drink water." If the card is in the middle of the line, they do not turn it over and must say, "I don't drink water." The first student to turn over all the cards has bingo and is the winner	20 min
Review (experimental group)		Students are asked to open the application on their mobile phones and the teacher opens a version on the TV screen to aid the students. He explains the requirement and then students should go through the first two tasks of the first unit.	
Homework (control group)		Printed activity	
Homework (experimental group)		Students will be asked to complete the last two tasks in the first unit.	

Lesson: two

Teacher: Miss Hadil BIKI

Target of vocabulary Animals

Objectives At the end of the lesson, the students will be able to:

- Mention names of animals and using the verbs "Has and Have"

- Match the animal names and pictures

- Express simple sentences like "I have a cat"

	Activity	Explanation	Time advocated
Warm up and introduction		The teacher tells the students that he recently visited a zoo. Ask them to guess what animals they think he saw at the zoo and write them on the board. Ask students if they have ever been to the zoo and what animals they saw.	15 min
Presentation	flashcard	The teacher introduces the animal names and simple sentences for the lesson. Using animal flashcards, he introduces the animal names to the students. Then he asks students to repeat after him as he says the animal names aloud. Next, he introduces sentences like "I have a dog" and asks each student to say an animal he or she has. If the student does not have an animal, he or she may speak about a classmate who has an animal like "Ahmed has a turtle".	30 min
practice	Drawing	Once students have practiced enough, the teacher invites one student up to the front to draw an animal. Then, he give him or her 10 seconds to try to draw any animal. As the student is drawing, he encourages the other students to count down from 10 together. After 10 seconds, the teacher chooses a student to guess what animal it is. The student who guesses correctly then gets to come to the front and draw the next animal.	15 min
Review (control group)	Who am I?	As a review of animal's flashcards, the teacher holds some cards without showing any to the students. Then the teacher tells the kids that	20 min

		they are going to receive 3 hints, so they need to listen carefully. For example, 1. I am yellow. 2. I have long hair. 3. I am strong. Who am I. each student can have one guess and the one who guesses the right name wins.	
Review(experimental group)		Students are asked to open the application on their mobile phones and the teacher opens a version on the TV screen to aid the students. He explains the requirement and then students should go through the first two tasks of the unit.	20 min
Homework (control group)		Printed exercise	
Homework (experimental group)		Students will be asked to complete the last two tasks in the second unit.	

Lesson: Three

Teacher: Miss Hadil BIKI

Target of vocabulary: Clothes

Objectives At the end of the lesson, the students will be able to:

- Mention names of clothes and use the verb "to wear"

- Match the names and pictures

- Express simple sentences like "He wears a shirt"

	Activity	Explanation	Time advocated
Warm up		The teacher plays a clothes song in class and asks students to try to remember the names of the clothes that they hear. After listening, he asks students what words they can remember, writes them on the board, and then asks students what other clothes they know.	
presentation		The teacher shows students clothes flashcards and asks them to repeat after him. Next, he asks students to try to say each word on their own. Once students have had enough practice, the teacher writes simple sentences on the board as "Ahmed wears a shirt" and then asks each student to make a similar sentence using an object of clothing.	30 min
practice		The teacher divides the class into 2 teams and then lines up the 2 teams at one end of the classroom with clothes in a basket at the other end. he will shout out an instruction (e.g. socks) and one member from each team will race against the other to the basket of clothes, put on the clothing item and run back to their team. The person who gets back first wins a point for his/her team. At the end, the team with the most points is the winner.	15 min
Review (control group)		Teacher explains how to play the game 'Simon Says' with the expression "Put on your (hat) ". He shows students how to mime putting on different items of clothing and practice several times. Next, he tells students to follow the instructions only when he says, "Simon says…", first. For example, if he says, "Simon says put on your hat.", then the students should mime putting on a hat. However,	20 min

		if he just says, "Put on your hat." then students should not do the action. Any student that follows the instructions when he did not say "Simon says…" is out and must sit down. The last student standing is the winner.	
Review (experimental group)		Students are asked to open the application on their mobile phones and the teacher opens a version on the TV screen to aid the students. He explains the requirement and then students should go through the first two tasks of the unit.	
Homework (control group)		Printed exercise	
Homework (experimental group)		Students will be asked to complete the last two tasks in the unit.	

Lesson: Four

Teacher: Miss Hadil BIKI

Target of vocabulary: Jobs

Objectives At the end of the lesson, the students will be able to:

- Mention jobs and family members

- Match the job names and pictures

- Express simple sentences like "My mother is a lawyer"

	Activity	Explanation	Time advocated
Warm up		Students are asked to listen to a song and guess what topic they are going to study. Then, the teacher asks them what jobs they already know.	
Presentation		The teacher writes the jobs words on the board and then asks the students to repeat after him. After that, he asks them to say the words on their own. Once students have practiced the keywords. the teacher writes short sentences on the board like "My father is a doctor", and each student should make up a sentence about someone's job as "My brother is a barber"	
Practice	Act it out	The teacher asks a student to step to the front, then he shows him a flashcard and the student has to act out the job. The student who guesses right is the next one to act the next job.	
Review (control group)		The teacher should write every syllabus of a job on a sticker and stick it flipped on the board. Then he divides the class into small groups (4 students). One student of each group has to flip only one sticker, read the syllabus, and then stick it back flipped. Then he should secretly tell his group about the syllabus. Every group should gather the syllabuses of a word and on their turn, they should point out the syllabuses. If they are right, they should use the job word in a sentence to win the score. If the syllabuses they have chosen did not make up a correct word, the turn goes to the next group and they lose a score.	
Review (experimental group)		Students are asked to open the application on their mobile phones and the teacher opens a version on the TV screen to aid the students. He	

		explains the requirement and then students should go through the first two tasks of the unit.	
Homework (control group)		Printed exercise	
Homework (experimental group)		Students will be asked to complete the last two tasks in the unit.	

Posttest

Student's full Name ………………………………………………..

Task 01: Cross the odd word in each category.

- Water / coffee / sandwich / milk

- Camel / cow   / horse   / crab

- Menu / actor / barber / student

- Pants / dress / shoes / rice

- Woman / man / wife / girl

- Sandwich / doctor / apple / fish

- Parent / sister / siblings / girl

Task 02: Name each of the following pictures.

……………………   ……………………   ………………….   …………………..

…………………. …………………..   …..………………   ..…………………

……………….   …………………….   ……………………   ………………….
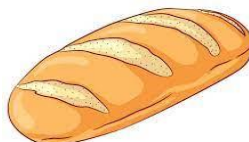
Task 03: Fill in the gaps with the appropriate word (a, b, c, or d).

1) My father is ………………

   a)-English   b)- an actor   c)-book   d)- a newspaper

2) She wears ……………………

   a)-meat   b)- an apple   c)- a dress   d)-crab

3) I ……………coffee every morning

   a)-read   b)-speak   c)-wear   d)-drink

4) We have a………………..

   a)-horse   b)-dinner   c)-man   d)-water

5) The cat eats ……………………..

   a)-fish   b)-dog   c)-barber   d)-milk

Task 04: write a simple sentence using the following words.

Sister:………………………………………………………..

Shoes:………………………………………………………..

Dog:………………………………………………………….

Dinner:……………………………………………………….

Sandwich:…………………………………………………..

Teachers' Questionnaire

Dear respondents, I am a master student from Biskra university. This questionnaire is an attempt to collect data for the accomplishment of a master dissertation. The information gathered from this survey will be used to investigate the teachers' attitudes and views regarding the use of Duolingo application to teach vocabulary. You are kindly requested to answer the questions by putting a tick (√) in the appropriate box(es) or by making full statement(s) whenever necessary. Your contribution will be of great help for the completion of the research work. We assure that all the information collected will be solely used for the purpose of this study. Thank you in advance for your time and contribution.

Section One: General Information

- How long have you been teaching English?

  ☐ 1 to 5 years   ☐ 5 to 10 years   ☐ More than 10 years

- Do you find teaching English via educational technology beneficial?

  ☐ Yes   ☐ No

  Please, justify your answer.

  ………………………………………………………………………………………………

  …………………………………………………………………………………

- Have you ever used technology in teaching?

  ☐ Yes   ☐ No

  If yes, what tools have you used?

  ☐ Mobile phones   ☐ Computers   ☐ Tablets

  Other :…………......

Section Two: Teachers' Views about Vocabulary Teaching

- To what extent is vocabulary important in foreign language teaching and learning?

☐ Very important   ☐ Important   ☐ Not important

Please, Justify your answer?

…………………………………………………………………………………………………

………………………………………………………………………………

- How do you evaluate your students' writing performance?

☐ Poor   ☐ Average   ☐ Good

- In case their level is not good, what do you think are the main reasons?

(You can tick more than one answer)

☐ Lack of vocabulary

☐ Poor grammar

☐ Word spelling

☐ Other:………………………………………………….

- How do you evaluate your students' speaking performance?

☐ Poor   ☐ Average   ☐ Good

- In case your students' speaking performance is not good, what do you think are the main reasons?

☐ Shyness and inhibition

☐ Lack of vocabulary

☐ Fear of negative feedback

Other:……………………………………………………..

- What kind of vocabulary teaching activities / techniques you find more effective?

(You can tick more than one answer)

☐ Repetition   ☐ Synonyms and Antonyms

☐ Reading   ☐ Dictionaries

☐ Translation   ☐ Using visuals

☐ Miming

Other:……………………………….

Section Three: Teachers' Attitudes towards Teaching Vocabulary via Duolingo.

- Do you encourage your students to use mobile applications to learn English?

☐ Yes   ☐ No

If yes, name some of these applications?

………………………………………………………………………………………

- Are you familiar with Duolingo application?

☐ Yes   ☐ No

What do you know about it?

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………………

- Do you think that the use of Duolingo application can help students improve their

vocabulary level?

☐ Yes   ☐ No

If yes, in what way?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

………………………………………………………………………………

If no, why?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

………………………………………………………………………

- Tick the right answer.

Statements	Strongly agree	agree	disagree	Strongly disagree
Duolingo is easy to use for young learners.				
Doulingo follows a systematic order of presenting lessons and units.				
Duolingo uses clear and relevant instruction to the learners' level.				
Duolingo uses visually appealing aids.				
Duolingo focuses on all the language skills.				
It increases students' tolerance and motivation.				
It helps students to overcome their vocabulary learning problems (spelling, pronunciation, ….etc.)				
Duolingo is useful for autonomous learning.				

Learners' Questionnaire

Dear pupils

This questionnaire is a part of our investigation on learners' attitudes towards the use of Duolingo language application to enhance their Vocabulary in the private language learning institution "My School". You are kindly requested to answer the following questions by putting a tick (√) on the appropriate box and expressing your comments when necessary. Your contribution will be of great help for the completion of the research work. We promise that all information obtained is kept anonymous and confidential. Thank you in advance for your contribution.

Section One: Lesson Presentation and Implementation

Q1. Please specify which of the following vocabulary learning techniques you find more beneficial?

حدد اي من وسائل تعلم المفردات التالية هي الأكثر فائدة بالنسبة اليك.

You can tick more than one answer.   بإمكانك تحديد اكثر من اجابة.

a) Visuals (photos,videos..etc.) ☐   المرئيات(الصور،الفيديوهات...الخ)

b) Mobile applications ☐   تطبيقات الهاتف المحمول

c) Educational games ☐   الألعاب التعليمية

Q2. When it comes to using Duolingo, which of the following stages you find mostly difficult

عندما يتعلق الامر باستعمال تطبيق دولينجو، ما هي المرحلة الصعبة بالنسبة اليك؟

a) The inscription stage ☐   مرحلة التسجيل

b) The learning stage ☐   مرحلة التعلم

c) Both ☐   كلاهما

d) None ☐   ولا واحدة

Q3. Have you found any problems when using Duolingo at home?

هل واجهتك أي مشاكل خلال استعمالك تطبيق دولينجو في المنزل؟

Yes ☐   نعم

No ☐   لا

Section Two: Duolingo Application

Q4. Please tick (√) the appropriate box.   ضع علامة صح (√) في المكان المناسب.

Statements	Yes نعم	No لا
Duolingo application is easy to use تطبيق دولينجو سهل الاستخدام. .		
Duolingo foster students' motivation, interest and engagement in the language learning. دولينجو يعزز حماس واهتمام الطلبة وارتباطهم بتعلم اللغة.		
The use of Duolingo application helps students to pronounce the words correctly duo to the clear audio exercises. استعمال تطبيق دولينجو يساعد التلاميذ على النطق الصحيح للكلمات بفضل وضوح الأداء الصوتي.		
Duolingo application is helpful to learn the word spelling. تطبيق دولينجو مفيد في تعلم تهجئة الكلمات (الكتابة الصحيحة للكلمات).		
Duolingo application stimulates students to learn the		

language independently anytime and anywhere. تطبيق دولينجو يحفز التلاميذ على تعلم اللغة بشكل مستقل، في أي مكان و زمان.		
The slow down feature (small turtle button) of speech helps to grasp the correct pronunciation of the audio exercises خاصية ابطاء الكلام من دولينجو (ايقونة السلحفاة الصغيرة) تساعد على فهم تمارين النطق بشكل صحيح.		

Q5. In which one of the following aspects do you find Duolingo more beneficial? في أي من هذه

الجوانب تجد ان دولينجو مفيد اكثر؟

You may choose more than one option   يمكنك اختيار اكثر من إجابة.

    a) Pronunciation ☐   النطق

    b) Vocabulary ☐   المفردات

    c) Fluency ☐   طلاقة الكلام

    d) Grammar ☐   القواعد

    If you have others, please state them   ان كانت لديك إجابات أخرى، اذكرها.

………………………………………………………………………

Q6. Do you think that Duolingo offers a good opportunity to learn vocabulary that traditional

methods cannot offer?

هل تعتقد ان دولينجو يتيح فرصة جيدة لتعلم المفردات لا تستطيع الطرق التقليدية الأخرى تقديمها؟

a)   Strongly agree ☐   أوافق بشدة

b)   Agree ☐   أوافق

c)   Disagree ☐   لا أوافق

d)   Strongly disagree ☐   أعارض بشدة

Q7. Will you use Duolingo application to learn other languages?

هل سوف تستعمل دولينجو لتعلم لغات أخرى؟

Yes ☐ نعم

No ☐ لا

-If no, why? اذا اجبت بلا فلماذا؟

…………………………………………………………………………..

Section Three: Challenges and Further Suggestions

Q8. Did you face any challenges and constraints during the process of learning via

Duolingo? هل اعترضتك أي تحديات و عوائق خلال عملية التعلم باستعمال دولينجو؟

Yes ☐ نعم

No ☐ لا

If yes, what kind of difficulties? اذا اجبت بنعم فما هي هذه التحديات؟

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Q9.Describe your learning experience using Duolingo.

صف تجربة التعلم باستخدام دولينجو.

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Thanks for Your Time and Collaboration

الملخص

نظرًا لأن المفردات تحافظ على اكتساب المعرفة، فضلاً عن اتساع نطاقها في الوصول العديد من المجالات الأكاديمية، فلا يمكن المبالغة في تقدير أهمية تطوير المفردات. تعتبر المفردات القوية مهمة في تحقيق التواصل المناسب والفعال للغات الأجنبية. ومع ذلك، وكما كان الحال بالنسبة لغالبية متعلمي اللغة الإنجليزية، فإن امتلاك مخزون مفردات مناسب لم يكن مضمونًا دائمًا. يمكن أن يعتمد حل هذه القضايا على طريقة التدريس. من الآن فصاعدًا، سعياً وراء إرساء الأساس الضروري لاستراتيجية فعالة لتعلم المفردات وتدريسها، كانت الدراسة الحالية محاولة لقياس فعالية تطبيق دولينجو على إتقان مفردات المتعلمين. من الناحية المنهجية، تم اعتماد نهج المقارنة المختلطة الذي شمل تصميم الاستطلاع إلى جانب شبه التجريب. في هذا الصدد، وجمع البيانات ذات الصلة، مجموعتين؛ تم اختبار المجموعة الضابطة (ن = 15) والمجموعة التجريبية (ن = 15) قبل وبعد. بالإضافة إلى ذلك، تم أيضًا تقديم استبيان شبه منظم للمتعلمين المبتدئين

(ن = 8)، الذين تعرضوا للتعلم عبر تطبيق دولينجو في مؤسسة MY SCHOOL، وتم إرسال استبيان آخر إلى المعلمين (ن = 10) في نفس المدرسة. كما هو متوقع، أثبتت نتائج البحث التطبيقي العملي لتطبيق دولينجو. وقد انعكس هذا إحصائيًا في درجات ما بعد الاختبار للمجموعات التجريبية، والتي كانت أعلى بشكل ملحوظ من درجات المجموعة الضابطة. في النهاية، أشارت النتائج أيضًا إلى أن المشاركين أظهروا اهتمامًا حقيقيًا بهذه الاستراتيجية المبتكرة، وكشفوا عن الأثر الإيجابي تجاه تطبيقها لتطوير إتقان المفردات لدى المتعلمين.