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**A CASE STUDY IN NINTH GRADE STUDENTS AT A STATE
SCHOOL; DIFFERENCES BETWEEN KAHOOT! AND
TRADITIONAL ACTIVITIES IN TERMS OF VOCABULARY
RETENTION**

MASTER'S THESIS

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ÖZET

Bu çalışma Milli Eğitime bağlı Ankara Saray Kocalar Anadolu İmam Hatip Lisesinde, dokuzuncu sınıfta öğrenim gören öğrenciler üzerinde bir durum çalışması olarak yürütülmüştür. Bu çalışmada, internet üzerinde oynanan Kahoot! adlı oyunun kelimeleri akılda tutma üzerine etkisi ve öğrencilerin kelime öğreniminde Kahoot! kullanımı konusunda ki düşünceleri araştırılmaktadır.

Bulgular öntest-sontest-kontrol grubu tasarımı ile elde edilmiştir. Kontrol grubu, geleneksel yöntemlerle hedef kelimeleri pratik ederken, deney grubu Kahoot! yardımıyla hedef kelimeleri pratik etmiştir. Çalışma dört hafta devam etmiştir. Öntest uygulanarak gruplar arasında kelime bilgisi açısından kayda değer bir fark olup olmadığına bakılmıştır. Hedef kelimelerin kalıcılık ölçümü bir adet hemen sonradan test ve bir adet kalıcılık testi ile yapılmıştır. Araştırma sonunda, deney grubunda bulunan 15 tane öğrenciye Kahoot! hakkında görüşlerini öğrenmek için bir anket uygulanmıştır.

Testlerden elde edilen verilere bakılarak gruplar arasında anlamlı bir fark olduğu, Kahoot! kullanılan deney grubunun yapılan testlerde daha çok başarı elde ettiği tespit edilmiştir. Buna ek olarak, öğrenciler Kahoot!'un kelime öğrenmede etkili, eğlenceli, motivasyon artırıcı olduğunu ve hafızada kalıcılığı artırdığını bildirmişlerdir.

Anahtar Kelimeler: Kelimelerin kalıcılığı, Kahoot!, kelime öğretimi, dijital oyun temelli öğrenme

ABSTRACT

Vocabulary learning and teaching are substantial stipulation to learn a second language. But for the scholars language teaching is challenging and troublesome. Teachers have been searching new techniques and methods to instruct and practise vocabulary since learners have to acquire plenty of words in a short time. Technology presents new techniques and means from which teachers can benefit to teach and practise vocabulary. Traditional vocabulary teaching methods cause boredom, retaining new words with the help of game-based learning is more efficient and entertaining for the learners. So, the new technologic tools have gained popularity among the teachers.

This study analyzes the effectiveness of online game called Kahoot! on vocabulary retention. A quantitative research was adopted to obtain the data. The quantitative data have been gathered by using pretest-posttest-control group design. Traditional exercises were used to practise the target words by the control group on the other hand experimental group practised the target words by using online game Kahoot!. The study lasted for four weeks. The vocabulary retention of the groups has been evaluated with the help of immediate post-test and a retention test. At the end of the treatment, a survey was performed to collect the experimental group's views about Kahoot!. At the end of the research, it was concluded that there was a significant difference between the groups. Moreover, the learners came to conclusion that Kahoot! affected learning vocabulary positively and learning by using Kahoot! was entertaining.

Keywords: Vocabulary retention, Kahoot!, gamification, digital game-based learning.

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ABBREVIATIONS

CALL: Computer- Assisted Language Learning

DGBL: Digital Game-Based Learning

EFL: English as a Foreign Language

GBL: Game-Based Learning

GBRS: Game- Based Response System

ICT: Information and Communication Technology

LTM: Long-Term Memory

MALL: Mobile-Assisted Language Learning

SLA: Second Language Acquisition

SRS: Student Response System

STM: Short-Term Memory

TEFL: Teaching English as a Foreign Language

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CHAPTER ONE

1.1.Introduction

Learning a second language is a necessity for our age because of globalization and consistently advancing communication technologies (ICTs). In consequence of the developments in ICT, lots of changes have emerged in education as well. It is certain that vocabulary is the most crucial part of language learning. According to Folse (2004, p.1), Learning a language requires learning several features about that language, comprising its pronunciation, writing system, syntax, culture, and spelling, but the most fundamental feature is vocabulary.

Teachers try to find new ways to teach vocabulary in an efficient way. There are novel techniques and methods to teach vocabulary with the help of technological advancements. In this chapter of the study, gamification which is one of the recent trends in vocabulary instruction, is examined. The main concepts and issues associated with vocabulary and digital games are described elaborately. Firstly, the main topics, which are vocabulary, vocabulary learning and teaching, vocabulary retention, games, gamification, digital game-based learning and motivation are presented in detail.

1.2.Statement of the Problem

Words are the building bricks of a language. Words construct the language as the bricks construct the buildings. Since human communication depends on words, it is impossible to learn a language without learning words.

Having sufficient lexical knowledge is generally seen challenging for second language learners because a restricted vocabulary knowledge in a second language hinders communicating. Vocabulary knowledge is vital for successful communication in a second language. According to Marmol and Sánchez-lafuente (2013, p.11), Many studies demonstrate that learners whose vocabulary level is high, usually have higher performance in foreign language written and oral tasks. It is a substantial factor that has a connection to the four skills of speaking,

listening, reading and writing all together. Having sufficient vocabulary is imperative for all language skills especially for speaking and writing.

Vocabulary is crucial in foreign language teaching since in the absence of adequate vocabulary knowledge, learners can not make out the other people's speech and can not verbalize their notions. It is essential for comprehension, fluency and success. According to Wilkins (1972, p.111), “. . . while without grammar very little can be conveyed, without vocabulary nothing can be conveyed.” Schmitt (2010, p.4) states, while travelling pupils keep dictionaries, not grammar books. Having sufficient vocabulary is crucial to understand and convey meaning. With the help of sufficient vocabulary, communication with others is easier. Since the vocabulary is incremental, in other words changing and progressive, English vocabulary is arduous. According to Thornbury, (2002, p.1) “the coining of new words never stops nor does the acquisition of words.” According to Yudinseva (2015, p.102) Vocabulary learning lasts during lifetime; so, mastering the word knowledge is gradual, at random and at different rates. It doesn't resemble to grammar since vocabulary is incessantly added new lexical items and it is not the system of rules to memorize. Lam (2014, p.91) claims that knowing and memorizing vocabulary of a foreign language is a must if you want to learn that target language, and repetition is essential to assist retaining new knowledge.

Vocabulary learning is vital for the language learners since it assists them to develop their language proficiency. However teaching vocabulary has been disputed by the foreign language teachers for a long time. Conventional vocabulary teaching methods have been asserted to be less effective to retain new vocabulary. According to Nguyen and Khuat (2003), conventional teaching methods are not attractive for the language learners. Traditional exercises are tiring and boring so learners would rather playing games. Exercises such as fill in the blanks, matching and multiple choice exercises may be beneficial. But technology is developing day by day and technology integrated lessons began to attract both learners and teachers. The teachers should follow the advancements in technology since learners are technologically savvy today (Nahmod, 2017, p.2). So benefiting from digital games and adapting the lessons and materials according to learners' interests can be a good way to meet the needs of the learners (Ünal,

2018, p.2). Benefiting from digital games in education has many advantages such as being entertaining, interactive, purposeful, competitive and meaningful.

Technologic tools are being consistently utilized as a part of teaching in view of fostering students' engagement and motivation (Licorish, George, Owen & Daniel, 2017). According to Prensky (2005, p.1), Of all the possible uses for mobile phones, the use that will have the greatest effect on the world in the long run, is benefiting from mobile phones for worldwide teaching and learning. Recently a new online game has been created which is called Kahoot!. It is free online quizzing website in which teachers can prepare their own activities. Benefiting from this online tool in the classroom is highly motivating. Looking for new techniques and methods to retain and consolidate vocabulary has been a major topic in Teaching English as a Foreign Language. (TEFL).

1.3. Purpose of the Study

The main objective of this research is to determine the impacts of Kahoot! and traditional activities on vocabulary retention of EFL learners. This study investigates whether Kahoot! has any positive or negative effect on the learners' short and long term vocabulary retention.

Another fundamental purpose of the study is to learn the EFL learners' views about Kahoot! exercises and its implementation in English vocabulary class and the other classes.

1.4. Hypotheses of the Study

It is hypothesized that Kahoot! will affect vocabulary retention of the learners in a positive way in comparison with the conventional activities. Therefore, learners are expected to give positive feedback about integrating online game which is called Kahoot!, into the vocabulary learning. Consequently, researchers could benefit from the findings of this study to make further researches and consequently more games may be utilized to reinforce vocabulary learning in foreign language classes. These hypotheses are going to be tested with the assistance of this research.

1.5. Research Questions

This study was conducted to find an answer to the questions given below:

1. Will the use of Kahoot! impact the vocabulary retention of students?
2. What are the views of ninth grade students in kahoot activities?

1.6. Significance of the Study

Vocabulary learning is indispensable fraction of language learning. Therefore vocabulary teaching has a vital role in language teaching. Consequently further studies are essential to find ways which can promote vocabulary learning and teachers consistently search new and efficient methods of vocabulary teaching. Benefiting from new techniques, devices and online games has become substantial topic recently.

As technology has been advancing, it has begun to take part in education. And it has also been drawing learners' attention. From now on learners desire to learn in new and different classroom environments. As they are mostly together with technology in daily life, they want to use technology while learning. According to Kiryakova, Angelova, and Yordanova (2014), Today's learners grow up with digital technologies so they are called digital natives and they have new profile and different learning styles, new attitude to the learning process and higher requirements for teaching and learning.

Moreover mobile phones have a crucial role in learner's life. Mobile phones may cause a distraction if they are not used properly. They may be hazardous or beneficial according to the way they are used. They can be benefitted from in vocabulary teaching. With the help of online games that are compatible with mobile phones, vocabulary teaching classes can be more engaging and entertaining.

Online games offer motivation and friendly competitiveness in the classroom which increase involvement in the lesson. There are not many studies searching effectiveness of online games on retaining newly learned words. In this case the groups consist of adolescents who are high school students living in the

suburbs of Ankara. Our study searches the effectiveness of online game Kahoot! on newly learned words and collects the views of learners about using Kahoot! in the vocabulary instruction. This research's aim is to contribute to the field and investigate whether Kahoot! is beneficial or not in retention of vocabulary.

1.7. Definition of Terms

Gamification: Gamification is the use of game design elements in non-game contexts such as education (Deterding, Dixon, Khaled, & Nacke, 2011).

Kahoot!: Kahoot! is a web-based platform that enables learners to create and play interactive, multiple-choice types games (Zucker, Fisch, 2019).

Pre-test: The test applied before the research to evaluate the students' prior vocabulary knowledge.

Post-test: The test given to students after completion of the vocabulary instruction.

Treatment: The treatment is one of the Kahoot! exercises or traditional exercises.

Retention: The ability to remember things (Oxford Advanced Learner's Dictionary, 2000).

Vocabulary: The words you know in a language (Longman, 1991).

1.8. Limitations of the Study

This study is limited to 32 students at a state high school which is located in Ankara. And only two types of vocabulary exercises are going to be investigated in terms of their effects on vocabulary retention, which are Kahoot! and circle-the-correct-option exercises. Learners who have retentive memory and who are autonomous may affect the research results. Another thing that may have a negative effect on the research is that strong Internet connection is essential for Kahoot! but it causes problems in some classes. Moreover, the present study evaluates the retention of limited number of content words. Consequently,

drawing a conclusion from this study claiming that either of the exercises is more beneficial in teaching vocabulary may be wrong.

1.9. Assumptions of the Study

The current study has several assumptions. Firstly, It is assumed that the samples in the current study represents the whole population, namely all the students at Pursaklar Kocalar Anatolian Religious Vocational High School. Secondly, the chosen instruments are suitable for this study. Lastly, it is supposed that the learners who participated in the study answered the questions honestly and sincerely.



CHAPTER TWO

REVIEW OF LITERATURE

2.1. Presentation

In this study, the impacts of Kahoot! and traditional activities on vocabulary retention of EFL learners and EFL learners' views about Kahoot! will be investigated. In relation to this, this chapter consists of a short literature review on definition of vocabulary, learning vocabulary, comparison of first and second language acquisition, learning vocabulary in a second language, teaching vocabulary, vocabulary retention, games, gamification, motivation, motivation and gamification, digital game-based learning, mobile-assisted language learning, and Kahoot!.

2.2. Vocabulary

Longman Dictionary of English (1991, p.742) defines vocabulary as “the words you know in a language.” According to Oxford Advance Learner’s Dictionary (2000, p.1334), “all the words that a person knows or uses.” McCarthy, O’Keeffe, and Walsh (2010, p.1) state that vocabulary is all about words. Neuman and Dwyer (2015, p.385) claim that vocabulary is the words we must acquire to communicate efficiently: words in speaking (expressive vocabulary) and words in listening (receptive vocabulary). One way would be to say that a word represents one unit of meaning and, in writing, has a space either side of it. It is not important how many words it is composed of, the terms such as lexical unit, lexis and lexeme indicate a single meaningful unit (Schmitt, 2010, p.50).

Word can be described in several ways. Firstly, according to the orthographic definition, a ‘word’ is . . . any sequence of letters (Takac, 2008, p. 4). Carter (2002, p.5) makes a definition of a word as the minimum meaningful unit of language. From the perspective of formal features, a word is defined as a string of letters separated by spaces. (Doczi & Kormos, 2016, p.3).

Vocabulary learning is a life-long process; so mastery of the word knowledge is gradual, at random and at different rates. It is too difficult to define a vocabulary. Therefore some researchers divide it into pieces to investigate in detail.

Vocabulary is divided in two types. These two types are active/productive and passive/receptive vocabulary.

According to Laufer and Paribakht (1998, p.369), Productive and receptive vocabulary are substantial two types of vocabulary. If learners have a receptive vocabulary, they don't use the words on their own but they understand when they hear and read. If learners have a productive vocabulary, they use the words correctly while speaking and writing on their own. Passive vocabulary involves all the vocabulary that a learner knows and a learner has larger passive vocabulary dimension than active vocabulary dimension (Ünal, 2018, p.6).

According to Kâmil and Hiebert (2005, p.3), productive vocabulary consists of words which are well-known and familiar. They are frequently used in daily life in contrast to receptive vocabulary which are less known and not frequently used in daily life.

Teachers have to know and give importance to form, meaning and use. Nation's (2001, p.98) study found the following: The form of a word consists its spoken form (pronunciation), written form (spelling) and word parts that forms this significant article. These word parts are prefixes, roots, and suffixes. Meaning comprises the way that form and meaning are in collaboration, in other words, the concepts and its references, and the relations which occurs to mind.

Breadth of vocabulary knowledge is vocabulary size, which is what many lexical researchers have focused on measuring (Huang, 2006, p.14). Anderson and Freebody argue that breadth of knowledge refers to the quantity of words for which one knows at least some important aspects of meaning (i.e., how many words are known?), while depth involves understanding the quality of one's lexical knowledge (i.e., how well are particular words understood?) (As cited in Huang, 2006, p. 14).

2.3. Learning Vocabulary

For long decades, it has been thought that vocabulary should be ‘picked up’ by learners without their teachers’ having to share classroom time to teach it. However according to Shen (2003, p.188), despite the given little attention to vocabulary researches, the significance of vocabulary was not completely forgotten in language pedagogy, even during the peak days of the Communicative Language Teaching (CLT). For instance, Wilkins (1972; 1974), as an early defender of the Communicative Approach, supports that learning vocabulary is as vital as learning grammar.

Vocabulary has been undervalued in the field of second language teaching and learning, but the last decades have seen a change of attitude towards vocabulary (Elyas & Alfaki, 2014, p. 40). However in the last decades vocabulary became prominent in language teaching field and has preserved its place since then (Ünal, 2018, p.6). There has been a rise of interest in vocabulary teaching recently. Vocabulary has got its outstanding and important status in discussions about learning a language. Thornbury (2002, p.vi) claims that this is partially because of the recent availability of computerised databases of words and partly because of the development of new approaches in language instruction which focus on word teaching such as the ‘lexical approach’.

Significant approaches which gave importance to vocabulary teaching, were emerged, such as discourse-based language teaching (Carter and McCarthy 1988), the lexical phrase approach (Nattinger and DeCarrico 1992), the lexical approach (Lewis 1993, 1997), and the lexical syllabus (Sinclair and Renouf 1988; Willis 1990) (Shen, 2003, p.189). How language learners acquire vocabulary is one of the most searched topic in language learning. Swan and Walter (1984) states Vocabulary acquisition is the most extensive and noteworthy task a language learner has to achieve (as cited in Shejbalová, 2006). Learning a second language vocabulary requires learning the new words with their meanings (Cook, 2008, p.55). If we know a language well, we know how to write its words and how to say its words (McCarthy et al., 2010, p.1).

According to Nation learners have to master the following types of knowledge to know a word:

1. The meaning(s) of the word
2. The written form of the word
3. The spoken form of the word
4. The grammatical behavior of the word
5. The collocations of the word
6. The register of the word
7. The associations of the word
8. The frequency of the word (as cited in Schmitt, 2000, p. 5)

“Words may be known at different levels” (Allen, 1983, p. 6). Beck, McCaslin, and McKeown (1980) assert that the levels of word knowledge (unknown, acquainted, and established) define instruction methods (as cited in Allen, 2006, p.6). Kameenui et al. (1982) named these levels as verbal association knowledge, partial concept knowledge, and full concept knowledge (as cited in Allen, 2006, p. 6).

Generally, scales of vocabulary knowledge demonstrate the progress of acquiring a word or a lexeme into learner’s vocabulary (Waring, 2002). Waring claims that (2002, p.3), a simple instance of a basic scale of vocabulary knowledge which shows that vocabulary is known or unknown can be defined as this:

0. I do not know this word.
1. I have seen this word before, but do not know its meaning.
2. I have seen this word before and know its meaning a little.
3. I know this word.

When it is thought the difficulty of vocabulary learning in a second and foreign language, it should be the most important aspect however the case is the opposite. Generally vocabulary is not taught explicitly. And students have to acquire the new words on their own without the teacher's scaffolding. Mostly reading, writing, speaking, listening, grammar courses are given in L2 programmes, but very few vocabulary courses are given. In many so-called vocabulary classes students are given a list of words to memorize with limited practise and without any assistance. Acquiring an L2 word is not just being able to recognize it and knowing L1 meaning.

Many scholars and researchers have asserted that benefiting from contexts to assist learners to receive target vocabulary has substantial results. According to Takac (2008, p.17) Learners can acquire new words easily if they get sufficient amounts of comprehensible input exposure.

There are many language scholars who are in the opinion that contextualized vocabulary learning is more efficient than learning words in isolated lists. According to researchers decontextualized learning (word lists) may assist learners to memorize vocabulary for tests, but learners forget memorized words quickly.

According to Nation (2001) vocabulary learning consists of three stages: noticing, retrieval, and creative (generative) use. The stage of noticing consists learner's recognition of a given word and defining it as an unknown. In the second stage known as retrieval stage learners recall the learned words from their memory. In creative or generative stage, learners have adequate vocabulary and the words become active and learners can use them in their communication independently (as cited in Makwandi, 2018, p.27).

According to Allen (2006, p.13) there are several levels of understanding words:

1. Verbal Association Level

- Understanding and using daily usage of words
- Learning words in the context.

2. Partial Concept Knowledge

- Understanding deeper level of words
- Knowing of words' multiple meanings

3. Full Concept Knowledge

- Having the knowledge of word families and multiple meanings,
- Being able to discriminate word from similar words.

Learning all definitions of the word is not necessary to use it in an active way. Acquiring the necessary meanings is sufficient. Advance learners can determine unknown words in a several ways such as benefiting from context, analyzing the structure of the word, activating prior knowledge, and utilizing available resources. According to Terrazas and Llach (2009, p.114), The vocabulary size of foreign language learners relates to their L2 proficiency level and as learners' experience with the target language, vocabulary size develops as well.

2.4. Differences and Similarities between First Language Learning and Second language Learning

The process of learning new words starts in infancy and goes on throughout one's adult life (Cunningham, 2005, p.46). While L1 and L2 acquisition reveal some similarities, they also demonstrate differences (İpek, 2009, p.162). But first and second language learning don't correspond when they are compared in terms of acquisition.

First language is acquired experiencing directly. According to Schmitt (2000, p. 116), L1 vocabulary knowledge is acquired through simple exposure during the time of language use. The form of the input children obtain in the home from their parents is limitless, endless and varied in terms of quality and quantity. They experience many forms of language such as formal, semi-formal, colloquial and chatty forms (Ghazali, 2006). According to Takac (2008, p.8), L2 vocabulary acquisition is not similar to L1 vocabulary acquisition because an L2 learner has already possessed conceptual and semantic systems combinations to the L1.

According to Takac (2008, p.9), In preliminary stages L2 learning mostly includes a mapping of the new lexical form onto an already existing conceptual meaning in L1.

Krashen (1981) claims that, acquisition is processed subconsciously while learning is processed consciously. SLA is the process of learning a non-native language after acquiring of a native language has already started and taking place in the context in which the language is spoken. According to Krashen (1981, p.1), Language acquisition in L2 resembles to the process children use in acquiring first languages. Meaningful interaction in the target language in other words natural communication is required in which speakers are not interested in the form of their utterances but with the messages they are conveying and understanding. There are differences between L1 and L2 because L1 takes place naturally and without any formal teaching. Children are continuously exposed to native language over the course of many years. Conversely L2 is based mostly on learning experiences in more restricted environments such as the classroom or some other formal setting. In the classrooms a primary aim is to formally practice children the elements of language. Obtaining a second language may be a lifelong learning process for most of the learners and the second language learners are occasionally triumphant. On the other hand, children by around the age of 5 may have achieved near mastery their first language with the exception of vocabulary and a few grammatical structures (Shine & Phil, 2011, p. 736).

McCarthy et al. (2010, p.102), argues that the input L2 learners receive is dramatically different from L1 learners' since first language is acquired when we are babies with no world knowledge. According to Cook (2010), The learners who obtain a second language in an artificial setting such as a classroom may be exposed to teaching methods differ from grammar-translation to task-based learning by teachers who may or may not be native speakers. Most of the children get their first language in a family care-taking situation; the situations of human babies are not different apart from cultural differences in child-rearing practices. Teaching practices differ round the world more than child-rearing practices and they change rapidly according to the changing of language teaching techniques and technology. On the other hand L2 learners mostly acquire the target language in subsequent years.

According to Schmitt (2000, p.116), there are so many different factors that have effects on second language vocabulary acquisition, such as L1, age, amount of exposure, motivation, and culture. Moreover, formulating a theory of acquisition that can account for them all is not easy. The learners obtain a great quantity of language input, either orally or written in their daily life (Cunningham, 2005, p.46). While babies just receive spoken input, L2 learners usually receive both spoken and written input.

According to Ellis (1997, p.13), L2 learning consists different types of learning. On one hand, learners acquire chunks of language structure. On the other hand, they internalize rules. That is to say, learners should be involved in both item learning and system learning.

2.5. Learning Vocabulary in a Second Language

Direct translation from the native language is used to teach in Grammar Translation Method. Teachers generally try to teach a foreign word phrase or sentence by introducing a mother-tongue equivalent. Students have difficulties in how the words are used and what feelings the words give (Natsir & Sanjaya, 2014, p.60).

According to Richards and Rodgers (2014, pp. 11-12), The direct method is one of the prominent “natural” methods introduced towards the end of the 19th century. Language is directly taught in the native language without translation. Meaning is directly taught through demonstration and action with the help of known words. Classroom teaching is performed especially in the target language. Merely daily language and everyday vocabulary are instructed. Concrete words are taught through demonstration, objects and pictures but in explaining abstract words and concepts it has drawbacks and it is not efficient.

Communicative Language Teaching is a method that is used by teachers who want to teach their students in real-life communication in the target language. This real-life communication assists students to learn new words by benefiting from different types of conversations which they may have with each-other or with the teacher. Students are submitted words and they are made to complete tasks successfully by using vocabulary. However, the communicative

approach gives importance to vocabulary fluency but doesn't emphasise accuracy of vocabulary. In the period of communicative approach, vocabulary teaching did not take essential attention (Richards, 2006, p.3).

According to McCarthy et al. (2010, p.109), in the behaviourist approach, language learning is thought as a habit formation. Vocabulary learning is also seen as a series of habits. The behaviourist approach to language teaching is named as the audio-lingual approach. Teacher modelling and student repetition of words are techniques performed in the classroom. The students listen and repeat the teachers' words individually and orally. Rote-learning of vocabulary which is still used by the teachers in many parts of the world, is a fundamental technique practised in audio-lingual approach but it is not sufficient to acquire vocabulary (Sarıçoban, 2004, p.188). However it is completely suitable at the early stages of learning. But the students in the advanced stages get bored and frustrated by rote learning of vocabulary because it is lack of progress.

Language acquisition is seen as a cognitive activity in Cognitive theories of SLA which opposes to Behaviourist theory. Implicit learning is adopted. According to cognitive theories vocabulary learning is unconscious and teaching is not effective to acquire vocabulary (Hulstijn, Young, Ortega & Bigelow, 2014).

Interactionist theories assert another view, it is argued that learning occurs through the interaction between teacher and learners, and between the peers. According to Long (1983, p.100), learning takes place if learners study together, ask for clarification and check meaning.

Another substantial point of view is from sociocultural theory. This model takes its origins from the studies of Vygotsky. According to sociocultural theory, learning takes place when learners engage with a mutual task in the pursuit of a mutual aim (Liang, 2013). Vocabulary got its deserved position in studies about learning a language. Substantial approaches were improved, like discourse-based language teaching, the lexical phrase approach, the lexical approach, and the lexical syllabus.

According to Richards and Rodgers (2014, pp.217-218), Lexical chunks are crucial feature of naturalistic language in Lexical approach. Learning

of chunks is claimed to occur through incidental learning and direct teaching. Incidental learning is based on frequency of chunks met and noticed in daily life language. The aim of learning is meeting the chunks, noticing them and learning then entrenching in the learners' long term memory. The learning of chunk is performed in several ways:

1. Through noticing
2. Through cognitive processing
3. Through exposure
4. Through comparisons with L1

Brown and Payne (1994, as cited in Shen, 2003, pp.199-200) prepared a five- step model of vocabulary learning. The steps are meeting new words, getting the word form, obtaining a clear image, acquiring the meaning of the words, and using the words. Redesignating these steps, vocabulary learning strategies can be made up of 5R processes: receiving, recognising, retaining, retrieving, and recycling in four language skills.



Figure 1. Vocabulary learning model of Brown and Payne (1994). Adapted from Shen, W., 2003, Current trends of vocabulary teaching and learning strategies for EFL settings. *Feng Chia Journal of Humanities and Social Sciences*, 7, 187-224.

There are several elements which affect a learner's L2 vocabulary learning. According to Schmitt (2000, p.116), vocabulary learning is influenced by the learner's L1, age, amount of exposure, motivation, and culture. Moreover, the frequency of words has a crucial role on vocabulary learning. Laufer (2005, p.313) states that if a learner doesn't remember a word after the first exposure, additional exposures are necessary to enhance the probability of retaining it. According to Schmitt (2010, p.20), new words can not be fully acquired from only a single encounter. On the first encounter to a new word, a word form and

meaning may be picked up. According to Pigada and Schmitt (2006, p.18), There is no accurate frequency number where acquisition is assured, but by about 10+ exposures, there is a discernable increase in the learning rate. However, it is not generally possible to present the every word in multiple exposures in a classroom. There are lots of words to be learned through intentional teaching activities.

2.6. Teaching Vocabulary

Allen (1983) claims that vocabulary teaching didn't take much attention in language courses in the twentieth century since teachers thought that pronunciation and grammar should be in priority and they gave more importance to grammar and neglected vocabulary. Other scholars in methodology claimed that if learners were taught too many words without learning basic grammar, they would have difficulty in constructing sentences. However vocabulary started to take attention after several researches concerning with lexicon problems. These researches claim that learners who have no ability in using right words in right contexts, generally suffer from communication breakdown. Therefore vocabulary began to take attention of both scholars and teachers (Allen, 1983, pp. 3-5).

According to Nation (1996) a vital part of vocabulary teaching includes determining what should be taught about a word. This is entitled learning burden of a word and it changes from word to word in relation to its first language knowledge, existing second language knowledge and other known languages.

Table 1.

Discovering learning burden

Meaning	Form and meaning	Is the word a loan word in the L1?
	Concept and referents	Is there an L1 word with roughly the same meaning?
	Associations	Does the word fit into the same sets as an L1 word of similar meaning?
Form	Spoken form	Can the learners repeat the word accurately if they hear it?
	Written form	Can the learners write the word correctly if they hear it?
	Word parts	Can the learners identify known affixes in the word?
Use	Grammatical functions	Does the word fit into predictable grammar patterns?
	Collocation	Does the word have the same collocations as an L1 word of similar meaning?
	Constraints on use	Does the word have the same restrictions on its use as an L1 word of similar meaning?

Adapted from Nation, P. (1996). Teaching vocabulary. *Asian EFL Journal*.

In vocabulary teaching, teachers can benefit from many kinds of strategies and activities. But generally they would rather use classical methods than novel techniques. Looking up dictionary, writing definitions, using words in sentences, word lists, teacher explanation, memorization, vocabulary notebooks and quizzes are the some examples of the traditional vocabulary instruction, teachers prefer to use. English learners, think of vocabulary learning, as memorizing a list of new words with translations in their native language without any real context.

According to Murcia (2001, p.288), New vocabulary items should not be taught in isolation and should not be learned by simple rote memorization. It is crucial that new words be presented in contexts rich enough to provide clues to meaning. Moreover students should be given multiple exposure to the words they have to learn. Most of the learners experience the same learning methods such as

looking up words in a bilingual dictionary to get their meanings when they come across new words. Generally learners jot down new words in lines without any context. Yet trying to learn in this way doesn't satisfy the learners according to researches. As a result learning words separately by memorizing without any context is not an effective method.

In the teacher-centered classroom, students can not internalize the knowledge of the new words since there is no activity to make them active. The students can not use the words independently and they are getting bored. Thus, vocabulary learning is not effective. These techniques of learning and teaching English vocabulary can be called intentional learning, or explicit learning. These methods are directly focused on the word to be learned without relating it to a context (Schmitt, 2000).

According to the researches of the National Reading Panel (NRP, 2000, p.18) five vocabulary instruction techniques were defined:

1. Explicit teaching: Word definitions and other properties of the words are given to the learners in an explicit way.
2. Implicit teaching: The words are provided in texts to the learners and words are given in multiple exposures.
3. Multimedia Methods: In these methods, vocabulary is taught by using other media such as graphic representations and hypertext.
4. Capacity methods: Additional capacity is used for vocabulary learning. In these methods learners focus on meaning of words rather than their orthographic or oral representations.
5. Association methods: Learners are made to make connections between what they already know and the vocabulary they encounter but they don't know.

In teaching processes teachers have problems to get satisfying results. The teacher should search, find and implement appropriate techniques in their courses. A good teacher should be conscious and up-to-date (Alqahtani, 2015, p.24). Among the four skills, reading has crucial position to quantify and qualify learners' mental lexicon with the help of incidental, indirect, and subconscious

learning. This kind of learning consists inferring meaning from the context which activate the learners' schematic knowledge and increase understanding further vocabulary retention. There are the same observations in listening, speaking and writing contexts. Therefore benefiting from tools such as video programmes which include visual, audio, and natural language input may enhance L2 acquisition.

According to Shen (2003, p.194), Moreover de-contextually highlighting the vocabulary may be essential to assist learners to store new words, as giving conscious attention is also crucial to acquire words. Activities for making notes, using word-lists, dictionaries, flashcards, games, mnemonics, word-analysis and the like can be very beneficial. Consolidation becomes easy since they take the attention of learners' to the words. When there is a word which has an importance in terms of its frequency of use or learners' needs, students may consciously struggle to retain it. This method is beneficial especially in initial stages of language learning. But learners can not acquire the other meanings of words and how to use them in real life communication.

To comprehend vocabulary teaching thoroughly, Oxford and Crookall (1990) divided the techniques into four sections:

1. De-contextualising: word lists, flashcards, and dictionary use;
2. Semi-contextualising: word grouping, association, visual imagery, aural imaginary, keyword, physical response, physical sensation, and semantic mapping;
3. Fully contextualising: reading, listening, speaking, and writing;
4. Adaptable: structured reviewing.

Therefore, it can be asserted that contextual, semi-contextual and de-contextual strategies of teaching vocabulary are all necessary to assist learners to learn words. On the other hand, learners should be given authentic knowledge to make them achieve native-like level.

According to Akar vocabulary teaching techniques as:

1. Visual techniques: Benefiting from realia, flashcards, videos, facial expressions and body language, crossword puzzles, miming, demonstration, computer-based technology,
2. Aural techniques: Benefiting from natural sounds, poems, audios, computer-based technology, dialogues, and songs,
3. Verbal techniques: Benefiting from definitions, connotations, synonyms, antonyms, word formation and families, cognates, games, riddles, consulting dictionaries, pronunciation, spelling, contextual guesswork, concept forming, roleplay activities, collocations, translation, and semantic mapping,
4. Kinaesthetic techniques: smelling, tasting, and touching objects.
(As cited in Ünal, 2018, p.11)

Several aspects of the mental lexicon should be considered in vocabulary teaching. So learning words should consist all the skills. The sources on vocabulary teaching includes researches and advices for a several of methods, such as the dictionary method, context method, concept method, semantic mapping and semantic feature analysis. But no conclusion is determined as the most effective method. It is concluded that the integration of several techniques is more effective than single method. According to the research by McKeown and Beck (1988, p.44), Selecting the type of instruction to utilize in specific conditions relates to the aim of the instruction, the types of words being submitted, and the characteristics of the learners. According to many researches students learn most vocabulary indirectly. Namely, through conversations with others, by listening to adults read aloud, and through their own independent reading. Most word learning occurs incidentally through experiences with rich oral language and wide reading of varied materials (National Reading Panel, 2000). In contrast to grammar, vocabulary is gradually acquired over a period of time from many exposures.

According to Pikulski and Templeton (2004, p.4), in order to teach vocabulary efficiently, a comprehensive approach including the following items needs to be in use:

1. Benefiting from “instructional” read-aloud activities.
2. Using direct instruction for word clusters and individual words.
3. Teaching learners prefixes, suffixes, and root words.
4. Integrating teaching of spelling to reading and vocabulary instruction.
5. Teaching how to use the dictionaries, thesauruses, and other reference works.
6. Teaching word-learning strategies.
7. Encouraging wide reading.
8. Generating an awareness and an interest in language and words.

Teaching vocabulary consists of some techniques. Two of them are planned and unplanned vocabulary teaching. Unplanned vocabulary teaching includes the words which come up during the lesson without planning before. Unplanned teaching techniques include teachers’ spontaneous instruction to assist learners when they need to teach a word (López-Barrios, Alcázar, & Altamirano, 2017, p. 20). On the other hand, planned vocabulary teaching is teacher’s planning what to teach and how to teach before the lesson. Takac (2008, p.19) states Planned vocabulary teaching involves teaching clearly, deliberately and explicitly. Planned vocabulary teaching techniques are not similar, they are different from teacher to teacher, lesson to lesson. Nevertheless, it doesn’t matter how much time it takes to teach vocabulary incidentally, it is probable that unplanned vocabulary activities occupy less time than planned vocabulary teaching strategies (Hatch & Brown, 1995).

Molinsky and Bliss (1994, pp.vii-viii) suggests teaching strategies to introduce and practice words:

1. Previewing the vocabulary: Activating learners’ prior knowledge of words and semantic maps.

2. Presenting the vocabulary: By using the picture of each word, taking the learners' attention to the word's meaning and pronunciation.
3. Vocabulary practice: Making the learners practice the words as a class, in pairs or in groups.
4. Model conversation practice: Benefiting from meaningful model dialogue to practice the words.
5. Additional conversation practice: Providing the learners with two more skeletal dialogs to practice conversations.
6. Writing and spelling practice: Having the learners practice spelling of the words by saying and spelling of the words and writing them in pairs or in small groups.
7. Themes for discussion, Composition, Journals and Portfolios: Providing questions for discussion and composition by using the words.
8. Communication activities: Benefiting from games and role plays to increase interaction among learners.

Words can be taught at different levels depending on their importance, frequency, and applicability in other contexts. So Allen (1983, p.7) developed ten questions to decide what kind of instruction is needed:

1. Which words have crucial position to comprehend the text?
2. How much prior knowledge will students have about this word or its related concept?
3. Do the students encounter this word frequently?
4. Is the word polysemous (multiple meaning)?
5. Is the concept apparent or does the word need preteaching?
6. Which words can be guessed from the context?

7. Can we group some words from the text to increase comprehension?

8. What methods and techniques can I use to assist the students' integration the concept into their lives?

9. How can I implement repeated exposures to the word in my lesson?

10. How can I assist students to use the word meaningfully in multiple contexts?

These questions assist the teachers to plan the lesson.

According to Beck, McKeown and Kucan (2013, p.20), to decide which words to teach, words have been divided into categories:

Tier One is typical words used in oral language. These are mostly spoken words in everyday speech. Because they are commonly used in various contexts, children acquire them easily. Learners who are learning a foreign language mostly have difficulty making a progress beyond the tier one. Some examples of these words are: boy, table, tree, bag, school etc.

Tier two includes numerous words which are beneficial to educated language users. It is also called as "academic vocabulary," and "instructional vocabulary". These words are imperative to succeed in school. And these words are learned by reading or through teaching. Some examples of these words are: establish, purchase, emerge, document etc.

Tier three consists the words which are limited and rare in daily life and in connection with a specific field and profession. Some examples are: gasket, ignition switch, rotor etc.

Tier four words are engrossing, rare and not beneficial in education. They do not have a connection with any field of study. Words, no longer in use are belong to tier four. Some examples are: grubbling, woofits, fudgel etc.

According to Beck et al. (2013), A vocabulary teaching program should provide the learners with opportunities by

1. Motivating to wide reading;
2. Providing the learners with high-quality oral language;
3. Improving word consciousness;
4. Supplying with explicit instruction of specific words;
5. Supplying modeling and instruction in independent word-learning strategies.

2.7. Vocabulary Retention

According to Oxford dictionary (2000), “Retention is the ability to remember things.” Merriam Webster (1993) defines retention as “a preservation of an experience and learning that makes recall or recognition possible.” The learners not only have to acquire vocabulary to learn a language but they also have to recall the words. Actually learning is recalling. According to Thornbury (2002, p.23), Different from grammar which depends on rule-based system, vocabulary knowledge is mostly collecting discrete items. Almost all language teachers and students know that learning a second language involves acquiring of a great number of words (Hulstijn & Laufer, 2001, p.1).

According to Zhang (2004), Memory has three parts which depend on the amount of time the memory lasts: sensory memory, short-term memory, and long-term memory. The sensory memory is like a buffer for stimuli taken from the senses. Sensory memory is the shortest memory which lasts milliseconds to a few seconds. Short-term memory (or immediate memory) lasts from several seconds to at most a few minutes. Unless the attention is given to the information, it won't move to short term memory. A more dynamic view of short-term memory is working memory which not only stores the information but also processes. Eventually, the input moves to the long-term memory (LTM) which can keep much more information for unlimited time. The memory which lasts from an hour to lifetime is called long-term memory. Forgetting is possible in both memories but it occurs mostly in STM.

According to Craik and Lochart, the probability that new information will be kept in Long-term memory is not determined by the duration of time that is stored in short-term memory but by the depth of initial processing (as cited in

Hulstijn & Laufer, 2001, p.5). There is a strong connection between human memory and its ability to retain and recall information. The information kept in the sensory memory is transferred from the short term memory to the long term memory when sufficient attention is given, adequate time is spent and the information is rehearsed by consolidating (Mayer, 2014).

According to Schmitt (2010, p.23), forgetting is a natural incident of learning. Partial vocabulary knowledge is in a state of flux. Both learning and forgetting occurs naturally until the word is acquired and fixed in memory. Human beings can store, retrieve and use countless number of words competently (McCarthy, O’Keeffe, & Walsh, 2010, p.101). Nation claims that (1990), learning a new vocabulary in a second language requires 5 to 16 exposures (as cited in Lam, 2014, p.91).

Another element that has an influence on retention is engagement. Learning and remembering levels are changing according to the attention level (Craik & Lockhart, 1972, p.681). Craik and Lockhart argued that according to the level of cognitive energy a learner exerted while manipulating a word, the level of recalling and using that word later, is changing (as cited in Nemati, 2009, p.15). According to Nemati (2009, p.14), The most important element in vocabulary learning is the depth of processing; in other words, learners should be instructed on how to process information deeply. Exercises, activities and learning strategies which comprise a deeper engagement with words provide higher retention than shallow activities.

2.8. Games

Human beings are interested in games for centuries. Games have become an aspect of human life since ancient times. According to García-bárcena and García-Crespo (2006) human beings’ game playing began 3000 years before Christ. So it can be asserted that human beings are playing games for ages. Socializing, imagining and exploring are main aims of playing for human beings.

Bright and Harvey (1984, as cited in Hogle, 1996, pp. 5-6) suggest a definition for games: The activity is mostly a competition of physical or mental abilities and strengths, making the participants pursue a specific set of rules in

order to achieve an aim. Games consist an element of chance or fantasy. A game includes competition with others, with a computer, or with oneself. Games can be instructional or not, they can be interactive or not, and they can be computer-based or not.

According to Juul (2003), A game is based on a rule-based formal system with a variable and quantifiable result, where different outcomes are assigned for different values, the player make an effort in order to affect the outcome, the player feels connected to the outcome, and the results of the activity are optional and negotiable (as cited in Glover 2013, p.1999).

Games are mostly organized with a determined task, goal, some rules, competition and communication between the players. Games are mostly implemented in the classroom to assist learning.

According to Al Neyadi (2007, pp.103-104) three substantial factors emerged:

1. Benefiting from games in order to exercise and recycle words enhances word memorization.
2. Benefiting from games in order to exercise and recycle words improves learners' interaction.
3. Benefiting from games in order to exercise and recycle words increases learners' motivation.

After using games and activities to practice words and after recycling words every two weeks, it is apparent that learners begin to memorize more efficiently and their ability to recall the words increases. Vocabulary enhancement through games for L2 learners assists to motivate students with less vocabulary input to have more vocabulary knowledge (Mahmud & Othman, 2015, p.15).

Thornbury (2002, p.25) claims that Learners remember the words much better, when they make more cognitively demanding decisions about a word. Accordingly it is clear that using games activate learners minds.

It is also apparent that using games and activities enhance interaction among the learners. After completing games and activities, learners talk about the activity and their performance, they don't chitchat.

Using games in teaching increases learners motivation since they draw the learners' interest and attention. Games help learners' learning while they are participating and entertaining. Learners can easily give up in traditional teaching environment if they fail but they behave in a different way while playing. The games support perseverance, intelligence and practice since the learners are highly desired to succeed. Consequently teachers frequently utilize games due to their benefits.

Particularly, games prepare advantageous learning environments for the following reasons:

1. They can reinforce multi-sensory, active, experiential, problem-based learning;
2. They can activate the prior knowledge that players should benefit from previously learned knowledge in order to progress.
3. They give immediate feedback by making players test hypotheses and learn from their activities.
4. They provide chances for self-assessment with the help of scoring and reaching different levels.
5. They become social environments consisting communities of gamers who are either playing remotely or collaboratively in teaching setting.
6. Besides knowledge acquisition, game playing can also help the development of several skills, such as critical thinking and problem-solving (Camilleri & Camilleri, 2017).

The next stage of benefiting from games in education is Computer Assisted Language Learning also known as CALL which appeared in the 1980s. According to Levy (1997, p.1), CALL is the research for and practice of applications of the computer in language teaching and learning. Games have some

rules, time limitation, and visual features in games of CALL. The learners should gain and process information to achieve the goals. There are different kinds of games such as video games, table top games, party games, educational games, computer games, mobile games.

CALL is mainly a vehicle that assists teachers to make easy the language learning process. It can be utilised to consolidate what has already been learned in the classroom or as a remedy to assist the learners who need more support (Gündüz, 2005, p.197). Prensky (2001) asserts that modern humans' two of the most popular free time activities are computer and video games. Human beings interact and socialize with the help of these games. The term computer games is used for PC based games. The term video games is used for console-based games. But these two terms can be used interchangeably nowadays. The term digital games is used as an umbrella term for these terms. Games are utilized to enhance learning in schools, work places and even in families.

According to Wichadee (2013, p.102), Currently, technology based learning is a new option to generate interesting and active learning. Human beings are multi-sensory creatures. The more senses are utilized while receiving information, the easier it will be recalled. According to Fletcher (1990), people remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do (as cited in Ramani and Patadia 2013, p.38). Thus computer practice most of the senses and submitting information in a several media can increase learning. According to Ibrahim and Jaafar (2011, p.557), educational games are games technology for instructing or learning which puts together educational content of specific subject and motivating, engaging and rewarding game elements to reach desired learning outcomes. Board, card and video games can be given as examples for educational games. Educational games are devised to instruct learners about a particular area and to train them a skill. Educational games can be named as "learning oriented games" or "edutainment". Broadly edutainment is a term which is used for integration of education and entertainment in a variety of media consisting computer games. Educational games can be devised for particular educational aims and they may be played offline and online (Okan, 2003, p.255).

Edutainment depends on extrinsic motivation by giving rewards, rather than intrinsic motivation. Extrinsic motivation is not in relation to the game but includes arbitrary rewards, such as getting points after passing a level. On the other hand Intrinsic motivation is the feeling of mastery from completing a level. While playing learners can fail consistently, but they learn something in each failure. Immediate feedback is given in the games so games are motivating. Consequently learners begin to think that failing is not an end but an opportunity to learn something. So they don't demoralize easily thanks to nature of the games (Kirriemur & McFarlane, 2004).

Acquisition of vocabulary is one of the troublesome components of foreign language learning. Benefiting from educational games to assist vocabulary teaching, has been very popular for many decades. The educational games are appreciated in language education since language classes are more entertaining with the games. If games and education are put together, the lessons will be educative, the students will be more motivated and gain positive attitudes towards the lesson. Games are helpful and encouraging to learn new words since they create meaningful contexts and bring fun. By the help of games acquiring and retaining new words are effective, easy and quick. Games provide a friendly, competitive and cooperative learning and increase interaction among students in the language classroom because students can compete and cooperate by the help of games and they give responsibility to the students. Students become active physically and mentally. Games provide student-centered classroom atmosphere. Moreover they help students develop many skills for instance students have an opportunity to develop communicative skills and use the target language. (Aydan, 2000). Real World context is brought into the classroom and students' use of English is increased by means of games. But in order to benefit the most from the vocabulary games, it is vital to select suitable games.

According to Paras and Bizzocchi (2005), the diagram illustrates that:



Figure 2: Paras, B., & Bizzocchi, J. (2005). Game motivation and effective learning: and integrated model for educational game design. Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

Games enhance play, which generates a state of flow, which fosters motivation, which promotes the learning process.

Prensky (2001, p. 106) draws up the advantages of games as:

1. Games supply the requirements of today's learners and compatible of their learning styles.
2. Games motivate and bring fun.
3. Games are compatible and versatile to any subject or skill to be learned.
4. Games have some rules.
5. Games have objectives.
6. Games have interactive qualities.
7. Games provide feedback.
8. Games provide ego contentedness.
9. Games provide competitive atmosphere and give adrenaline.
10. Games are problem- solving.
11. Games are adaptable.
12. Games have emotional sides with the help of presentation and story.

According to Kim (1995, p. 35), utilizing games in the classroom is very advantageous:

1. Games play a break role for the boredom of the usual routine of the language class.
2. They are motivating, challenging and engaging.
3. A great deal of effort is necessary to learn a language. Games assist learners to make and maintain the effort of learning.
4. The various language skills such as speaking, writing, listening and reading could be practised by the help of games.
5. They increase the interaction and communication among the learners.
6. They establish a meaningful context to use language.

Benefiting from games and game technologies is asserted to be beneficial in terms of academic achievement, motivation and classroom dynamics. Moreover, games arouse lots of feelings such as happiness, anger, satisfaction, competition, frustration and curiosity. Games lead to lots of positive feeling such as optimism and pride. Learners experience failure over and over again in games until they succeed. It can be claimed that games can reduce the level of anxiety. Games make emotional connections with learning. Games have cognitive, emotional and social benefits (Lee & Hammer, 2011, pp. 3-4).

Games give opportunities to take new identities and a different name. For instance a learner who has an introvert character can become extroverted in a game or a shy learner can give answers to the questions without being ashamed (Lee & Hammer, 2011, p.4). Besides playing computer games and mobile games is new generation's favourite activity. The new generation is also digital natives, which prompts the teachers to benefit from technology in teaching. Consequently, a well designed game can end up with productive learning and pleasant atmosphere in the classroom. Contrarily, finding appropriate games for the lesson objectives is very difficult according to some teachers and curriculum developers

since some games have irrelevant contents. So playing some games can result in wasting the classroom time. Furthermore, if games become an obligatory element of the education, they may not be as efficient as this (Kirriemuir & McFarlane, 2004, pp.27-28).

2.9. Motivation

Second language learning or foreign language learning is a process influenced by several elements such as gender, age, culture and motivation. Particularly, among all the features affecting L2 learning motivation is thought to play the most substantial role during the process of learning. Motivation is a crucial factor of students' learning; teachers can help to increase and develop motivation for optimal achievement in the classroom (Valerio, 2012, p.30).

Learning is an active period of process so motivation is necessary to both begin and continue the process. Motivation can sometimes be troublesome for learners, particularly when they do not find the aim of learning. Motivation is one of the most crucial elements in language learning. If learners are not motivated even if they have the ability, they may not solve the problem. On the contrary if they are highly motivated, motivation will help them to solve the problem even if they have limited ability. Consequently motivation increase the learners' ability (Guerrero, 2015, p.96).

According to Paras and Bizzocchi (2005), to motivate is to supply with an incentive. Motivation is a psychological process which initiates and continues goal directed behaviours (Sailer, Hense, Mandle, & Klevers, 2013). To motivate the learner to learn is providing the learner with an incentive to gain the knowledge. Ryan and Deci (2000, p.54) assert that to be motivated is to be activated to do a task.

According to Hulstijn and Laufer (2001, p.1), Motivation reinforces success and achievement in L2 learning. Students with high level of an external and intrinsic drive will reach higher level of proficiency than students with low levels of motivation. In traditional teaching setting, motivation is thought as initial step in the teaching process. There are two essential priorities required for the occurrence of effort:

1. The learner should give importance to the subject.
2. The learner should believe that he or she will be successful.

According to Paras and Bizzocchi (2005), In any given teaching setting, the learning task should be submitted in an engaging, meaningful way and in a way that increases positive expectations for the achievement of learning goals. Lightbown and Spada claim (1999, p.163) that teachers can affect learners' motivation in a good way by making the classroom a supportive setting in which students are stimulated, and engaged in the activities.

According to Keller (2006) the ARCS model defines four required strategy elements for motivating teaching.

1. Attention strategies: to arouse and maintain curiosity.
2. Relevance strategies: to connect learners' requirements, interests and motives.
3. Confidence strategies: to assist learners to develop positive expectations to be successful.
4. Satisfaction strategies: to supply extrinsic and intrinsic enhancement to make an effort.

Gardner and Lambert (1959, p.267) define two kinds of motivation, which are integrative and instrumental motivation. According to Crookes and Schmidt (1991, pp.471-472), integrative motivation is learners' positive manners and approaches towards the target language community. In integrative motivation, the learner integrates himself to the target society and culture in order to be part of that community. On the other hand, instrumental motivation has more functional goals to learn a language such as getting a better job or a promotion or passing an important examination.

Motivation is a crucial factor to be able to learn. There are two types of motivation: extrinsic and intrinsic. According to Lepper (1988, p.292), Intrinsically motivated behavior was described as behavior performed for its own sake, for the pleasure it supplies, the learning it permits, or the emotion of success

it creates. According to Ryan and Deci (2000, p.56), when intrinsically motivated a person behaves to entertain or challenge instead of external prods, pressures, or rewards. Extrinsically motivated behavior, by contrast, comprised actions taken on in order to gain a reward or refrain from a punishment external to the activity itself (Lepper, 1988, p. 292). In extrinsic motivation there is a desire of reward from outside and a person is moved to do an action from an outside resources instead of the self (Anjomshoa & Sadighi, 2015, p.126). As Lepper (1988) claims, learners tend to be more successful when intrinsically motivated. Extrinsic motivation is mostly to result in lower motivation and slow learning.

In this case, extrinsic motivational tools can be connected to activities and practised in a way that fosters students' intrinsic motivation. Therefore gamification can be used to reinforce both extrinsic and intrinsic motivation.

2.10.Gamification

According to Deterding, Dixon, Khaled and Nacke (2011) "gamification is the use of game design elements in non-game contexts such as education". Gamification is benefiting from game features, especially video game elements, into non-game context for the purpose of increasing motivation and engagement in learning (Alsawaier, 2017, p.1). Various definitions can be made as follows: Gamification is utilizing game-based mechanics, aesthetics, and game-thinking to engage people, motivate action, increase learning, and solve problems (Kapp, Blair, Mesch, 2014). Gamification is a connection of game elements in activities that are not games. Gamification of learning is a way to utilize game dynamics and game mechanics in education. Gamification is particularly influential when it is used to encourage learners to progress through content, motivate action, influence behavior, and drive innovation (Kapp, Blair, & Mesch, 2014).

Implemented the most common forms of game design elements are points, levels or stages, badges, leaderboards, prizes and rewards, progress bars, storyline, and feedback which are elements of computer games. These elements play a key role in gamification (Lister, 2015).

1. Leaderboards are lists of participants ranked according to their achievement within the game.
2. Users are all attendants – employees or clients (for companies), students (for schools);
3. Challenges/tasks that users practise and make progress towards determined objectives;
4. Points that are collected as a result of performed tasks;
5. Levels which participants pass based on the points;
6. Badges which are used as rewards for completing tasks;
7. Ranking of participants according to their progress.

Using gamification in education which attracts, retains and engages digitally savvy students is demanding, engaging and technologically rich. Most of the second language (L2) learners are members of a generation that Prensky (2001) defines as “Digital Natives”. These learners process knowledge in a different way and traditional education does not fit their needs and interests. Moreover, learners are conscious of the benefits of the internet. Benefiting from game design elements fosters motivation and engagement to increase learning. Integrating gamification into learning is one of the techniques which is used to motivate learners.

According to Lam (2014, p.91), its main objective is to make a connection between extrinsic and intrinsic motivation to increase the engagement of users by benefiting from game-like techniques such as scoreboards and personalized fast feedback, and consequently to motivate or affect their behaviour. Unmotivated learners are encouraged to involve in the learning process and they interact with other learners by adding game features in learning context. Class attendance and participation which are positively related with learners' performance increase with the help of gamification.

According to Michos (2017, pp. 512- 513) some of the advantages of gamification implemented in language classroom are the following:

1. Changes the mood in the classroom;
2. Enhances learners' emotion of happiness;

3. Provides breaks from learner's fatigue;
4. Helps to motivate and takes attention;
5. Increases student's participation in the classroom activities.
6. Stimulates a goal oriented activity;
7. Makes learning entertaining.

Therefore games are utilized in second language teaching as a source of motivation and an incentive.

Gamification can be utilized in lots of ways in teaching such as teaching, reviewing topics and making a formative assessment in schools. Moreover it motivates the learners to work in collaboration and solve problems meaningfully.

According to Beza (2011, p.6) there are some fundamental principles to prepare a successful game design. These principles are:

1. Using visual elements to evaluate progress and experience. i.e. a completion/progress bar.
2. Providing rapid feedback through the progression in the game.
3. Providing several long and short-term goals.
4. Providing rewards for task completion, which are essential to motivate for engagement with the game and thought as social status symbols among gamers.
5. Appointment dynamic – the view that to play a game, one has to be prompted to return and be in the game
6. The feature of uncertainty (not knowing what rewards will be given).
7. Cooperation and engagement with other gamers

2.10.1. Motivation and Gamification

Motivation points to psychological processes which initiate and continue goal directed behaviours (Sailer, Hense, Mandl, & Klevers, 2013). Gamification is used in different contexts and some applications affects motivation and learning in a positive way (Sailer, Hense, Mandl, & Klevers, 2013). The principal aim of gamification is increasing participation and motivating users by using game elements such as points, leaderboards, and immediate feedback among other things (Flores, 2015, p.37). Gamification puts intrinsic and extrinsic motivation together to enhance engagement and motivation. Setting goals and providing feedback can help learners to motivate (Lee & Hammer, 2011). According to Sigurdardottir (2016, p.6) playing a digital game is intrinsically motivating but the results are extrinsically motivating. According to Alsawaier (2017, p.1) There is a direct relationship between increased motivation and higher levels of engagement when the gamification is utilized in learning.

Motivational features can sometimes be rewards or fun activities; however, they are not influential if they don't participate the learner in the content and instructional goal (Hamzah, Ali, Saman, Yusoff, & Yacob, 2015, p.31). If you want to motivate learners to move through instruction and to achieve goals, gamification is a perfect solution (Kapp, Blair, & Mesch, 2014). Kim (2015, p.20) conducted a research on gamification. According to his research, gamification motivates people and enables them to change their behavior for an aim that they decide to succeed. Gamification can have a win-win strategy function which ends up in fun, self-development for individuals, and it's also socially good for players when it is carefully designed to make fun and joy with an aim closely related with players' own wishes and values. According to Mullins and Sabherwal (2018, p.1239), Game design elements may, individually or in combination, create specific emotions in the user, and these emotions help to foster desired outcomes of the gamified experience.

2.10.2. Gamification and Vocabulary Teaching

In the recent time gamifying vocabulary has become popular and a good deal of researches proved that gamifying vocabulary is efficient and beneficial. According to Lam (2014, p.91), learners learn better and have fun by means of gamification. The colourful and interactive online games take attention of learners and more than one sense at a time is stimulated. Because traditional textbooks lack immediate feedback and the vivid pace, learning vocabulary by means of gamification is enjoyable for learners.

Online games have a scoring system keeping the scores from the beginning until the end during the game. This scoring system influences learners' motivation and experience directly. Benefiting from technology in language classrooms to teach vocabulary can increase motivation and student participation compared to conventional, monotonous classroom activities. Moreover classrooms become more learner-centred with the help of technology.

Students fail repeatedly while playing games but through that repeated failures, they learn. This is especially crucial for vocabulary learning. According to Nation, learning new vocabulary in a second language requires 5 to 16 exposures (as cited in Lam, 2014, p.91). Consequently, games provide such exposures since they consist repeated failures. If the lesson plans involve just drilling exercises it will be very boring and the attention of students will decrease. Therefore it is compulsory for educators to find methods to help learners remember new words in a more interesting and interactive way. Gamification may provide learners a visual context to understand the words, as well as a schema for factual information.

According to Abrams and Walsh (2014, p.50) Multimodal representations of words, and the presence of online annotations or glosses, are thought to develop vocabulary in English Language Learners. Moreover gamification consists of cognitive mastery and flexible social roles in addition to providing emotional elements by giving feedback and rewards. Immediate feedback and rewards help the learner to think critically.

2.10.3. Digital Game-based Learning

Prensky (2001) describes digital game-based learning (DGBL) as a union of digital games and educational topics. The notion behind DGBL is that it can put computer or video games and educational topic together and can achieve more successful results in comparison with traditional learning methods. Bhuiyan and Mahmud (2015, p.134) define digital game as a game presenting visual information to the players, taking input from the players by using a set of programmed rules. According to Sigurdardottir (2016, p.6), digital game-based learning is utilizing of digital games in education. Kirriemuir and McFarlane (2004, p.6) claim that digital games present visual digital data to the players, get some input from the players, process it and modify the digital information provided to the players. Prensky (2001, p.6) asserts that despite the learning style differences among learners, the term digital game-based learning is utilized for learning with the help of computer and video games, digital game-based learning is an excellent and convenient tool for today's learners since it puts together fun and the lessons. Unlike conventional games, the rules are not defined in an instruction guideline, they are programmed into the code.

According to Kirriemuir and McFarlane (2004, p.3), playing games can reinforce some skills such as strategic thinking, planning, communication, application of numbers, negotiating skills, group decision-making, data-handling. Remarkably, the experience of game play influences learners' expectations of learning activities. Favoured tasks are fast, active and exploratory, with information provided in multiple forms in parallel. Conventional school-based learning may not supply these demands (Kirriemuir & McFarlane, 2004, p.3).

According to Sigurdardottir (2016, p.6), Playing a digital game is mostly intrinsically motivated and the results extrinsic. Actually, many people think intrinsic motivation as the most substantial educational feature of digital games. Intrinsic rewards such as challenge, control, choice, and achievement are claimed to be the factors that keep the players motivated. The Advocates of game-based learning assert that the ability of digital games to teach and reinforce skills crucial for future jobs such as collaboration, problem-solving, and communication.

Deubel (2006, as cited in Shahriarpour & Kafi, 2014, p. 1739) defines the benefits of digital game-based learning: being able to motivate and engage students, providing learning experiences, making long-term retention easier, developing vocabulary skills and fostering mental quickness. According to the study Ebrahimzadeh and Alavi conducted (2107, p.58), game-learners did better than the paper-and-pencil learners on both short- and long-term vocabulary retention tests. It can be inferred that digital games have a positive effect on long-term vocabulary retention.

In the past, educators have not been voluntary to benefit from video games or computer games in the lessons, but there is a rising interest in varied educational environments and use of digital games as serious and beneficial learning and assessment tools. In conventional teaching settings, a learner that does not master a subject could be left with a gap in their knowledge formation that challenges later attempts to construct to more complex concepts. However, digital games make the player master a concept in order to make a progress. Players can do the same activity repeatedly until they master this concept. The same logic could be implemented to the use of digital games in education. Virtually a learner can not master the subject until a prerequisite knowledge of previous skills has been learnt thoroughly. So this mastery depends on the ample time spent in learning each skill before moving to the next. These notions also refer that a learner has some curricular preference and control over their learning and mastering the subject. This sense of autonomy for the learner is crucial in learning.

2.10.4. Mobile- Assisted Language Learning (MALL)

Mobile technologies are rapidly taking attention of new users, supplying increasing capacity, and more sophisticated utilization. This situation affects cultural practices and allows new contexts for learning (Pachler, Bachmair, & Cook, 2010). With the latest advancements in technology, most of the people have begun to use mobile devices. Mobile devices are significant element of our lives from now on. The mobile phone is a confounding fact and one of the most influential of the great changes to come in the 21st century. It's so novice, but over one quarter of the world's population possesses one or more. The number of

text messages sent and received every day goes beyond the world's population (Prensky, 2005. p.1).

Of all the potential application for mobile phones, the use that will have the greatest effect on the world in the long term, is using mobile phones for worldwide teaching and learning. The brand new smartphones are used as handheld computers lately instead of being used as phones, due to their powerful on-board computing capability, capacious memories, large screens and open operating systems that encourage application development (Boulos, Wheeler, Tavares, & Jones, 2011). Cell phones are not utilized just for communication tools; they are also exclusively beneficial computers that fit in your pocket, are with you forever. Using mobile devices consists learning, sharing and interacting besides communication. Mobile devices have taken the attention of the vast majority of people since they are portable and multifunctional. As a result of this attention, Mobile-Assisted Language Learning (MALL) emerged. Mobile-assisted language learning (MALL) is language learning that is supported and reinforced with the help of using handheld mobile device (Turc, 2017). In brief, MALL means benefiting from mobile devices to learn something. Miangah and Nezarat (2012, p.310) state that among all novel communication devices, mobile phones are the most powerful communication tool even richer than email or chat as it can be utilized as a learning device.

In the classroom, with appropriate software, mobile devices are highly effective in supporting small group collaborative learning and improving what was difficult to achieve without these tools (Kukulka-Hulme, 2009, p. 160).

2.10.5.Kahoot!

Technology is being incessantly incorporated in educational environments to increase student's engagement and motivation. Technology is beneficial since it assists making difficult topics more engaging and interesting (Prensky, 2001). According to Medina and Hurtado (2017, p.443), Kahoot! is an online global educational brand that benefits from a free student response platform. Kahoot! is an evolution of the previous clicker technology but it is free and easy to learn and utilize. There has been a shift from student response systems

(SRS) such as “clickers” and “zappers” to Kahoot! which is the most contemporary and innovated version game-based student response systems (GSRS) (Wang, 2015. p.2). Kahoot! is a web-based platform that enables learners to create and play interactive, multiple-choice types games (Zucker, Fisch, 2019). Exclusively, game-based student response systems have been thought to reinforce students’ engagement, increase classroom dynamics and foster overall students’ learning experience.

The great development in the availability and affordability of interactive technologies has promoted the utilization of games in instructional science and education to reinforce cooperative learning, exploration and discovery. Students are keen to experiment with various technologies to give support their learning, mostly because they are talented in the use of mobile technology and take pleasure utilizing applications and games devised for such tools.

Educational games and game-based student response systems both foster student motivation and engagement, particularly in teaching settings where traditional lecture style instruction is presented to students and cause boredom. In lecture style teaching, students seldom ask public questions and they would rather stay anonymous, thus decreasing student engagement. Such a learning environment causes social ostracism and learners’ decision making avoidance which can affect deep learning in a negative way. However, GSRSs’ use enable learners to stay anonymous while interacting with peers and obtaining new knowledge. Thus it fosters peer and collaborative learning. And in this way it improves class attendance and active participation (Licorish, Owen, Daniel, & George, 2018).

Nahmod (2017, p.18) states that learners can control their own learning with the help of Kahoot! because it helps retaining the information. A GSRS is a very beneficial tool for a teacher to gather data about the students’ knowledge and about how much they have learned during a class. As a result, with the help of these qualities it reinforces student satisfaction. According to Wang (2015, p.2) Kahoot! is a game-based student response system (GSRS) which converts the teaching setting into a game show for a while. On the other

hand, Graham (2015, p.6) claims that Kahoot! is a free online classroom response system designed to enable teachers to prepare question-based learning games that can be used to evaluate student learning, review concepts, teach new material, and facilitate classroom discussions. The teacher is in the role of a game show host and the students are the competitors (Wang, 2015, p.2).

The teacher has to launch Kahoot! in a web-browser on a laptop or other digital devices such as interactive whiteboard or connects a large screen with the help of a computer, demonstrates the questions and possible answers on the interactive white board or the screen and the students answer as quick and correct as possible on their own digital devices such as pc, laptop or mobile phones. It is crucial that all the students can clearly see what is being demonstrated. On the launch screen the students are asked to enter the URL kahoot! it in a web-browser on their own devices. The students do not need to have an account to play Kahoot! To join the game, they should enter a game pin (a number) followed by a nickname. The students compete by getting points through giving true answers. A scoreboard is demonstrated between the questions thus students can observe their performance by looking at the scoreboard.

According to Nahmod (2017, p.16), Earning points and appearing on a leaderboard after each question is so engaging feature of Kahoot! that learners do their best to earn points and appear on the leader board. The chart is beneficial for the teacher to receive feedback how much the students have the knowledge about a topic, and gives an opportunity to explain elaborately the parts where the students have less knowledge. Between each question, a scoreboard demonstrates the nicknames and scores of the most successful five students, and at the end of the game the top competitor is announced. Kahoot! benefits from playful and colorful graphics and audio to enhance the engagement. Moreover teachers and learners can prepare their own quizzes depending on their creativity. Instructors, have to set up a free account in order to create new kahoots (Graham, 2015, p.6). A question in a quiz may have two to four options where one or more can be correct, it has a time limitation to give an answer for the question (from 5 to 120 seconds).

Kahoot! is a game-based student response system (GSRS) which is the finding of the Lecture Quiz research project commenced in 2006 at the Norwegian University of Science and Technology (NTNU) (Wang, 2015, p.4)

Wang (2015) analyzed a good deal of digital games and made a comparison among them. Compared games were Poll Everywhere, Quizlet, Socrative, Learning Catalytics and Kahoot!. According to comparison Kahoot! is different from the other digital games since it focuses on only learner engagement and motivation. Moreover it has a direct connection to social media. So on other social media platforms, learners' achievement results and quizzes can be demonstrated.

According to Plump and LaRosa (2017) Kahoot! has some benefits:

1. Free.
2. Simple for teachers to use.
3. Easy process for learners (no need for account registration or download of application).
4. It can be utilized by using smartphones, tablets or computers.
5. Real-time results assist teachers to supply clarification when it is necessary.
6. Music and colors contribute to learner excitement and energy
7. Reinforces learner engagement.
8. Teachers can download, examine and save the results.
9. Learners can take quizzes for many times.
10. Teachers can prepare quizzes, discussions and surveys.
11. Teachers can arrange the response time.

2.11. Related Studies on Gamifying Vocabulary Learning

Camilleri and Camilleri (2017) conducted a study on students' perceptions of digital game-based learning. The researchers made face to face interview meetings with forty-one students. The students who participated in this research were expected to state their opinions elaborately. The objective of the interviews was to find out whether digital games were vital vehicle that could entice the students' motivation and curiosity in academic subjects or not. In this study, the students appraised the use of digital games and stated the benefits of digital games on learning.

Plump and LaRosa (2017) used Kahoot! with both undergraduate and graduate students in two different business courses. At the end of the courses, they collected student feedback to measure student interest. Student feedback on Kahoot! was gathered using a questionnaire with a 7-point Likert-type scale. The questionnaire consisted of five questions. Questions 1 through 4 were the Likerttype scale. Question 5 was an open-ended question. The findings showed that utilizing Kahoot! increased the motivation and participation of students. Moreover, it had a positive effect on learning environment.

Lam (2014) implemented a research to identify the effectiveness of using online flash games in learning and reviewing vocabulary. Five groups of students from different faculties, who were all aged between 18 and 20, participated the study. The participant students utilized two games in a semester and was made to complete an online survey to determine their opinions and attitudes towards using online games in learning vocabulary. The results demonstrated that students preferred using online games to learn vocabulary since it was more entertaining and exciting in addition to its positive effect on vocabulary retention.

Nahmod (2017) carried out a study with 36 general education and 14 special education students. She evaluated the effects of gamification and the conventional vocabulary learning. Two classes were taught in the same way. Vocabulary quizzes were implemented weekly over twelve weeks. Kahoot! was conducted as a competitive game to practice the vocabulary, alternating with a traditional review worksheet. At the end of the study, it was seen that there was no significant increase in scores when Kahoot! was used. However, it was

determined that students enjoyed gamification from their verbal feedback and their request to play Kahoot!.

Barata, Gama, Jorge and Gonçalves (2013) conducted a study to explore how gamification could be applied to education in order to improve student engagement. The study was five years long, where the first three were non-gamified years, and the last two was gamified years. To evaluate how gamification affected the learning experience, they compared data from both gamified and non-gamified years, using different performance measurement techniques. The results showed that in gamified learning years, learners participated more, paid more attention and they were more engaged. Moreover, students' feedbacks demonstrated that gamified courses were more motivating and interesting than other regular courses.

Pede (2017) made a research to investigate the effectiveness of the online game Kahoot! on the science vocabulary acquisition by using students with learning disabilities in a middle school. Kahoot! was used twice a week. The study was implemented over a six week period. Vocabulary learning of students assessed weekly. The results of the study showed that learners' scores increased. The participants involved in the study were surveyed to assess their satisfaction with playing Kahoot!. All of the participants agreed that they found Kahoot! easy to use and stated that they enjoyed using Kahoot! in class.

Karatekin (2017) carried out a research in order to determine whether gamification would affect students learning new vocabulary in the target language or not. The study was conducted to ninth grade students in an Anatolian High School. The data was collected through a pre-test and a post test and a 10-item questionnaire. Findings of the study showed that there was no significant difference between control groups' and experimental groups' posttest results. However, the data collected from the questionnaire demonstrated that gamification was helpful to motivate students to the tasks, encouraging them to take part in activities, adding fun to the course.

Medina and Hurtado (2017) held an experiment with 105 undergraduate students to determine the effects of Kahoot! on vocabulary learning. A pre-test and a post-test were implemented to evaluate the changes between the experimental and control group. Also, in order to learn how much they liked the use of the platform Kahoot!, a Likert survey was implemented to the students at

the end of the research. Moreover, the experimental group students were asked to write a weekly self-assessment diary and to note down their learning reflections on the course. The findings of the study showed that the experimental group students who used Kahoot! got higher scores than the control group. According to the results of the student satisfaction survey, the students enjoyed the Kahoot! and found it easy to use.



CHAPTER THREE

METHODOLOGY

3.1.Presentation

The purpose of the current study was to research the impacts of Kahoot! on vocabulary retention of EFL learners. This chapter provides information about the employed methodology in the research process. Used methods to collect and analyze the data are described as well as participants in the study and the setting. The researcher also describes data collection instruments, procedure of data collection and data analysis. Two research questions formed the basis of this study.

1. Will the use of Kahoot! impact the vocabulary retention of students?
2. What are the views of ninth grade students in Kahoot! activities?

3.2. Research Design

In this study, quantitative research was used to collect the data. A pre-test/post-test control group and quasi-experimental design was adopted to collect quantitative data for the study. According to Muijs (2004, p.4), quantitative research design is not subjectivist on the contrary it is realist. The research was done in a tightly controlled setting in which the independent variables were used to find the impact on the dependent variable. This utilization is generally called, as treatment. Kahoot! is our independent variable and the vocabulary retention of the learners is dependent variable. Two different treatments were conducted, and their impacts on vocabulary retention were investigated by the help of pre-, post- and retention test all of which collected the quantitative data for the research.

Kahoot! which is an online game-based platform, was used to exercise the new words for the experimental group while the control group utilized conventional vocabulary activities which are multiple choice type of exercises to enhance the learning of new vocabulary. The same instruction techniques were used to instruct both of the groups. But different techniques were used to reinforce the learnings. And a five-point Likert-type survey was adapted from the other

studies and conducted to the experimental group to collect their views about Kahoot!

3.3.Setting and Participants

The participants of this research were chosen through convenient sampling so the researcher could access them easily. In other words, the researcher benefited from available students in her classrooms. This method is quick and inexpensive (Berg, 2001, p.32). The participants of this study were 32 ninth class students at a state high school in Ankara. Turkish was their mother-tongue and their level was A1. They were high school students and they had five hours of English every week. The instructor of the groups was the researcher of this study who was a Turkish native speaker. Both of the groups had the same instructor. There were 15 students in the experimental group, and 17 students in the control group. Consequently, the results of the 32 students were analyzed and discussed. The learners were number coded as St1, St2, and St3 etc. The learners' aptitude and motivation were almost similar to each other since they entered their school according to the result of high school entrance exam results.

3.4.Data Collection Procedure

This research used a quasi-experimental research design to gather the quantitative data. It is advised that these studies should be implemented with 30 participants in each group. But when the variables and the factors are controlled in a strict way, 15 participants in each group are possible for comparative and experimental procedures (Dörnyei, 2007, p. 99). The researcher determined twenty target words to instruct and developed multiple choice test by using these words as a pre-test. The pre- test was applied to 32 participants. There were 15 students in the experimental and 17 participants in the control group. After the pre-test, researcher determined whether the participants had the knowledge of target words or not. Then the chosen words were taught both in experimental and control group but practised by using different methods. Right after the instruction an immediate post-test was implemented.

However delayed post-test is essential since the vocabulary learning is longitudinal and incremental (Schmitt, 2010, p.156). Only a research design

with a longitudinal test can evaluate the retention of the vocabulary in an effective way. One method of this assessment is implementing one or more delayed post-tests. Since the vocabulary knowledge can wear out easily, only delayed post-test can demonstrate whether long-term retention has occurred or not. Accordingly, a delayed post-test was implemented to the experimental and control group to assess their learning and retention three weeks after the treatment. At the end of the research, a five-point Likert-type survey which comprised twelve statements was performed by the experimental group. The survey was taken from another master thesis which was prepared by Hamide Nur Ünal.

Table 2.

Data collection procedure

Implementing The pre-test	Treatment	Immediate Post-test	Student Survey	Delayed Post-test (Retention test)
	1 week after The pre-test	Right after the treatment	Right after the treatment	3 weeks after The immediate Post-test

3.5.Data Collection Instruments

In this research, quantitative data was gathered by means of a set of pre- and post-tests and a survey. There were three different tests which were one pre-test, one immediate post-test and one delayed post-test. The student survey was composed of twelve items to which the participant students gave an answer by assigning numbers from 1 to 5.

3.6.Pre-test

It is crucial to implement a pre-test since the results of the delayed post-test, can not be asserted as new learning if the pre-existing knowledge is not determined. The necessity of the pretest is clear, because if pre-existing

knowledge is not determined at the beginning, it is impossible to decide whether post-test knowledge is new acquisition, or simply knowledge that was in place before the research (Schmitt, 2010, p.179). The pre-tests have also vital value in determining any difference between the groups because it is necessary to determine whether the groups which are going to be compared are actually similar before the treatment (Schmitt, 2010, p.179). 20 target words were selected from the learners' coursebooks' last three units. They were *stingy, attractive, healthy, mountain, crowded, gym, lend, shoe-shop, shopping mall, history, optimist, exhausted, celebrate, helpful, wear, delicious, take up, drought, unusual, and science fiction*. The pre-test consisted of 20 items. A target word was used for each of the multiple choice question and different distracters were chosen. The results of the pre-test were presented in the tables 3 and 4.

Table 3.*The results of the pre-test (Experimental Group)*

Pre-Test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	9	6
2	Attractive	9	6
3	Healthy	8	7
4	Mountain	11	4
5	Crowded	8	7
6	Gym	9	6
7	Lend	4	11
8	Shoe-shop	9	6
9	Shopping mall	10	5
10	History	9	6
11	Optimist	6	9
12	Exhausted	2	13
13	Celebrate	5	10
14	Helpful	8	7
15	Wear	7	8
16	Delicious	5	10
17	Take up	4	11
18	Drought	5	10
19	Unusual	6	9
20	Science fiction	10	5

Table 4.*The results of the pre-test (Control Group)*

Pre-Test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	9	8
2	Attractive	10	7
3	Healthy	6	11
4	Mountain	14	3
5	Crowded	10	7
6	Gym	8	9
7	Lend	2	15
8	Shoe-shop	8	9
9	Shopping mall	11	6
10	History	7	10
11	Optimist	4	13
12	Exhausted	4	13
13	Celebrate	4	13
14	Helpful	5	12
15	Wear	4	13
16	Delicious	4	13
17	Take up	6	11
18	Drought	3	14
19	Unusual	3	14
20	Science fiction	9	8

After the pre-test was analyzed via an independent-samples t-test, it was recognized that there was a statistical difference between the groups. One week after the pre-test, the learners took the instruction. They received the same instruction. However, Kahoot! was used by the experimental group to practice the target words (see Appendix 2) while the control group did the same exercise which had the same questions as the experimental group by using conventional pen and paper method (see Appendix 3). The teaching of new vocabulary words lasted for two class hours and the exercises lasted one class hour.

3.7.Immediate Post-test

After the instruction and the practice, an immediate post-test was implemented to assess the short-term retention of the learners (see Appendix 4). The post-test was designed by the researcher like the pre-test and it was the same for the experimental and control group. The immediate post-test contained 20 questions. In the immediate post-test twenty target words were concealed by different distractors. According to Schmitt (2010, pp. 155-156), the immediate post test results can be informative but it has limitations. In other words, the scores of the immediate post-test can not be claimed as long-term learning. He asserts that applying a pre-test, immediate post-test and delayed post-test will give more informative results. One or small number of exposures can not lead to long term learning so immediate post-test has limitations to be able to evaluate the long term learning. In brief, vocabulary learning is longitudinal and incremental so only a longitudinal research design can interpret it properly. This is possible by adding one or more delayed posttests.

Table 5.*The results of the post-test (Experimental group)*

Post-test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	13	2
2	Attractive	13	2
3	Healthy	12	3
4	Mountain	14	1
5	Crowded	12	3
6	Gym	15	0
7	Lend	12	3
8	Shoe-shop	14	1
9	Shopping mall	14	1
10	History	14	1
11	Optimist	14	1
12	Exhausted	11	4
13	Celebrate	12	3
14	Helpful	14	1
15	Wear	12	3
16	Delicious	13	2
17	Take up	11	4
18	Drought	11	4
19	Unusual	12	3
20	Science fiction	15	0

Table 6.***The results of the post-test (Control group)***

Post-test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	14	3
2	Attractive	15	2
3	Healthy	12	5
4	Mountain	16	1
5	Crowded	14	3
6	Gym	14	3
7	Lend	8	9
8	Shoe-shop	13	4
9	Shopping mall	12	5
10	History	12	5
11	Optimist	9	8
12	Exhausted	10	7
13	Celebrate	9	8
14	Helpful	11	6
15	Wear	11	6
16	Delicious	9	8
17	Take up	11	6
18	Drought	10	7
19	Unusual	8	9
20	Science fiction	14	3

3.8.Retention Test (Delayed Post-test)

Schmitt (2010, pp. 155-156) asserts that because of the incremental nature of vocabulary learning, and its susceptibility to attrition, only delayed posttests can determine whether long-term retention has been achieved or not.

According to Baddeley (1990) a delayed post-test should be conducted 3 weeks after the instruction to determine the amount of forgotten and retained words (as cited in Ünal, 2018, p.39). Therefore, a delayed post-test was carried out three weeks after the immediate post-test. It was different from the pre-test and immediate post-test. It was applied to determine whether there was a difference between the control and experimental group in terms of retention or not?

Table 7.*The results of the retention-test (Experimental group)*

Retention-test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	12	3
2	Attractive	13	2
3	Healthy	11	4
4	Mountain	14	1
5	Crowded	12	3
6	Gym	13	2
7	Lend	12	3
8	Shoe-shop	14	1
9	Shopping mall	13	2
10	History	13	2
11	Optimist	12	3
12	Exhausted	11	4
13	Celebrate	10	5
14	Helpful	14	1
15	Wear	12	3
16	Delicious	11	4
17	Take up	10	5
18	Drought	11	4
19	Unusual	10	5
20	Science fiction	14	1

Table 8.*The results of the retention-test (Control group)*

Retention-test Item Number	Potential Target Words	Number of Correct Answers	Number of Wrong Answers
1	Stingy	13	4
2	Attractive	14	3
3	Healthy	12	5
4	Mountain	16	1
5	Crowded	13	4
6	Gym	13	4
7	Lend	5	12
8	Shoe-shop	11	6
9	Shopping mall	12	5
10	History	9	8
11	Optimist	6	11
12	Exhausted	6	11
13	Celebrate	7	10
14	Helpful	8	9
15	Wear	7	10
16	Delicious	8	9
17	Take up	9	8
18	Drought	6	11
19	Unusual	6	11
20	Science fiction	13	4

3.9.Survey

After the treatment, a survey was conducted to get some information about the learners' views about Kahoot!. The survey was composed of 12 statements. It was a Likert-type survey. '1' means strongly disagree, '2' means disagree, '3' means undecided, '4' means agree and '5' means strongly agree. The survey was taken from another master thesis which was prepared by Hamide Nur Ünal.

3.10.Data Analysis

The pre-test was implemented to the experimental and control group. The findings of the pre-test for the groups were investigated, and the results were compared to each other to learn whether the experimental and control group were similar to each other in terms of the scores of the pre-test. It was seen that there was a difference between the groups in terms of the mean scores of the pre-test. First, a Shapiro-Wilk test was applied to determine whether the data were distributed normally, which was essential to conduct a t-test. The data were not normally distributed for control group according to the Shapiro-Wilk test. Therefore Mann Whitney U test was carried out to look at the groups' pre-test mean scores' significance levels. And it was found out that the difference between the experimental and control groups' pre-test scores' means are significant. Therefore, before beginning to experiment, it was known that there was a difference between the groups in terms of the pre-test achievement levels. Then, the findings of the pre-test, the immediate post-test, and the retention test were analyzed by using independent-samples t-test.

The findings gathered from the student survey were examined by means of SPSS software. The results were submitted through tables and discussed elaborately.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1.Presentation

In this part of the research, The findings gained from the pre- and post-tests are submitted. Also, the comparisons between the groups are presented by using statistical analyses. The impacts of Kahoot! and conventional activities are evaluated. The results gained from the surveys are demonstrated.

4.2.Results

This study aimed to find answers to these questions:

1. Will the use of Kahoot! impact the vocabulary retention of students?
2. What are the views of ninth grade students in Kahoot! activities?

To find answers to these research questions, two different treatments were conducted to the experimental and control group. The experimental group practiced new words by benefitting from Kahoot! and the control group practiced new words by using multiple choice exercises. The views of 15 learners were gathered to come to more effective conclusion about using Kahoot! in vocabulary learning.

4.2.1. Pre-test

To come up with an answer to the first research question, a set of pre- and post-test were applied to the experimental and control group. Firstly, the pre-test was implemented to learn whether the groups had initial differences or not in terms of vocabulary knowledge. The scores of the experimental and control groups were analyzed. Means and standard deviations related with the scores of the experimental and control group are given in table 9.

Table 9.***Descriptive statistics of the groups (Pre-Test)******Group Statistics***

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre_Test	Experimental	15	48,0000	7,02038	1,81265
	Control	17	38,2353	7,05806	1,71183

Means and standard deviations related with the scores of the experimental and control group

As it can be seen from the table 9, while the mean score of the experimental group is 48, the mean score of the control group is 38.2353. According to this statistics, it can be seen that there is a difference between the mean scores of the experimental and control group. In order to determine whether the difference is significant or not, test of normality (Shapiro- Wilk) was conducted and it has been found that the data is not normally distributed so Mann Whitney U test was conducted.

Table 10.***Shapiro-Wilk Test for the Pre-Test******Tests of Normality***

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre_Test	Experimental	,265	15	,006	,904	15	,111
	Control	,265	17	,003	,877	17	,029

a. Lilliefors Significance Correction

The significant difference value is lower than 0.05 which means that the data is not normally distributed and there is a significant difference between the groups.

Table 11.

Independent Samples Mann Whitney U Test

Test Statistics^a

	Pre_Test
Mann-Whitney U	41,000
Wilcoxon W	194,000
Z	-3,337
Asymp. Sig. (2-tailed)	,001
Exact Sig. [2*(1-tailed Sig.)]	,001 ^b

a. Grouping Variable: Group

b. Not corrected for ties.

It can be claimed that the difference between the pre-test mean scores of the groups is significant ($\text{sig} < \alpha = 0.05$). According to this table, it can be asserted that the achievement levels of the experiment and control group are not similar. In other words, both of the groups have level differences for the new vocabulary which is going to be instructed.

4.2.2.Immediate Post-test

The immediate post-test was implemented to the groups to determine the effects of the treatments. The findings of the immediate post-test demonstrated that both of the treatments were effective as both of the groups increased their scores. Table 12 shows the mean scores of the experimental and control group in immediate post-test.

Table 12.

Descriptive Statistics of Immediate Post-Test

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Post_Test	Experimental	15	87,6667	4,95215	1,27864
	Control	17	68,5294	11,42430	2,77080

As it can be seen from the table 12 above the mean score of the experimental group is 87.6667 while the mean score of the control group is 68.5294. The mean score of the experimental group increased by almost 40 points but the score of the control group increased 30 points. In other words, the

experimental group increased their scores more than control group. By looking at these results, it can be deduced that Kahoot! is more effective than the traditional method. However immediate post-test results can not be claimed as learning because the vocabulary knowledge was new at that time. According to Schmitt (2010, p.156), whether the treatment has any effect or not could be determined by the help of immediate post-tests. Because mostly forgetting takes place within the 24 hours after the teaching. On the other hand, it can be concluded that Kahoot! worked better. Then the mean difference of the groups' immediate post test scores which is 19.1373 is tested to determine whether there is a significant value between them. And it is observed that the data is distributed normal.

Table 13.

Tests of Normality

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
Post_Test	Experimental	,238	15	,022	,887	15	,061
	Control	,151	17	,200*	,977	17	,925

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 14.

Independent Samples T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Post_Tests	Equal variance assumed	7,190	,012	6,001	30	,000	19,13725	3,18924	12,62395	25,65056
	Equal variance not assumed			6,271	22,380	,000	19,13725	3,05160	12,81485	25,45966

Sig< α =0,05

Therefore independent samples T-test was conducted. By looking at the results of the independent-samples t-test above it can be concluded that the mean between the groups which is 19.1373, indicates a significant value. (t(22,380)=6,271; sig<a=0,05) The results obtained demonstrates that the treatments used in both of the groups resulted in achievement; however Kahoot! which was performed in the experimental group came out with more effective results.

4.2.3.The Analysis of Experimental Group's Pre-test and Immediate Post-test Scores

The experimental group learners' mean and standard deviation values concerning pre-test and immediate post-test scores were evaluated. Independent samples t-test was administrated to determine whether there is a statistically significant difference between the scores, the learners gained.

Table 15.***Paired Samples Test***

		Paired Differences							Sig. (2- tailed)
				95% Confidence					
		Std.	Std.	Interval of the					
		Mean	Deviation	Error	Difference		T	df	
Experimental	Pre_Test -	-			-	-	-		
	Post_Test	39,666	8,33809	2,15289	44,28	35,0491	18,42	1	
		67			415	8	5	4	
								,000	

Sig< α =0,05

According to the table above, the mean difference is -39,66667 between the pre-test and post-test scores of the experimental group. And it can be asserted that there is a significant rise between the pre-test and post-test mean scores of the experimental group ($t(14) = -18,425$; $\text{sig} < \alpha = 0,05$). As a conclusion, it can be said that Kahoot! which was implemented in the experimental group gave effective results.

4.2.4. The Analysis of Control Group's Pre-test and Immediate Post-test Scores

The control group learners' mean and standard deviation values concerning pre- and immediate post-test scores were evaluated. Dependent Samples Wilcoxon Test was conducted in order to determine whether there is a statistically significant value concerning the scores of the learners gained in the pre- and immediate post-test.

Table 16.***Dependent Samples Wilcoxon Test -Test Statistics^a***

	Post_Test - Pre_Test
Z	-4,957 ^b
Asymp. Sig. (2-tailed)	,000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

By looking at the results of the Dependent Samples Wilcoxon Test, it can be deduced that there is a significant rise between the pre- and immediate post-test mean scores of the control group ($\text{sig} < \alpha = 0,05$).

4.2.5. The Analysis of Experimental and Control Group's Scores Concerning Pre- and Immediate Post-test

Table 17.***Group Statistics***

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre_Test	Experimental	15	48,0000	7,02038	1,81265
	Control	17	38,2353	7,05806	1,71183
Post_Test	Experimental	15	87,6667	4,95215	1,27864
	Control	17	68,5294	11,42430	2,77080

It can be seen from the table above the mean and standard deviation values of experimental and control group scores in pre- and immediate post-test. According to the table 17 the experimental group increased their scores from 48 to 87,6667 while the pre-test score was 38.2353, it was 68,5294 in the control group. It can be deduced that there is an increase in achievements of both experimental and control group.

4.2.6. The Analysis of Experimental Group's Immediate Post-test and Retention Test Scores

To learn the long term vocabulary retention of the groups, a retention test was conducted to both groups three weeks after the treatment. Then the mean and standart deviation values of the experimental group in the immediate post-test

and retention test were evaluated. Test of normality was administrated in order to determine whether there was a statistically significant difference or not.

Table 18.

Tests of Normality

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Retention_Test	Experimental	,291	15	,001	,734	15	,001
	Control	,215	17	,035	,905	17	,083

a. Lilliefors Significance Correction

It was observed that the data was not distributed normally. Therefore Wilcoxon test was implemented.

Table 19.

Test Statistics^a

	Retention_Test - Post_Test
Z	-4,238 ^b
Asymp. Sig. (2-tailed)	,000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

It can be observed from the table that there is a statistically significant difference in favour of immediate post-test when the scores of the experimental group's immediate post-test and retention test results were compared. As a conclusion, it can be asserted that attrition usually occurs over time.

4.2.7. The Analysis of Control Group's Immediate Post-test and Retention Test Scores

The mean and standard deviation values of the control group in immediate post-test and retention test were evaluated. Paired samples t-test was implemented to determine whether the difference of the two tests scores was in significant value or not? The results are given in the table 20.

Table 20.***Paired Samples Test***

		Paired Differences					t	df	Sig. (2- tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Control	Post Test- Retention_Test	10,88235	10,49335	2,54501	5,48717	16,27753	4,276	16	,001

It can be seen from the table that control group's immediate post-test and retention test mean difference is 10, 88235. There is a statistically significant difference in favour of immediate post-test when the scores of the control group's immediate post-test and retention test results are compared. According to the table, it can be claimed that attrition occurs after the immediate post-test.

4.2.8.The Analysis of Experimental and Control Group's Retention Test Scores

The control and experimental group's mean and standard deviation values related to retention test scores are given in the table below.

Table 21.***Group Statistics***

	Group	N	Mean	Std. Deviation	Std. Error Mean
Retention_Test	Experimental	15	81,0000	5,73212	1,48003
	Control	17	57,6471	14,80262	3,59016

It can be seen from the table that the experimental group's retention test mean score is 81 while this value is 57,6471 in the control group. According to these results, it can be deduced that there is a difference between the groups in terms of the mean scores of the retention test. Tests of normality was conducted in order to determine whether this difference was statistically significant or not? And it was observed that the data was not distributed normally. So Mann Whitney U test was implemented.

Table 22.***Tests of Normality***

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Retention_Test	Experimental	,291	15	,001	,734	15	,001
	Control	,215	17	,035	,905	17	,083

Lilliefors Significance Correction

Table 23.***Independent Samples Mann Whitney U Test***

	Retention_Test
Mann-Whitney U	23,500
Wilcoxon W	176,500
Z	-3,978
Asymp. Sig. (2-tailed)	,000
Exact Sig. [2*(1-tailed Sig.)]	,000 ^b

a. Grouping Variable: Group

b. Not corrected for ties.

The significant value of the test above implies that there is a significant difference between the groups. According to this result, it can be claimed that Kahoot! increased the vocabulary retention more than traditional activity. Consequently, it can be asserted that Kahoot! has a positive effect on the long term retention.

4.2.9. The Analysis of Experimental and Control Group's Pre-test, Immediate Post-test and Retention Test Scores

The control and experimental group's mean and standard deviation values related to pre- test, immediate post-test and retention test scores are given in the table 24.

Table 24.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre_Test	Experimental	15	48,0000	7,02038	1,81265
	Control	17	38,2353	7,05806	1,71183
Post_Test	Experimental	15	87,6667	4,95215	1,27864
	Control	17	68,5294	11,42430	2,77080
Retention_Test	Experimental	15	81,0000	5,73212	1,48003
	Control	17	57,6471	14,80262	3,59016

It can be seen from the table that experimental group's pre-test mean score is 48 while this value is 87.6667 in immediate post-test and it's 81 in retention test. The control group's pre-test mean score is 38,2353 while this value is 68,5294 in immediate post-test and it's 57,6471 in retention test. As it can be seen from the table, it can be deduced that experimental group's short and long-term retention is higher than control group's short and long-term retention. According to this study, it can be claimed that Kahoot! worked better than conventional exercise regarding to the short and long-term retention.

Table 25.*The analysis of the scores of the learners*

Students	Pre-test (Test 1)	Immediate Post-test (Test 2)	Retention Test (Test3)	Gain Scores (T3- T1)
St1	60	90	85	25
St2	60	80	80	20
St3	55	85	85	30
St4	40	85	65	25
St5	45	85	85	40
St6	45	95	85	40
St7	50	95	85	35
St8	45	95	85	40
St9	55	90	85	30
St10	45	90	85	40
St11	50	85	80	30
St12	45	85	80	35
St13	45	85	80	35
St14	35	80	75	40
St15	45	90	75	25
St16*	45	90	90	45
St17	40	85	80	40
St18	30	75	45	15
St19	40	70	70	30
St20	35	60	60	25
St21	35	65	50	15
St22	35	45	45	10
St23	35	70	70	35
St24	35	65	65	30
St25	50	80	65	15
St26	35	65	45	10
St27	40	60	45	5
St28	35	75	45	10
St29	55	80	65	10
St30	30	60	40	10
St31	45	65	60	15
St32	30	55	40	10

*Note: The learners up to asterisk (i.e., St16) are in the experimental group (St1-St15), the learners after the asterisk are in the control group (St16-St32).

Table 25 demonstrates the whole process elaborately. According to the table, it can be recognized that most of the learners increased their scores in the immediate post-test and most of the learners decreased their scores in the retention test. This is the expected result of the vocabulary learning since it is susceptible to attrition. As it can be seen from the table, both of the treatments implemented in the groups are relatively successful. On the other hand, the scores are not sufficient to show that the target words have been acquired by the learners. Therefore more elaborate investigation is necessary. Tables below illustrate the performance of the learners. The tables were prepared for twenty target words. However in order to help the readers, the tables were divided based on the words and the groups.



Table 26.

The Analysis of the Target Word Mastery of the Learners (Experimental Group)

		<i>Target Words</i>														
		Stingy			Attractive			Healthy			Mountain			Crowded		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-test	Post-Test	Retention
		1	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2	-	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
3	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+
4	-	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+
5	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
6	+	+	+	+	+	+	-	+	+	+	+	+	+	-	-	-
7	-	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+
8	+	+	+	-	+	+	+	-	+	-	+	+	+	+	+	+
9	+	+	+	-	+	+	+	+	+	-	-	-	+	+	+	
10	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+
11	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+
12	-	-	-	+	+	+	+	+	+	+	+	+	+	-	+	+
13	+	+	+	-	-	-	-	+	+	+	+	+	+	-	-	-
14	+	-	-	-	-	-	+	-	-	-	+	+	+	-	+	+
15	+	+	+	-	+	+	-	-	-	+	+	+	+	-	+	+
<i>Total</i>		9	13	13	9	12	13	8	11	12	12	14	14	9	12	12

Table 27.

Target Word Mastery of the Learners (Experimental Group)

<i>St.</i>	<i>Target Words</i>														
	Gym			Lend			Shoe shop			Shopping mall			History		
	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-test	Post-Test	Retention
1	-	+	+	-	+	+	+	+	+	+	+	+	-	-	-
2	+	+	+	-	-	-	+	+	+	-	-	-	+	+	+
3	-	+	+	-	-	-	+	+	+	-	+	+	+	+	+
4	+	+	+	-	+	+	-	-	-	+	+	+	+	+	+
5	-	+	+	-	-	-	+	+	+	-	+	+	-	-	-
6	+	+	-	-	+	+	-	+	+	+	+	+	-	+	+
7	-	+	+	-	+	+	+	+	+	+	+	-	-	+	+
8	+	+	+	-	+	+	-	+	+	-	+	+	+	+	+
9	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+
10	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+
11	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+
12	+	+	-	+	+	+	-	+	+	-	+	+	+	+	+
13	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+
14	+	+	+	-	+	+	+	+	+	+	+	+	+	-	+
15	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-
	9	15	14	4	12	12	9	14	14	10	14	13	8	13	12

Table 28.

Target Word Mastery of the Learners (Experimental Group)

		<i>Target Words</i>														
		Optimist			Exhausted			Celebrate			Helpful			Wear		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention
		1	-	+	+	-	+	+	-	-	-	+	+	+	-	-
2	-	+	+	-	+	+	+	+	+	-	+	+	+	+	+	
3	+	+	+	-	+	+	+	+	+	-	-	-	+	+	+	
4	-	+	-	-	+	+	+	+	-	-	+	+	+	-	-	
5	+	+	+	-	+	+	-	+	+	+	+	+	-	+	+	
6	+	+	+	-	+	+	+	+	+	-	+	+	-	+	+	
7	-	+	-	-	+	+	+	+	+	-	+	+	+	+	+	
8	-	+	+	+	+	+	-	+	-	-	+	+	+	+	-	
9	-	+	+	-	-	-	-	+	+	+	+	+	-	+	+	
10	-	+	+	-	-	-	-	+	+	+	+	+	+	+	+	
11	-	-	-	-	-	-	-	+	-	+	+	+	+	+	+	
12	+	+	+	-	-	-	-	+	+	-	+	+	-	+	+	
13	+	+	+	-	+	+	-	+	+	+	+	+	-	+	+	
14	+	+	+	-	+	+	-	+	+	+	+	+	-	+	+	
15	-	+	-	+	+	+	-	+	-	+	+	+	-	+	+	
<i>Total</i>		6	14	11	11	11	11	5	14	10	8	14	14	7	13	12

Table 29.

Target Word Mastery of the Learners (Experimental Group)

		<i>Target Words</i>														
		Delicious			Take up			Drought			Unusual			Science fiction		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	PreTest	PostTest	Retention	Pre-Test	Post-Test	Retention
		1	+	+	+	+	+	+	-	+	+	+	-	+	+	+
2	+	+	+	+	+	+	+	-	-	-	+	+	+	+	+	+
3	-	-	-	-	+	+	+	+	+	+	-	+	+	+	+	+
4	-	+	+	-	+	+	+	-	-	-	+	+	+	-	+	-
5	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+
6	-	+	+	-	+	+	+	+	+	+	-	+	-	+	+	+
7	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
8	-	+	+	+	+	+	+	-	+	-	-	+	+	+	+	+
9	+	+	+	+	+	+	+	+	+	+	-	+	-	-	+	+
10	+	+	-	-	-	-	-	-	+	+	+	+	+	-	+	+
11	+	+	+	-	-	-	-	-	+	+	+	+	+	-	+	+
12	-	+	+	-	-	-	-	-	+	+	+	+	+	+	+	+
13	-	+	+	-	+	+	+	-	+	+	-	-	-	+	+	+
14	-	+	-	-	+	+	+	-	+	-	-	-	+	-	+	+
15	-	+	+	-	+	+	-	-	+	+	-	-	+	+	+	+
<i>Total</i>		5	13	11	4	12	10	5	13	11	6	12	12	10	15	14

Table 30.

Target Word Mastery of the Learners (Control Group)

		<i>Target Words</i>														
		Stingy			Attractive			Healthy			Mountain			Crowded		
<i>St.</i>	<i>Test</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	PreTest	PostTest	Retention	Pre-Test	Post-Test	Retention
	1		+	+	+	-	+	+	+	+	+	+	+	+	-	+
2		-	-	-	+	+	+	+	+	+	+	+	+	+	+	+
3		+	+	+	-	+	+	+	+	-	+	+	+	-	-	-
4		+	+	+	+	+	+	-	+	+	+	+	+	-	-	-
5		+	+	+	-	+	+	+	+	+	-	+	+	-	-	-
6		-	-	-	+	+	+	+	+	+	-	+	+	-	+	+
7		-	-	-	+	+	+	+	+	+	-	-	-	+	+	+
8		+	+	+	-	+	+	-	-	-	+	+	+	+	+	+
9		+	+	+	-	+	+	-	-	-	+	+	+	+	+	+
10		+	+	+	+	+	+	-	+	+	+	+	+	-	+	-
11		-	+	-	+	+	+	-	-	-	+	+	+	-	+	+
12		-	+	+	+	+	+	-	-	+	+	+	+	+	+	+
13		-	+	+	+	+	-	-	+	+	+	+	+	+	+	+
14		-	+	+	+	+	+	-	-	-	+	+	+	+	+	+
15		+	+	+	-	-	-	-	+	+	+	+	+	+	+	+
16		-	+	+	+	+	+	-	+	+	+	+	+	+	+	+
17		+	+	+	-	-	-	-	+	+	+	+	+	+	+	+
<i>Total</i>		9	12	11	10	13	12	6	10	10	12	14	14	8	12	11

Table 31.

Target Word Mastery of the Learners (Control Group)

		<i>Target Words</i>														
		Gym			Lend			Shoe shop			Shopping mall			History		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention
			1	-	-	-	-	-	+	+	+	+	+	+	+	-
	2	-	-	-	-	-	-	+	+	+	+	+	+	-	+	+
	3	-	-	-	-	-	-	-	+	+	+	+	+	-	+	-
	4	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+
	5	-	+	+	-	-	-	+	+	+	+	+	+	-	-	-
	6	+	+	+	-	-	-	-	+	+	+	+	+	-	-	-
	7	-	+	+	-	-	-	+	+	+	-	-	-	-	-	-
	8	+	+	+	-	-	-	-	+	+	-	-	-	-	-	-
	9	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+
	10	+	+	+	-	+	+	+	+	-	+	-	-	+	+	+
	11	-	+	+	+	+	-	-	-	-	-	-	-	+	+	+
	12	+	+	-	-	+	+	+	+	-	-	-	-	-	-	-
	13	-	+	+	-	+	-	+	+	+	-	+	+	+	+	+
	14	+	+	+	-	-	+	+	+	+	+	+	+	-	+	+
	15	-	+	+	-	+	-	-	-	-	+	+	+	+	+	-
	16	+	+	+	-	+	+	-	-	-	+	+	+	-	+	+
	17	+	+	+	-	+	-	-	-	-	-	+	+	+	+	-
<i>Total</i>		8	14	13	2	8	6	8	14	11	11	12	12	7	12	9

Table 32.

Target Word Mastery of the Learners (Control Group)

		<i>Target Words</i>														
		Optimist			Exhausted			Celebrate			Helpful			Wear		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention
		1	+	+	+	-	+	+	-	+	+	+	+	+	+	-
2	+	+	+	-	+	+	-	+	+	-	+	+	+	-	+	+
3	-	-	-	-	+	+	+	+	-	-	-	-	-	-	+	+
4	-	-	-	+	+	+	-	+	+	-	+	+	+	-	-	-
5	-	-	-	-	+	+	-	+	+	-	-	-	-	-	-	-
6	-	-	-	+	-	-	-	+	-	+	+	+	+	-	-	-
7	-	-	-	-	-	-	+	+	+	-	+	+	+	-	-	-
8	-	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+
9	-	-	+	+	+	-	-	-	-	-	+	+	+	-	+	+
10	+	+	+	-	+	-	-	-	-	-	+	+	+	+	+	+
11	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+	+
12	-	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-
13	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
14	-	+	+	-	+	-	+	+	+	+	+	+	+	-	+	-
15	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
16	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	-
17	-	+	-	-	-	-	-	-	-	-	-	-	-	+	+	-
<i>Total</i>		4	9	7	4	10	6	4	10	10	5	11	8	4	11	7

Table 33.

Target Word Mastery of the Learners (Control Group)

		<i>Target Words</i>														
		Delicious			Take up			Drought			Unusual			Science fiction		
<i>Test</i>	<i>St.</i>	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention	Pre-Test	Post-Test	Retention
		1	+	+	-	-	+	+	+	+	+	+	-	+	+	-
2	+	+	-	-	+	+	-	+	+	+	-	+	+	-	+	+
3	-	+	+	-	+	+	-	+	-	-	+	-	+	+	+	-
4	-	-	-	-	-	-	-	+	+	+	-	+	+	+	+	+
5	-	-	-	+	+	+	+	+	+	+	-	-	-	+	+	+
6	-	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+
7	-	-	-	+	+	+	-	-	-	+	+	+	+	-	-	-
8	-	+	+	-	+	+	-	-	-	-	-	-	-	+	+	+
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
10	-	+	+	-	+	+	-	-	-	-	-	-	-	-	+	+
11	-	+	+	+	+	+	-	+	+	-	-	-	-	-	+	+
12	+	+	-	-	-	-	-	+	+	-	-	-	-	+	+	+
13	-	-	-	+	+	-	+	+	-	-	-	-	-	-	+	+
14	+	+	+	-	-	-	-	-	-	+	+	-	+	+	+	+
15	-	-	+	+	+	+	-	+	-	-	-	-	-	-	-	-
16	-	-	+	-	-	-	-	-	-	+	+	+	+	+	+	+
17	-	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-
<i>Total</i>		13	9	8	6	12	9	3	10	6	3	8	6	8	14	13

Table 34.1.*The Analysis of the Learner Performance (C: Correct, W: Wrong)*

Words	Tests	Experimental Group		Control Group	
		C	W	C	W
Stingy	Pre-	9	6	9	8
	Post-	13	2	14	3
	Retention	12	3	13	4
Attractive	Pre-	9	6	10	7
	Post-	13	2	15	2
	Retention	13	2	14	3
Healthy	Pre-	8	7	6	11
	Post-	12	3	12	5
	Retention	11	4	12	5
Mountain	Pre-	11	4	14	3
	Post-	14	1	16	1
	Retention	14	1	16	1
Crowded	Pre-	8	7	10	7
	Post-	12	3	14	3
	Retention	12	3	13	4
Gym	Pre-	9	6	8	9
	Post-	15	0	14	3
	Retention	13	2	13	4
Lend	Pre-	4	11	2	15
	Post-	12	3	8	9
	Retention	12	3	5	12
Shoe-shop	Pre-	9	6	8	9
	Post-	14	1	13	4
	Retention	14	1	11	6
Shoppingmall	Pre-	10	5	11	6
	Post-	14	1	12	5
	Retention	13	2	12	5
History	Pre-	9	6	7	10
	Post-	14	1	12	5
	Retention	13	2	9	8

Table 34.2.*The summary of the learner performance (C: Correct, W: Wrong)*

Words	Tests	Experimental Group		Control Group	
		C	W	C	W
Optimist	Pre-	6	9	4	13
	Post-	14	1	9	8
	Retention	12	3	6	11
Exhausted	Pre-	2	13	4	13
	Post-	11	4	10	7
	Retention	11	4	6	11
Celebrate	Pre-	5	10	4	13
	Post-	12	3	9	8
	Retention	10	5	7	10
Helpful	Pre-	8	7	5	12
	Post-	14	1	11	6
	Retention	14	1	8	9
Wear	Pre-	7	8	4	13
	Post-	12	3	11	6
	Retention	12	3	7	10
Delicious	Pre-	5	10	4	13
	Post-	13	2	9	8
	Retention	11	4	8	9
Take up	Pre-	4	11	6	11
	Post-	11	4	11	6
	Retention	10	5	9	8
Drought	Pre-	5	10	3	14
	Post-	11	4	10	7
	Retention	11	4	6	11
Unusual	Pre-	6	9	3	14
	Post-	12	3	8	9
	Retention	10	5	6	11
Science fiction	Pre-	10	5	9	8
	Post-	15	0	14	3
	Retention	14	1	13	4

The table above illustrates how well the learners acquired the target words. As it can be seen from the table, most of the learners who couldn't give the right answer in the pre-test, gave the correct answer in the immediate post-test. This means that Kahoot! and traditional practise had a positive effect on the short-term retention of the words. On the other hand, it can be seen that experimental group increased their scores more than control group. This means that Kahoot! is more successful than traditional practise in terms of short-term retention. Some of the learners who got the correct answer in the immediate post-test, couldn't get the correct answer in the retention test. This is result of the nature of the vocabulary learning since it is susceptible to attrition. But the experimental group

is more successful than control group in retention test. This means that Kahoot! is more effective than traditional practice in terms of the long term retention.

By looking at the tables, one can say that the highest score belongs to mountain. 30 learners got the correct answer in the retention test. The most apparent difference between the groups is the score of the word lend. The number of the learners who learned in the experimental group is 12, while the number of the learners who learned in the control group is 5. The scores of the words attractive and mountain are near to each other. Other than that, vocabulary gain of the experimental group is higher than the control group. However, these results includes the learners who knew the words all along. If they are excluded from the vocabulary gains in another table, it will be revealed more clearly.

Table 35.1.*The Actual Vocabulary Gain of the Groups*

Words	Experimental Group		Control Group	
	Post-test	Retention test	Post-test	Retention test
Stingy	5	4	5	4
Attractive	4	4	5	5
Healthy	6	5	6	5
Mountain	2	2	2	2
Crowded	3	3	4	3
Gym	6	6	6	6
Lend	8	8	6	4
Shoe shop	5	5	5	5
Shopping mall	4	4	2	2
History	5	5	5	4
Total	48	46	46	40

Table 35.2.*The Actual Vocabulary Gain of the Groups*

Words	Experimental Group		Control Group	
	Post-test	Retention test	Post-test	Retention test
Optimist	8	5	5	4
Exhausted	9	9	7	5
Celebrate	9	6	6	4
Helpful	6	6	6	5
Wear	7	7	7	5
Delicious	8	7	5	7
Take up	8	7	5	5
Drought	8	6	7	4
Unusual	6	6	5	4
Science fiction	5	4	6	6
Total	74	63	59	49

Table 35.3.*Total number of two tables*

Experimental Group		Control Group	
Post-test	Retention test	Post-test	Retention test
122	109	105	89

When the learners who already knew the target words in the pre-test were taken out from the post-test and the retention test, the findings became more apparent. These tables demonstrate the capability of Kahoot! exercises. In the same way, the results of the conventional method are as successful as Kahoot!'s. Our first research question can be answered with the help of these results. Will the

use of Kahoot! impact the vocabulary retention of students? The answer is yes. According to these results, it can be said that both methods are effective. However, Kahoot! is more effective than the conventional method.

According to Madsen (1983, p.17) multiple choice tests assess passive vocabulary since learners have to recognize target words but not necessarily produce them. Therefore making generalizations about learning a word based only multiple choice tests is not recommended. The findings of this research shouldn't be acknowledged as vocabulary acquisition since it only concerns about receptive vocabulary knowledge.

4.3.Surveys

In order to give an answer to the second question of this research, a student satisfaction survey was conducted right after the treatment. The survey includes 12 statements. 15 learners who are in the experimental group participated in the survey. The learners scored their opinions by giving points from 1 to 5 (*1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree*). Translated Turkish version of the survey was delivered to the participants in order to avoid any misunderstanding. SPSS was used in order to analyze their responses. The mean scores and standart deviation of the statements determined. The results of the survey were demonstrated in the table 36.

Table 36.***Results of the Student Survey***

	N	Mean	SD
1. I found Kahoot! easy to use.	15	4.67	0.617
2. Using Kahoot! helped me finish the task without getting distracted.	15	4.60	0.507
3. Using Kahoot! was fun.	15	4.87	0.352
4. Using Kahoot! helped me learn new vocabulary.	15	4.80	0.414
5. I would rather use technology to learn new words than paper and pencil.	15	4.60	0.632
6. I would like to use Kahoot! in other classes to help me learn.	15	4.53	0.640
7. I felt prepared for tests after using Kahoot!.	15	4.47	0.743
8. I look forward to using Kahoot!.	15	4.47	0.743
9. I would like to tell other students about Kahoot!.	15	4.33	0.724
10.Kahoot! increased my motivation.	15	4.27	0.799
11.Kahoot! helped me remember the new words.	15	4.80	0.414
12.Kahoot! should be used to practice the new words in the lessons.	15	4.40	0.737

It can be concluded that the learners think that using Kahoot! is easy by looking at the survey's mean score of the first item (4.66). According to the mean score of the second item (4.60), it can be considered that Kahoot! prevents distraction. It can be deduced that the learners enjoyed playing with Kahoot! by looking at the mean score of the third item (M=4.86). The learners also stated that they acquired vocabulary by playing Kahoot!. The mean score of the fourth statement confirms this (4.80). It can be claimed that learners prefer using

technology to traditional techniques by looking at the mean score of the fifth item (4.60). It can be inferred according to the result of the sixth item that learners would like to benefit from Kahoot! in other classes ($M=4.53$). It can be deduced that benefiting from Kahoot! increased learners' readiness for tests according to the mean score of the seventh item (4.46). It can be drawn a conclusion by looking at the mean score of the eighth statement that learners have fancy for using Kahoot! (4.46). We can make a conclusion by looking at the mean score of the ninth item that learners want to tell about Kahoot! to their friends (4.33). It can be concluded that Kahoot! increased learners' motivation by looking at the mean score of the tenth statement (4.60). The learners claimed that they remembered the words better when they benefited from Kahoot! in the eleventh item (4.80). The final statement's mean score demonstrates that the learners want to benefit from Kahoot! to reinforce the retention of the words (4.40).

CHAPTER FIVE

RESULTS AND DISCUSSION

5.1.Presentation

The aim of this chapter is to discuss the main findings elicited through the analyses of the pre-tests, post-tests and interviews with the participants in the experimental group. The researcher attempted to answer and discuss each of the research questions in detail.

5.2. Results and Discussion

The main objective of this research (Research Question 1) was to determine the impacts of benefiting from Kahoot! and traditional exercises on vocabulary retention of EFL learners. It was supposed that Kahoot! exercises would be more effective on vocabulary retention of the learners than the conventional exercises. As it can be seen from the research results, there is an apparent difference between the mean scores of the experimental and control group. Moreover this difference is statistically significant. The significance value of the retention test (,000) demonstrates that groups have statistically different results. Furthermore, the mean score of the experimental group (81,0000) is considerably higher than the control group (57,6471) in the retention test. Also total vocabulary gain of the experimental group is clearly higher than the control group. There are similar studies which reinforce the notions of our study. Iwamoto, Hargis, Taitano, and Vuong (2017) found that Kahoot! had a significant effect on test scores at the end of the research they conducted. Pede (2017) carried out a research and determined that experimental group which used Kahoot! took higher scores at the end of the weekly vocabulary assessments. Ciaramella (2017) also came to a conclusion that using Kahoot! was effective to acquire and retain vocabulary words. Licorish, Owen, Daniel, and George (2018) determined that Kahoot! affected learners' learning, remembering and retention positively. Aghlara and Tamjid (2011) conducted a study by using a digital game in experimental group and found that the use of digital game in learning English vocabulary was much more effective on learners. Consequently, it can be claimed that Kahoot! had a positive effect on acquiring and retaining new vocabulary.

Another objective of this research (Research Question 2) was to gather the EFL learners' views about Kahoot!. It was hypothesized that the participants would give positive statements about using Kahoot! in the class. According to the results of the student survey, it can be claimed that learners get pleasure utilizing Kahoot! in the lesson. They also declared that Kahoot! prevented distraction and it was motivating. They also preferred Kahoot! to traditional exercises in vocabulary learning. Learners stated that using Kahoot! would be effective in another lessons too. They also expressed that Kahoot! should be utilized to practise vocabulary. They also thought that benefiting from Kahoot! in other lessons would be effective. Pede (2017) used the same survey in his study and 100% of participants agreed that using Kahoot! was easy. All of the participants expressed that they enjoyed benefiting from Kahoot! in the lesson. 67% of participants preferred to use technology to pen and paper techniques. 83% of learners claimed that they would like to tell about Kahoot! to other students. Ciaramella (2017) had seven participants complete the Likert satisfaction survey. Five of the participants strongly agreed that using Kahoot! was easy while two participants agreed. Six of the participants strongly agreed that utilizing Kahoot! assisted them to acquire new words while one participant agreed. All of the participants strongly agreed that they would like to benefit from Kahoot! in other lessons to assist them learn. Licorish, Owen, Daniel, and George (2018) implemented a similar study and showed that participants enjoyed Kahoot!. Participants also expressed that Kahoot! drew their attention and interest. Their outcomes demonstrated that Kahoot! increased motivation, engagement and interaction in the classroom. Ismail and Mohammed (2017) applied a similar student survey and participants strongly agreed that Kahoot! was entertaining and effective platform and it had a positive effect on motivation and engagement. Nahmod (2017) carried out a similar research with fourteen special education and 36 general education learners. She implemented weekly vocabulary quizzes during the time of twelve weeks. The results from that study don't show difference in vocabulary test scores as a result of the Kahoot!. However she concluded that Kahoot! prevented the tiresom and boredom effect which was caused by the conventional teaching methods. Learners asserted that higher motivation and engagement due to the competition in Kahoot! that does not exist in conventional teaching activities.

Even though there are different research designs in the studies mentioned above, the studies have a common argument. They searched almost the same themes. Consequently, it can be claimed that gamification affects learning positively and makes it more motivating, entertaining and engaging.



CHAPTER SIX

CONCLUSION

6.1.Presentation

In this chapter of the study, a summary of the research is presented. Moreover, implications of the study in the English language teaching are put forward. In conclusion, some suggestions for the researchers who wants to carry out a similar study are proposed.

6.2. Summary of the Study

The main objective of this study was to determine the impact of Kahoot! on vocabulary retention of EFL learners. To conduct this study, two groups were formed by convenient sampling method from Saray Kocalar Religious Vocational High School. These groups were randomly separated to the control group and the experimental group. The experimental group involved 15 participants and the control group involved 17 participants. These learners were the students in the ninth class of Saray Kocalar Religious Vocational High School. Their ages were between 15 and 16. 20 words were selected from their coursebook to be taught. The same instruction was used to teach the target words for both of the groups. However, the experimental group practised the target words with the help of Kahoot! while the control group received the practice through conventional pen and paper methods. An immediate post-test which was different from pre-test, was conducted to both groups to evaluate the efficiency of the treatments right after the instruction. The findings demonstrated that both of the treatments were effective on the learners' vocabulary learning. Both of the groups increased their scores. However experimental group passed the control group. After the immediate post-test, a satisfaction survey was implemented to get some ideas about the learners' views about Kahoot!.

According to the results of the survey, the learners enjoyed playing Kahoot! in English class. Learners also claimed that remembering words is easy with the help of Kahoot!. Three weeks after the immediate post-test, a delayed post-test which was different from the pre-test and immediate post-test was

applied to both groups to determine long term vocabulary retention. The scores of some learners dropped in both of the groups. However, control group's scores decreased more than experimental group's scores. Moreover, it was determined that there was a statistical significant difference between the experimental and control group according to results of the independent samples Mann Whitney U Test.

6.3.Implications of the Study

This research includes a great deal of implications for teachers, instructors, teacher trainers, programme makers, material writers and curriculum designers.

Firstly, teachers should adopt and implement the recent changes in technology. As the previous literature has mentioned, a single method can not be sufficient to teach their lessons in an efficient way. Integrating technology into the lessons is the necessity of our age. Teachers should follow the latest methods and techniques in teaching and planning their lessons to supply the requirements of their learners. Since the new generation is tech-savvy, teachers should benefit from technology in their lessons. Gamification can provide several opportunities to the teachers. It can increase interaction and engagement and make their lessons lively.

Teacher trainees should be trained how to integrate technology into their programs and lessons in pre- and in-service training. Many researches prove that most of the teachers either don't have the knowledge of benefitting from technology in their lessons or do not have the necessary equipment to integrate technology into their lessons. More ICT courses should be applied in teacher training programs.

Curricula and syllabi can be prepared by integrating ICT effectively. The material writers should benefit from multimedia to do different activities for different learning styles.

6.4. Suggestions for Further Research

In spite of the limitations of this research, the findings of this study suggest that using Kahoot! with ninth grade high school students increases vocabulary acquisition and retention of the learners. Firstly, this study is limited to 32 participants. Further researches could be carried out with groups which have more participants. In this study, only a small number of words were selected as target words. More target words can be used in future studies. Further research could be done with grammar subjects. Future studies could also compare the effects of Kahoot! on grammar and comprehension. The effects of Kahoot! on four language skills can be studied in future studies. This study can also be done with primary and elementary school students. Moreover, this study could be expanded to special education learners. Particularly, future researchers can investigate the effects of Kahoot! on students with specific learning disabilities. This research was carried out in four weeks. Further studies can be implemented to determine the long-term impacts of Kahoot! on vocabulary retention.

A comparison can be made to evaluate the impacts of Kahoot! and the other game-based learning platforms in terms of acquisition and retention. On the other hand, these kinds of studies require technical equipment in the classes such as internet connection. Technological devices are compulsory for the learners in order to participate in the activities. These requirements should be considered before carrying out a similar study.

REFERENCES

- Abrams, S. S., & Walsh, S. (2014). Gamified vocabulary online resources and enriched language learning. *Journal of Adolescent & Adult Literacy*, 58(1), 49-58. doi: 10.1002/jaal.315
- Aghlara, L., & Tamjid, H. N. (2011). The effect of digital games on Iranian children's vocabulary retention in foreign language acquisition. *Procedia- Social and Behavioral Sciences*, 29, 552-560. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1877042811027364>
- Al Ghazali, F. (2006). First language acquisition vs second language learning: What is the difference? The Centre for English Language Studies (CELS), July. Retrieved from http://usir.salford.ac.uk/id/eprint/22469/1/First_Language_Acquisition_Vs_Second_Language_Learning.pdf
- Allen, V. F. (1983). *Techniques in teaching vocabulary*. New York: Oxford University.
- Allen, J. (2006). *Words, Words, Words*. Portland: Stenhouse Publishers.
- Al Neyadi, O. S. (2007). The effects of using Games to reinforce vocabulary learning. *Action Research and Initial Teacher Education*. 99-107 Retrieved from https://gagafy.ga/nyco_rak_pido_nihyh_badyw.pdf
- Alqahtani, M. (2015). The importance of vocabulary in language learning and how to be taught. *International Journal of Teaching and Education*, 3(3), 21-34.10.20472/TE.2015.3.3.002
- Alsawaier, R. (2017). The Effect of Gamification on Motivation and Engagement. *International Journal of Information and Learning Technology*, DOI: 10.1108/IJILT-02-2017-0009
- Anjomshoa, L., & Sadighi, F. (2015). The importance of motivation in second language acquisition. *International Journal on Studies in English Language and Literature (IJSELL)*,3(2), 126-137. Retrieved from <https://www.arcjournals.org/pdfs/ijSELL/v3-i2/12.pdf>
- Aydan, E. (2000). From 'Six Games for the EFL/ESL Classroom. *The Internet TESL Journal*, 6(6). Retrieved from <http://iteslj.org/Lessons/Ersoz-Games.html>
- Barata, G., Gama, S., Jorge, J. A. P., & Gonçalves, D. (2013). *Improving participation and learning with gamification*. INESC-ID. DOI: 10.1145/2583008.2583010
- Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to Life: Robust vocabulary instruction*. New york: Guilford Publications.

- Berg, B. L. (2001). *Qualitative research methods for the social sciences*. Boston: Pearson Education.
- Beza, O. (2011). *Gamification – How games can level up our everyday life?*. Amsterdam: VU University.
- Bhuiyan, T., & Mahmud, I. (2015). Digital game-based education: A Meta analysis. *International Conference of Inclusive Innovation and Innovative Management (ICIIM 2015)*. Retrieved from: <https://www.researchgate.net/publication/295859083>
- Bicen, H., & Kocakoyun, S. (2018). Perceptions of students for gamification approach Kahoot! as a case study. *International Journal of Emerging Technologies in Learning*, 13(2), 72-93.
- Boagards, P., & Laufer, B. (2004). Vocabulary in a second language: Selection, acquisition, antesting. Retrieved from <https://benjamins.com/catalog/llt.10>
- Brown, H. D. (1994). *Principles of language learning and teaching*. New Jersey: Prentice Hall.
- Boulos, M. N., Wheeler, S., Tavares, C., & Jones, R. (2011). How smartphones are changing the face of mobile and participatory healthcare: an overview, with example from eCAALYX. *US National Library of Medicine National Institutes of Health*. Doi: 10.1186/1475-925X-10-24.
- Bucley, P., & Doyle, E. (2014). Gamification and student motivation. *Interactive Learning Environments*, 4(6), 1162-1175. DOI: 10.1080/10494820.2014.964263
- Cameron, K. (1989). *Computer assisted language learning: Program structure and principles*. Norwood, NJ: Ablex Publishing Corporation.
- Camilleri, M.A., & Camilleri, A. (2017). The Students' Perceptions of Digital Game-Based Learning. In Pivec, M. (Ed.) *11th European Conference on Games Based Learning* (October).
- Carter, R. (2002). *Vocabulary: Applied linguistic perspectives*. London and New York: Taylor & Francis e-Library.
- Celce-Murcia, M. (2001). Teaching English as a second or foreign Language. Available from <http://libgen.io/search.php?req=Teaching+english+as+a+second+or+foreign+language&open=0&res=25&view=simple&phrase=1&column=def>
- Chang, Y. (2017). How to use multimedia in college English vocabulary teaching. *Advances in Social Science, Education and Humanities Research*, 105. Retrieved from (<http://creativecommons.org/licenses/by-nc/4.0/>)

- Chen, N. S., & Hsieh, S. W. (2008). Effects of short-term memory and content representation type on mobile language learning. *Language Learning & Technology*, 12(3),93-113. Retrieved from <http://llt.msu.edu/vol12num3/chenetal/>
- Chien, C. W. (2015). Analysis the effectiveness of three online vocabulary flashcardwebsites on L2 learners' level of lexical knowledge. *English Language Teaching*,8 (5), 111-121. doi:10.5539/elt. V8n5p111
- Ciaramella, K. E. (2017). *The effects of Kahoot! on vocabulary acquisition and retention of students with learning disabilities and other health impairments*. (Published masters dissertation). Retrieved from <https://rdw.rowan.edu/cgi/viewcontent.cgi?article=3429&context=etd>
- Clark, M. (2013). *The Use of Technology to Support Vocabulary Development of English Language Learners* (Published masters dissertation). Retrieved from <https://pdfs.semanticscholar.org/ce96/6a6cdde96744e7ceb6ef25782af54616666d.pdf>
- Cook, V. (2008). *Second language learning and language teaching*. London: Hodder Education.
- Cook, V. (2010). The Continuum Companion to Second Language Acquisition. *The Relationship between First and Second Language Learning Revisited* (pp.137-157). Macaro: E. (ed.)
- Craik, F. I. M. & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior*, 11, 671684.Retrieved from <https://pdfs.semanticscholar.org/bca2/82290660631d6bbd7f5f3796c42c6608dd03.pdf>
- Crookes, G., & Schmidt, R. W. (1991). Motivation: Reopening the research agenda. *Language Learning*, 4(41), 469- 512.Retrieved from <http://nflrc.hawaii.edu/PDFs/SCHMIDT%20Motivation%20-%20Reopening%20the%20research%20agenda.pdf>
- Cunningham, A. E. (2005). Vocabulary Growth Through Independent Reading and Reading Aloud to Children. In E. H. Hiebert & M. L. Kâmil (Eds.), *Teaching and learning vocabulary: Bringing research to practice*, 45-68. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Daller, H., Milton, J., & Treffers, J. (2007). *Modelling and assessing vocabulary knowledge*. Cambridge: Cambridge University Press.
- Derakhshan, A., & Khatir, E. D. (2015). The Effects of Using Games on English Vocabulary Learning. *Journal of Applied Linguistics and Language Research*, 2(3), 39-47. Available at www.jallr.ir
- Deterding, S., Dixon, D., Khaled, T., & Nacke, L. (2011). From game design elements to gamefulness: Defining “gamification”. *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*. DOI: 10.1145/2181037.2181040

- Doczi, B., & Kormos, J. (2016). *Longitudinal developments in vocabulary knowledge and lexical organization*. New York: Oxford University Press.
- Dörnyei, Z. (2007). *Research methods in applied linguistics*. New York, NY: Oxford University.
- Ebrahimzadeh, M., & Alavi, S. (2017). Readers, players, and watchers: Short and long-term vocabulary retention through digital video games. *International Journal of Applied Linguistics and English Literature*, 6 (4), 53-62. Doi: 10.7575/aiac.ijalel. v.6n.4p.52
- Elleman, A. M. Morphy, P., & Lindo, E. (2009). The Impact of vocabulary instruction on passage-Level comprehension of school-age children: A Meta- analysis. *Journal of Research on Educational Effectiveness*, 2, 1-44. DOI: 10.1080/19345740802539200
- Ellis, R. (1997). *Second language acquisition*. Oxford: OUP.
- Elyas, T., & Alfaki, I. M. (2014). Teaching vocabulary: The relationship between techniques of teaching and strategies of learning new vocabulary items. *English Language Teaching*, 7(10), 40-56. DOI: 10.5539/elt. v7n10p40
- Eskasasnanda, I. D. P. (2017). Causes and effects of online video game playing among junior-senior high school students in Malang East Java. *International Journal of Indonesian Society and Culture*, 9(2), 191-202. DOI:10.15294/komunitas. v9i2.9565
- Farber, M. (2013). Beyond badges: Why gamify? Edutopia, 1-4. Retrieved from <http://www.edutopia.org/blog/beyond-badges-why-gamify-matthew-farber>
- Faiella, F., & Ricciardi, M. (2015). Gamification and learning: a review of issues and research. *Journal of e-Learning and Knowledge Society*, 11(3), 13-21. Retrieved from https://www.researchgate.net/publication/283757560_Gamification_and_learning_A_review_of_issues_and_research
- Folse, K. S. (2004). Myths about teaching and learning second language vocabulary: What recent research says. *TESL Reporter*, 37(2), 1-13.
- Gairns, R., & Redman, S. (1998). *Working with words: A guide to teaching and learning vocabulary*. Cambridge: Cambridge University Press.
- García-bárcena, J., & García-Crespo, A. (2006). Game based learning: a research on Learning Content Management Systems. *Proceedings of the 5th WSEAS International Conference on Education and Educational Technology*, 18-21. Retrieved from <https://pdfs.semanticscholar.org/61f9/12d7dff91cdf28780c81ead4a4f0195a010c.pdf>
- Gardner, R. C., & Lambert, W. E. (1959). Motivational variables in second language acquisition. *Canadian Journal of Psychology*, 13, 266-272. Retrieved from <https://files.eric.ed.gov/fulltext/ED031968.pdf>

- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. London: Edward Arnold (Publishers).
- Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York, NY: Palgrave Macmillan.
- Ghazali, F. A. (2006). First language acquisition vs second language learning: what is the difference?. *The Centre for English Language Studies (CELS)*. Retrieved from https://www.academia.edu/22679758/First_Language_Acquisition_Vs_Second_Language_Learning_What_Is_the_Difference
- Glover, I. (2013). Play as you learn: gamification as a technique for motivating learners. <http://orcid.org/0000-0002-1078-5281>
- Graham, K. (2015). TechMatters: Getting into Kahoot! (s): Exploring a game-based learning system to enhance student learning. *LOEX Quarterly*, 42(3), 4. Retrieved from <https://commons.emich.edu/cgi/viewcontent.cgi?article=1272&context=loexquarterly>
- Guerrero, M. (2015). Motivation in second language learning: A historical overview and its relevance in a public high school in Pasto, Colombia. *HOW*, 22(1), 95-106. <http://dx.doi.org/10.19183/how.22.1.135>
- Gupta, P., & MacWhimney, B. (1997). Vocabulary acquisition and verbal short-term memory: Computational and neural bases. *Brain And Language*, 59, 267-333. Retrieved from <https://pdfs.semanticscholar.org/c291/16b57a05054e24440c5470cb332b55962ea6.pdf>
- Gündüz, N. (2005). "Computer Assisted Language Learning" (CALL). *Journal of Language and Linguistic Studies*, 1(2), 193-214. Retrieved from <https://dergipark.org.tr/download/article-file/104667>
- Haddad, R. H. (2016). Developing learner autonomy in vocabulary learning in classroom: How and why can it be fostered?. *Procedia- Social and Behavioral Sciences*, 232, 784-791. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1877042816313398>
- Hamzah, W. M., Ali, N. H., Saman Y. M., Yusoff, M. H., & Yacob, A. (2015). Influence of gamification on students' motivation in using e-learning applications based on the motivational design model. *iJET*, 10(2). <http://dx.doi.org/10.3991/ijet.v10i2.4355>
- Hatami, S., & Tavakoli, M. (2012). The role of depth versus breadth of vocabulary knowledge in success and ease in L2 lexical inferencing. *TESL Canada Journal*, 30 (1), 1-21. Retrieved from https://www.researchgate.net/publication/304550627_The_Role_of_Depth_versus_Breadth_of_Vocabulary_Knowledge_in_Success_and_Ease_in_L2_Lexical_Inferencing

- Hatch, E., & Brown, C. (2000) *Vocabulary, Semantics, and Language Education* (3rd printing). Cambridge: Cambridge University Press.
- Hiebert, E. H., & Kamil, M. L. (2005). *Teaching and learning vocabulary bringing research to practice*. London: Lawrence Erlbaum Associates.
- Huang, H. (2006). *Breadth and Depth of English Vocabulary Knowledge: Which Really Matters in the Academic Reading Performance of Chinese University Students?*: McGill University, Montreal.
- Ibrahim, R., & Jaafar, A. (2011). User Acceptance of Educational Games: A Revised Unified Theory of Acceptance and Use of Technology (UTAUT). *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering* ,5(5), 557-563. Retrieved from <https://pdfs.semanticscholar.org/9a2e/0837f85657acc37fec98f17b5bade701bcbb.pdf>
- Ismail, MA-A., & Mohammad, JA-M. (2017). Kahoot: a promising tool for Formative assessment in medical education. *Education in Medicine Journal*.9(2), 19–26. <https://doi.org/10.21315/eimj2017.9.2.2>
- İpek, H. (2009). Comparing and contrasting first and second Language acquisition: Implications for language teachers. *English Language Teaching*, 2(2), 155-163.
- Iwamoto, D. H., Hargis, J., Taitano, E. J., & Vuong, K. (2017). Analyzing the efficacy of the testing effect using kahoot! on student performance. *Turkish Online Journal of Distance Education-TOJDE*, 18(2), 80-93. Retrieved from <http://tojde.anadolu.edu.tr/yonetim/icerik/makaleler/1379-published.pdf>
- Jarvish, S., & Daller, M. (2013). *Vocabulary knowledge: Human ratings and automated measures*. Amsterdam: John Benjamins Publishing Company.
- Kapp, K. M., Blair, L., & Mesch, R. (2014). *The gamification of learning and instruction fieldbook: Ideas into practice*. San Francisco: Wiley.
- Karaaslan, H., Kılıç, N., & Güven-Yalçın, G. (2018). Students' reflections on vocabulary learning through synchronous and asynchronous games and activities. *Turkish Online Journal of Distance Education-TOJDE*, 19(3), 53-70. Retrieved from <https://eric.ed.gov/?id=EJ1183352>
- Karatekin, İ. (2017). *The use of gamification in teaching foreign language vocabulary for beginners*. (Master's Thesis). Retrieved from <https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp>
- Keller, J. M. (1983). *Motivational design of instruction*. In C.M. Reigeluth (Ed.). *Instructional design theories and models: An overview of their current status*. Hillsdale, NJ: Erlbaum Associates.
- Kim, L. S. (1995). From 'Creative Games for the Language Class'. *Forum* 33(1). Retrieved from <https://www.teflgames.com/why.html>

- Kingsley, T. L., & Grabner-Hagen, M. M. (2015). Gamification: Questing to integrate content, knowledge, literacy, and 21st-century learning. *Journal of Adolescent & Adult Literacy*, 1-11. Retrieved from <http://doi.org/10.1002/jaal.426>
- Kirriemuir, J., & McFarlane, A. (2004). *Literature review in games and learning*. Future Lab. Retrieved from fffhal-00190453f
- Kiryakova, G., Angelova, N., & Yordanova, L. (2014). Gamification in education. *Conference: 9th International Balkan Education and Science Conference*. Retrieved from https://www.researchgate.net/publication/320234774_GAMIFICATION_IN_EDUCATION
- Krashen, S. D. (1981). *Second language acquisition and second language learning*. Retrieved from http://www.sdkrashen.com/content/books/sl_acquisition_and_learning.pdf
- Krashen, S. D., & Terrell, T. D. (1983). *The natural approach: Language acquisition in the classroom*. New Jersey: Alemany.
- Kılıçkaya, F., & Krajka, J. (2010). Teacher's technology use in vocabulary teaching. *Academic Exchange Quarterly*, 81-86.
- Klatzky, R.L. (1975). *Human memory: Structures and processes*. New York: W. H. Freeman and Company.
- Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157–165. DOI: 10.1017/S0958344009000202
- Lam, S. L. (2014). Use of gamification in vocabulary learning: A case study in Macau. *Proceedings of 4th CELC Symposium*, 90-97. Retrieved from <http://www.nus.edu.sg/celc/research/books/4th%20Symposium%20proceedings/13.%20Sze%20Lui.pdf>
- Larsen – Freeman, D., & Long, M. (1991). *An introduction to second language acquisition research*. London & New York: Routledge.
- Laufer B., & Paribakht, T. S. (1998). The relationship between passive and active vocabularies: *Effects of language learning Context*. *Language Learning*, 48(3), 365-391.
- Laufer, B., & Hulstijn, J. H. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics*, 22(1), 1-26.
- Laufer, B. (2005). Instructed second language vocabulary learning: The fault in the 'default hypothesis'. *EUROSLA Yearbook*. DOI: 10.1515/9783110197372.2.311

- Lee, J. J., & Hammer J. (2011). Gamification in education: What, how, why bother?. *Academic Exchange Quarterly*, 15(2), 146-150. Retrieved from https://www.researchgate.net/publication/258697764_Gamification_in_Education_What_How_Why_Bother/download
- Lepper, M. R. (1988). Motivational considerations in the study of instruction. *Cognition and Instruction*, 5(4), 289-309.
- Lewis, M. (1993). *The lexical approach: The state of ELT and a way forward*. London: Commercial Colour Press.
- Liang, A. (2013). The study of second language acquisition under socio-cultural theory. *American Journal of Educational Research*, 1(5), 162-167.
- Licorish, S. A., Owen, E. H., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning*. 13(9). 2-23. <https://doi.org/10.1186/s41039-018-0078-8>
- Lightbown, P. M., & Spada N. (1999). *How languages are learned*. Oxford: Oxford University Press.
- Lister, M. (2015). Gamification: The effect on student motivation and performance at the postsecondary level. *Issues and Trends in Educational Technology*, 3(2). DOI: 10.2458/azu_itet_v3i2_Lister
- Long, M. H. (1983). Native speaker/non-native speaker conversation and the negotiation of comprehensible input. *Applied Linguistics*, 4(2), 126-141. <https://doi.org/10.1093/applin/4.2.126>
- Madsen, H. S. (1983). *Techniques in testing*. New York, NY: Oxford University Press.
- Mahmud, M. M., & Othman, I. (2015). Fostering vocabulary enhancement through language games in the context of blended learning environment. *International Journal of Information Technology & Computer Science (IJITCS)*, 19(1).
- Makvandi, M. (2018). Evaluation of the effects of using computer assisted translation in learning new vocabularies. *Language Teaching Research Quarterly*, 8, 21-35. Retrieved from <http://www.eurokd.com/Resources/Uploaded/Articles/6049dc4e406949a9ae5af7b189b50e20/201902230138263.pdf>
- Malone, T. (1980). *What makes things fun to learn?: A study of intrinsically motivating computer games*. Palo Alto: Xerox
- Mármol, G. A., & Sánchez-lafuente, A. A. (2013). The involvement load hypothesis: Its effect on vocabulary learning in primary education. *RESLA*, 26, 11-24.

- Mayer, R. E. (2014). *The Cambridge Handbook of Multimedia Learning*. New York: Cambridge University Press
- McCarthy, M. (1992). *Vocabulary*. Oxford: Oxford University Press.
- McCarthy, M., O’Keeffe, A., & Walsh S. (2010). *Vocabulary matrix: Understanding, learning, teaching*. Hampshire: Heinle.
- Mchucha, I. R., Ismail, I. Z., & Tibok, R. P. (2017). Developing a gamification-based interactive thesaurus application to improve english language vocabulary: a case study of undergraduate students in malaysia. *International Journal of Management and Applied Science*, 3(3). Retrieved from http://www.ijraj.in/journal/journal_file/journal_pdf/14-349-149683870146-53.pdf
- McKeown, M. G., & Beck, I. L. (1988). Learning Vocabulary: Different Ways for Different Goals. *Sage journals*, 9(1). 42-46
- Meara, P. (2009). *Connected words: Word associations and second language vocabulary acquisition*. Amsterdam: John Benjamins Publishing Company.
- Medina, G. E., & Hurtado, C. R. (2017). Kahoot! a digital tool for learning vocabulary in a language classroom. *Revista Publicando*, 4 (12), 441-449. Retrieved from <https://revistapublicando.org/revista/index.php/crv/article/view/673/0>
- Meriam-Webster’s collegiate dictionary (10th ed.). (1993). Springfield, MA: Merriam- Webster.
- Miangah, T. M. & Nezarat, A. (2012). Mobile Assisted Language Learning. *International Journal of Distributed and Parallel Systems (IJDPS)*, 3(1).
- Michos, V. M. (2017). Gamification in Foreign Language Teaching: Do You Kahoot?. Paper presented at Sinteza 2017- *International Scientific Conference on Information Technology and Data Related Research*. Doi:10.15308/Sinteza-2017-511-516
- Molinsky, S. J. & Bliss, B. (1994). *Handbook of vocabulary teaching strategies: Communication activities with the Word by Word dictionary*. New Jersey: Prentice Hall Regents.
- Mthethwa, P. (2018). Teaching vocabulary using multimedia: The case of U.S. international Students. *Global Journal of Foreign Language Teaching*, 8(2), 68-75. Retrieved from <https://www.researchgate.net/publication/325597205>
- Muijs, D. (2004). *Doing quantitative research in education with SPSS*. London: SAGE.

- Mullins, J. K., & Sabherval, R. (2018). Beyond enjoyment: A Cognitive-Emotional perspective of gamification. *Proceedings of the 51st Hawaii International Conference on System Sciences*. Retrieved from <https://pdfs.semanticscholar.org/649c/2ed40ca4ff37d4c679fac32f542c71904015.pdf>
- Nahmod, D. M. (2017). *Vocabulary gamification vs traditional learning instruction in an inclusive high school classroom*. (Master's Thesis). Retrieved from <https://rdw.rowan.edu/etd/2467-----17.02.2019>
- Nam, J. (2010). Linking research and practice: Effective strategies for teaching vocabulary in the ESL classroom. *TESL CANADA JOURNAL*, 28(1), 127-135.
- Nation, P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- National Reading Panel (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: National Institutes of Health.
- Natsir, M., & Sanjaya, D. (2014). Grammar Translation Method (GTM) Versus Communicative Language Teaching (CLT); A Review of Literature. *International Journal of Education & Literacy Studies*, 2(1). doi:10.7575/aiac.ijels.v.2n.1p.58
- Nemati, A. (2009). Memory vocabulary learning strategies and long-term retention. *International Journal of Vocational and Technical Education*, 1(2), 14-24. Retrieved from <https://academicjournals.org/journal/IJVTE/article-full-text-pdf/CBC6B97595>
- Neuman, S. B., & Dwyer, J. (2009). Missing in action: Vocabulary instruction in pre-k. *The Reading Teacher*, 62(5), 384-392. Retrieved from https://www.researchgate.net/publication/228632895_Missing_in_Action_Vocabulary_Instruction_in_Pre-K/download
- Nezhad, N. A., Moghali, M., & Soori, A. (2015). Explicit and Implicit Learning in Vocabulary Acquisition. *Asian Journal of Education and e-Learning*, 3(1).
- Nguyen, T. T., & Khuat, T. T. N. (2003). Learning vocabulary through games: The effectiveness of learning vocabulary through games. *Asian EFL Journal*, 5 (4). Retrieved from http://asian-efl-journal.com/dec_03_vn.pdf
- O' Keeffe, A., McCarthy, M., & Carter, R. (2007). *From corpus to classroom: language use and language teaching*. Cambridge: Cambridge University Press.

- Okan, Z. (2003). Edutainment: is learning at risk? *British Journal of Educational Technology*, 34(3), 255–264 Retrieved from <http://web.csulb.edu/~arezaei/ETEC444/discussion/edutainment.pdf>
- Oxford, R., & Crookall D. (1990). Vocabulary Learning: A Critical Analysis of Techniques. *TESL CANADA JOURNAL* 7(2). DOI: 10.18806/tesl.v7i2.566
- Oxford advanced learner's dictionary (6th ed.). (2000). Oxford: Oxford University Press.
- Pachler, N., Bachmair, B., Cook, J. (2010). *Mobile Learning. Structures, Agency, Practices*. London: Springer.
- Paras, B., & Bizzocchi, J. (2005). Game motivation and effective learning: and integrated model for educational game design. *Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play*. Retrieved from https://www.researchgate.net/publication/221217604_Game_Motivation_and_Effective_Learning_An_Integrated_Model_for_Educational_Game_Design/link/00b4953c0b4d3f0f71000000/download
- Pede, J. (2017). *The effects of online game Kahoot! on science vocabulary acquisition*. (Master's Thesis). Retrieved from <https://rdw.rowan.edu/cgi/viewcontent.cgi?article=3407&context=etd>
- Pigada, M., & Schmitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign Language*, 18(1), 1–28. Retrieved from <https://nflrc.hawaii.edu/rfl/April2006/pigada/pigada.pdf>
- Pikulski, J. J., & Templeton, S. (2004). Teaching and developing vocabulary: Key to long-term reading success. *READING / LANGUAGE ARTS*. Retrieved from www.eduplace.com
- Plump, C. M., & LaRosa, J. (2017). Using Kahoot! in the classroom to create engagement and active learning: A game-based technology solution for eLearning novices. *Management Teaching Review*, 2(2), 151-158. Retrieved from <http://scihub.ren/https://doi.org/10.1177/2379298116689783>
- Prensky, M. (2001). *Digital game-based learning*. The United States: Paragon House.
- Prensky, M. (2003). "But the screen is too small..." Sorry," digital immigrants" – cell phones- not computers- are the future of education. Retrieved from <http://www.marcprensky.com/writing/Prensky%20-%20But%20the%20screen%20is%20too%20small.pdf>
- Prensky, M. (2005). Computer games and learning: Digital game-based learning. *Handbook of Computer Game Studies*, 18, 97-122. Retrieved from https://www.academia.edu/1113207/Computer_games_and_learning_Digital_game-based_learning?auto=download

- Pritchard, A. (2007). *Effective teaching with internet technologies: Pedagogy and practice*. London: Paul Chapman Publishing.
- Ramani, P., & Patadia, H. (2013). Reaction of Students on Developed Computer Assisted Instruction for Teaching Arithmetic. *Education 2013*, 3(1), 37-42 DOI: 10.5923/j.edu.20130301.06
- Rantonen, J. (2016). *How we teach English vocabulary inside the classroom: Teacher perspectives and vocabulary from the outside* (Master's Thesis). Retrieved from <https://jyx.jyu.fi/bitstream/handle/123456789/51305/1/URN%3ANBN%3Afi%3Aju-201609104064.pdf>
- Rapeepisarn, K., Pongphankae, S., Wong, K. W., & Fung, C. C. (2015). A comparative study of digital game platforms for educational purposes. Retrieved from <https://www.researchgate.net/publication/267791343>
- Reinking, D., & Rickman, S. S. (1990). The effects of computer-mediated texts on the vocabulary learning and comprehension of intermediate-grade readers. *Journal of Reading Behavior*, XXII (4), 395-411. Retrieved from <https://journals.sagepub.com/doi/pdf/10.1080/10862969009547720>
- Richards, R. C. (2006). *Communicative language teaching today*. New York, NY: Cambridge University Press.
- Richards, B., Daller, H. M., Malvern, D. D., Meara, P., Milton, J., & Treffers-Daller, J. (2009). *Vocabulary studies in first and second language acquisition: The interface between theory and practice*. New York, NY: Palgrave Macmillan.
- Richards, J. C., & Rodgers, T. S. (2014). *Approaches and methods in language teaching*. Cambridge: CUP.
- Rieder, A. (2006). Implicit and explicit learning in incidental vocabulary acquisition. *EUROSLA 2003 conference*. Retrieved from https://www.univie.ac.at/Anglistik/views/03_2/RIE_SGLE.PDF
- Robertson, P., & Nunn, R. (2006). English second language acquisition in the Asian context. Seoul: *Asian EFL Journal Press*.
- Rifkin, J. (2009). *The Empathic civilization: The race to global consciousness in a world in crisis*. New York: The Penguin Group.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new Directions. *Contemporary Educational Psychology*, 25, 54-67. doi:10.1006/ceps.1999.1020
- Samston, M. S. D. (2001). *More abravocabra: The amazingly sensible approach to teaching vocabulary*. Colorado: Cottonwood Press.

- Sarıçoban, A. (2004). The use of audiolingual method in teaching Turkish. *Hacettepe üniversitesi türkijat araştırmaları enstitüsü, 1*, 187-200. http://turkoloji.cu.edu.tr/DILBILIM/arif_saricoban_audiolingual_method.pdf
- Sedita, J. (2005). Effective vocabulary instruction. *Insights on Learning Disabilities, 2*(1), 33-45. Retrieved from <https://keystoliteracy.com/wp-content/uploads/2012/08/effective-vocabulary-instruction.pdf>
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: CUP.
- Schmitt, N. (2010). *Researching vocabulary: A vocabulary research manual*. New York: Palgrave Macmillan.
- Shahriarpour, N. & Kafi, Z. (2014). On the effect of playing digital games on Iranian intermediate EFL learners' motivation toward learning English Vocabularies. *Procedia- Social and Behavioral Sciences 98*, 1738 – 1743. Doi: 10.1016/j.sbspro.2014.03.601
- Shejbalová, D. (2006). *Methods and approaches in vocabulary teaching and their influence on students' acquisition* (Doctoral dissertation).
- Shi, X. (2017). Application of multimedia technology in vocabulary learning for engineering students. *iJET, 12* (1), 21-31. <https://doi.org/10.3991/ijet.v12i01.6153>
- Shine, K. P., & Phil, M. (2011). Differences between second language learn first language acquisition. *Strength for Today and Bright Hope for Tomorrow, 11*(11), 736744. Retrieved from <http://www.languageinindia.com/nov2011/shinefirstsecond.pdf>
- Sigurdardottir, H. D. I. (2016). Domesticating digital game-based learning. *Nordic Journal of Science and Technology Studies, 4*(1), 5-16. <https://doi.org/10.5324/njsts.v4i1.2168>
- Suter, J. (2004). *Building vocabulary skills & strategies*. Retrieved from <https://www.amazon.com/Building-Vocabulary-Skills-Strategies-Level/dp/1562547267>
- Takac, V.P. (2008). *Vocabulary learning strategies and foreign language acquisition*. Toronto: multilingual matters ltd.
- Teng, F. (2015). Assessing the relationship between vocabulary learning strategy use and vocabulary knowledge. *PASAA, 49*, 39-66. Retrieved from <https://www.researchgate.net/publication/281450648>

- Teng, F. (2015). An evaluation of EFL students' vocabulary size and their textbooks: A case study of vocational college students in China. *Humanizing Language Teaching*, 17 (5), 26-41. Retrieved From https://www.academia.edu/16496254/An_Evaluation_of_EFL_Students_Vocabulary_Size_and_Their_Textbooks_A_Case_Study_of_Vocational_College_Students_in_China
- Terrazas, M., & Llach, M. P. A. (2009). Exploring the increase of receptive vocabulary knowledge in the foreign language: A longitudinal study. *IJES*, 9 (1), 113-133. Retrieved from: <https://www.researchgate.net/publication/40910163>
- Thornbury, S. (2002). *How to teach vocabulary*. Malaysia: Pearson Education Limited.
- Ünal, H. N. (2018). *Comparison between Kahoot and conventional activities in terms of vocabulary retention in EFL learners*. (Master's Thesis).
- Valerio, K. M. (2012). Intrinsic motivation in the classroom. *Journal of Student Engagement: Education matters*, 2 (1), 30–35. Retrieved from <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1012&context=jseem>
- Vela, V. (2015). Using glosses for incidental vocabulary acquisition. *Procedia-Social and Behavioral Sciences*, 199, 305 – 310. Retrieved from <https://www.researchgate.net/publication/283165040>
- Waring, R. (2002, March). Scales of Vocabulary Knowledge in Second Language Vocabulary Assessment. Retrieved March 6, 2014, from Rob Waring's Websites: <http://www.robwaring.org/papers/various/scales.htm>
- Wadcyn-Jones, P. (1985). *Start testing your vocabulary*. London: Penguin Books.
- Wang, A. I. (2015). The wear out effect of game based student response system. *Computers & Education*, 82. 217-227. <https://doi.org/10.1016/j.compedu.2014.11.004>
- Wichadee, S. (2013). Facilitating Students' Learning with Hybrid Instruction: A Comparison among Four Learning Styles. *Electronic Journal of Research in Educational Psychology*, 11(1).
- Wilkins, D. A. (1972). *Linguistics in language teaching*. London: Edward Arnold.
- Yopp, H. K., Yopp, R. H., & Bishop, A. (2009). *Vocabulary instruction for academic success*. Retrieved from <https://www.amazon.com/Vocabulary-Instruction-Academic-Professional-Resources/dp/1425802664>
- Yue, N. (2017). Computer multimedia assisted English vocabulary teaching courseware. *iJET*, 12(12), 67-78.
- Yudintseva, A. (2015). Game-enhanced second language vocabulary acquisition strategies: A systematic review. *Open Journal of Social Sciences*.

Zhang, J. (2004). Memory Process and the Function of Sleep. *Journal of Theoretic*, 6 (6).

Zucker, L., & Fisch, A. A. (2019). Play and Learning with KAHOOT!: Enhancing Collaboration and Engagement in Grades 9-16 through Digital Games. *Journal of Language and Literacy Education*, 15(1).



APPENDIX 1

PRE-TEST

- 1- Alice never spends any money. She's very.....
a) stubborn b) honest c) stingy d) generous
- 2- The woman is very young and..... Everybody adores her.
a) ugly b) attractive c) tired d) tolerant
- 3- Mike always eats fruits and vegetables. He has a.....lifestyle.
a) careful b) healthy c) intelligent d) interesting
- 4- The highest in Turkey is Mount Ağrı.
a) desert b) waterfall c) mountain d) valley
- 5- Shopping malls are veryat weekends.
a) crowded b) important c) dangerous d) scary
- 6- I am going to the five times a week to do sports.
a) cafe b) amusement park c) gym d) music store
- 7- Jim doesn't want tohis book to his deskmate.
a) borrow b) lend c) buy d) watch
- 8- You can find cheap boots in that
a) game store b) art gallery c) shoe shop d) museum
- 9- There are fifty stores in the.....
a) bookstore b) shopping mall c) library d) post Office
- 10- I am interested in past events and wars so I enjoy
a) literature b) geography c) history d) science
- 11- Jack is a/an..... person. He always sees positive sides of events.
a) old-fashioned b) out-going c) optimist d) pessimist
- 12- I did housework all day, so I feel
a) exhausted b) jealous c) excited d) frustrated
- 13- We are going to our third wedding anniversary this year.
a) grow b) build c) celebrate d) motivate
- 14- Mr. Clark is always.....to poor people. He regularly gives money to them.
a) sincere b) stingy c) helpful d) strong

15-A: What do you usually..... when you go to a wedding ceremony?

B: A dress and high-heeled shoes.

- a) wear b) think c) invent d) look

16- I think, Italian food is..... Everybody loves it.

- a) salty b) sour c) disgusting d) delicious

17-Henry decides to a hobby. He searches the Net and tries to find a hobby.

- a) take up b) look up c) set off d) take off

18-When there is, the land dries and crops die.

- a) flood b) avalanche c) wave d) drought

19-Ivanka likes.....clothes. She dresses differently.

- a) unusual b) ordinary c) messy d) relaxing

20-I am crazy about watching movies. Because I love technology and imagination.

- a) historical drama b) western c) comedy d) science fiction

APPENDIX 2

KAHOOT! EXERCISES

1. A..... is a dry weather with no rain.



a) flood b) avalanche c) coast d) drought

2. Michael is carrying the bags of an old woman. He is a boy.



a) rude b) patient c) helpful d) easy-going

3. Tim doesn't like sharing anything with his classmates. Because he is a person.



a) poor b) stingy c) practical d) arrogant

4. Liza does sports regularly and she doesn't eat any junk food. life is important for her.



a) healthy b) awful c) gorgeous d) trustworthy

5. There was an eruption on the top the.....near the city.



a)lake b) mountain c) river d) waterfall

6. City was very in the festival. Because many people came all over the World.



a) crowded b) empty c) safe d) difficult

7. My friend Sally goes to regularly to keep fit.



- a) gym b) bookstore c) shoe shop d) baker

8. Jill doesn't his money to his friends. He is not a generous person.



- a) touch b) take c) lend d) build

9. I bought new sneakers for my sister in that



- a) florist's b) cafe c) greengrocer d) shoe shop

10. You can find that store in the..... near the hospital.



- a) shopping mall b) bookshop c) police station d) art gallery

11..... is my favourite lesson. Because I am interested in Ottoman Empire.



- a) physics b) chemistry c) history d) art

12.If I graduate from the university this summer, I will..... it with my friends.



- a) celebrate b) build c) travel d) create

13.I always new clothes when I meet my boyfriend.



- a) watch b) write c) wear d) invent

14. I have two tickets for the new..... movie. If you are interested in technology and robots, join me.



- a) action b) science fiction c) adventure d) horror

15. The guests were shocked when they saw Jack's costume.



- a) similar b) modern c) useful d) unusual

16. I feel..... after carrying the heavy bags all the way.



- a) exhausted b) excited c) bored d) surprised

17. My daughter is not Because she always see the bad sides of the things.



- a) tolerant b) stressful c) optimist d) realist

18. **A:** That was a..... dinner, thank you.

B: Enjoy your meal.



a) social b) delicious c) careful d) impossible

19. Henry decided to..... a sport to do in his free time.



a) take up b) make up c) break up d) pick up

20. My English teacher is very..... woman with red hair and beautiful face.



a) stubborn b) messy c) attractive d) reliable

APPENDIX 3

CONTROL GROUP EXERCISES

1. A..... is a dry weather with no rain.



a) flood b) avalanche c) coast d) drought

2. Michael is carrying the bags of an old woman. He is a boy.



a) rude b) patient c) helpful d) easy-going

3. Tim doesn't like sharing anything with his classmates. Because he is a person.



a) poor b) stingy c) practical d) arrogant

4. Liza does sports regularly and she doesn't eat any junk food. life is important for her.



a) healthy b) awful c) gorgeous d) trustworthy

5. There was an eruption on the top the near the city.



a) lake b) mountain c) river d) waterfall

6. City was very in the festival. Because many people came all over the World.



a) crowded b) empty c) safe d) difficult

7. My friend Sally goes to regularly to keep fit.



a) gym b) bookstore c) shoe shop d) baker

8. Jill doesn't his money to his friends. He is not a generous person.



- a) touch b) take c) lend d) build

9. I bought new sneakers for my sister in that



- a) florist's b) cafe c) greengrocer d) shoe shop

10. You can find that store in the..... near the hospital.



- a) shopping mall b) bookshop c) police station d) art gallery

11..... is my favourite lesson. Because I am interested in Ottoman Empire.



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- a) celebrate b) build c) travel d) create

13.I always new clothes when I meet my boyfriend.



- a) watch b) write c) wear d) invent

14.I have two tickets for the new..... movie. If you are interested in technology and robots, join me.



- a) action b) science fiction c) adventure d) horror

15. The guests were shocked when they saw Jack's costume.



- a) similar b) modern c) useful d) unusual

16. I feel..... after carrying the heavy bags all the way.



- a) exhausted b) excited c) bored d) surprised

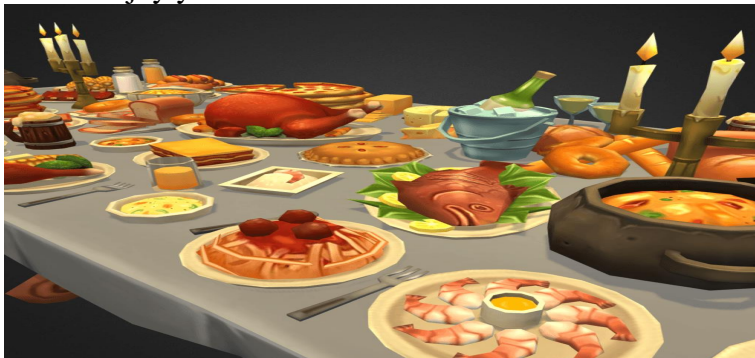
17. My daughter is not Because she always see the bad sides of the things.



- a) tolerant b) stressful c) optimist d) realist

18. A: That was a..... dinner, thank you.

B: Enjoy your meal.



- a) social b) delicious c) careful d) impossible

19. Henry decided to..... a sport to do in his free time.



- a) take up b) make up c) break up d) pick up

20. My English teacher is very.....woman with red hair and beautiful face.



- a)** stubborn **b)** messy **c)** attractive **d)** reliable



APPENDIX 4

POST-TEST

1-Tom saves all his money. He doesn't like spending much. Because he is very.....

- a) generous b) handsome c) reliable d) stingy

2-My sister is very young and She has got blue eyes and blond hair with a beautiful face.

- a) over-weight b) attractive c) ugly d) trustworthy

3-My friend is very..... Because she never eats fast food and does sports everyday.

- a) healthy b) fat c) shy d) good-tempered

4-I will climb the to watch the scenery of the city.

- a) valley b) canyon c) channel d) mountain

5-The streets are very Lots of people are waiting to see the prime minister.

- a) safe b) crowded c) dangerous d) silent

6-Doing sports is my favourite free time activity. I go to the.....regularly.

- a) gym b) stationery c) hospital d) supermarket

7-I can you some money if you want some.

- a) borrow b) show c) lend d) take

8-I will buy new boots in that.....

- a) shoe shop b) super market c) chemist's d) grocer's

9-There are two toyshops in the new

- a) Shopping mall b) hairdresser c) college d) bookstore

10- I always read books to learn the past.

- a) story b) history c) romantic d) science fiction

11-He thinks that future will bring good things. He is a/anperson.

- a) tired b) different c) optimist d) pesimist

12-I solved maths questions all night without sleeping. So I feel now.

- a) exhausted b) energetic c) careful d) intelligent

13- We are going to..... my sister's birthday next week.

- a) graduate b) celebrate c) watch d) see

14- My father is always to my mother. He generally does housework after work.

- a) helpful b) rude c) ignorant d) humorous

15- A: What do you when you go to the school?

B: Usually uniform.

- a) buy b) leave c) carry d) wear

16- The restaurant near our house has.....dishes. You should go there for dinner.

- a) delicious b) successful c) bad d) disgusting

17-A: Which sport should I.....to do in my free time?

B: You can play basketball.

- a) look for b) take up c) look up d) take after

18- There is a severe in Africa. Because there is no rain and water.

- a) famine b) climate c) drought d) erosion

19-A: What does mean?

B: It means interesting and different.

- a) unusual b) angry c) friendly d) lucky

20-A: What types of movies do you like?

B: My favourite movie type is..... . Because I am interested in time travel and technological advances.

- a) horror b) thrilling c) science fiction d) animation

APPENDIX 5

RETENTION TEST

1. Jimmy is certainly..... with money. Because he never supports his family.
a) stingy b) imaginative c) depressed d) generous
2. Lucie is a very..... model with a slim body and blonde hair.
a) emotional b) desperate c) attractive d) aggressive
3. My grandmother does regular exercise every morning so she is strong and.....
a) over-weight b) healthy c) skinny d) busy
4. After seven hours' climbing, we finally reached the top of the.....
a) cottage b) waterfall c) ladder d) mountain
5. That restaurant is always, but I reserved a table today, so we don't have to worry.
a) crowded b) empty c) free d) disgusting
6. Christ has spent hours at the..... trying to lose weight.
a) library b) gym c) garden d) cottage
7. **A:** Could you..... me some money?
B: I just need two dollars.
a) suggest b) advice c) lend d) leave
8. **A:** Where did you bought your new sneakers?
B: From the large..... in the town.
a) bookstore b) post-office c) sports center d) shoe shop
9. Is there a supermarket in that?
a) garage b) shopping mall c) greengrocer d) restaurant
10. Jack reads lots of books to learn the past of his country.
a) physics b) chemistry c) history d) science
11. We have a very good team, so we have lots of reasons to be.....
a) optimist b) sad c) beautiful d) pessimist
12. Beth worked very hard, so she was hungry and.....
a) anxious b) exhausted c) alive d) crazy
13. My grandfather will..... his seventieth birthday this year, but he's more energetic than I am.
a) celebrate b) graduate c) motivate d) show

14. My cousin is always..... whenever I have any problem.
a) careful b) lazy c) helpful d) untidy

15. You should always..... a seat belt when you are driving a car.
a) ride b) wear c) cut d) put

16. You should eat Mike's..... apple pie. It has a very pleasant taste and smell.
a) delicious b) rich c) unhealthy d) bitter

17. I will a kind of sport to keep fit and healthy.
a) take off b) make up c) take up d) hold on

18. Some African countries suffer from Because there is a shortage of rain and water.
a) hurricane b) drought c) earthquake d) landslide

19. The teacher was shocked when he saw the hairstyle of students.
a) ordinary b) unusual c) calm d) cheerful

20. A: Do you like watching.....?
B: Certainly, I do. Especially, space and time travels such as Star Wars.
a) cartoon b) animation c) science fiction d) historical drama

APPENDIX 6
STUDENT SURVEY (Turkish Version)

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
*Değerli katılımcı bu ankete katılım gönüllülük esasına dayanmaktadır. Bu anket Kahoot! uygulamasıyla ilgili görüş almak için yapılmaktadır. Bilgileriniz tamamen gizli kalacaktır. Katıldığınız için teşekkür ederiz.					
*Aşağıdaki ifadelere katılma derecenize göre bir puan veriniz.					
	1	2	3	4	5
1.Kahoot!'u kullanmayı kolay buldum.					
2.Kahoot!'u kullanmak dikkatim dağılmadan görevi bitirmeme yardım etti.					
3.Kahoot!'u kullanmak eğlenceliydi.					
4.Kahoot!'u kullanmak yeni kelimeleri öğrenmeme yardım etti.					
5.Yeni kelimeler öğrenmek için kağıt kalemde çok teknolojiyi kullanmayı yeğlerim.					
6.Öğrenmeme yardımcı olsun diye Kahoot!'u diğer derslerde de kullanırım.					
7.Kahoot!'u kullandıktan sonra sınavlara kendimi hazır hissettim.					

8. Kahoot!'u kullanmayı dört gözle
bekledim.

9.Diğer öğrencilere Kahoot!'tan
bahsetmek isterim.

10.Kahoot! motivasyonumu
artırdı.

11.Kahoot! yeni kelimeleri
hatırlamamda bana yardımcı oldu.

12.Kahoot! derslerde yeni kelimeleri
pratik etmede kullanılmalı.

APPENDIX 7

STUDENT SURVEY (Original Version)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
	1	2	3	4	5
1.I found Kahoot! easy to use.					
2.Using Kahoot! helped me finish the task without getting distracted.					
3.Using Kahoot! was fun.					
4. Using Kahoot! helped me learn new Vocabulary.					
5.I would rather use technology to learn new words than paper and pencil.					
6.I would like to use Kahoot! in other classes to help me learn.					
7.I felt prepared for tests after using Kahoot!.					
8.I look forward to using Kahoot!.					
9.I would like to tell other students about Kahoot!.					
10.Kahoot! increased my motivation.					
11.Kahoot! helped me remember the new words.					
12.Kahoot! should be used to practice the new words in the lessons.					

APPENDIX 8

ÖZGEÇMİŞ

Kişisel Bilgiler

Adı Soyadı : SEVİM EMECEN
Doğum Yeri ve Tarihi : ÇORUM / 25.11.1983

Eğitim Durumu

Lisans Öğrenimi : 19 Mayıs Üniversitesi
İngiliz Dili Eğitimi
Yüksek Lisans Öğrenimi : 19 Mayıs Üniversitesi
Eğitim Yönetimi ve Teftişi
Yüksek Lisans Öğrenimi : Ufuk Üniversitesi/
İngiliz Dili Eğitimi

Bildiği Yabancı Diller : İngilizce, Almanca

İş Deneyimi

Çalıştığı Kurumlar:

Şehit Mahsuni Türkmen Ortaokulu- İngilizce öğretmeni, Çorum
Şehit Karaođlanođlu YİBO- İngilizce öğretmeni, Erzincan
Mehmetçik Ortaokulu- İngilizce öğretmeni, Samsun
Çatalarmut İlkokulu- İngilizce öğretmeni, Samsun
Millî Eğitim Bakanlığı OGM-Alan uzmanı, Ankara
Kocalar Anadolu İmam Hatip Lisesi, Ankara
Sirkeli Ortaokulu- İngilizce öğretmeni, Ankara