



**LEARNING VOCABULARY WITH A
COMPUTER-BASED VOCABULARY
FLASHCARD TOOL IN A TURKISH
EFL HIGH SCHOOL CONTEXT**

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Eskişehir 2019

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MA THESIS

Department of Foreign Language Education

MA in English Language Teaching

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Eskişehir

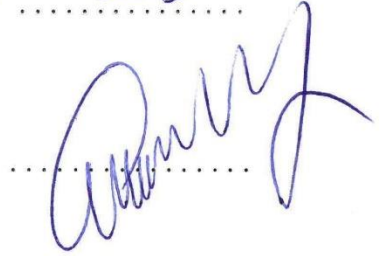
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Gamze BİLCAN'ın "Learning Vocabulary With Quizlet as a Computer-Based Vocabulary Flashcard Tool in a Turkish Efl High School Comtext" başlıklı tezi 23.05.2019 tarihinde, aşağıda belirtilen jüri üyeleri tarafından Anadolu Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca Yabancı Diller Eğitimi Anabilim Dalı İngilizce Öğretmenliği Programında, Yüksek Lisans tezi olarak kabul edilmiştir.

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ABSTRACT

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Vocabulary constitutes a fundamental part of language learning. Supposed to learn a majority of words in the early stages of language learning, learners must devote considerable amount of time and effort to learn vocabulary. As various innovative tools and approaches have emerged in the field of education, enabling entertaining and competitive learning environment for digital natives has become inevitable. Besides being practical tools to introduce and build new vocabulary, digital or online flashcards provide multimedia elements, immediate feedback and game-like learning atmosphere that encourage learners to learn vocabulary easily. In this regard, this study aimed to investigate whether EFL learners' progress on a vocabulary flashcard tool, Quizlet, helps them gain and retain vocabulary. The study also attempted to reveal learners' perception towards the use of vocabulary flashcard tool. Data was compiled from 93 Turkish pre-intermediate EFL level Anatolian High School students. Quantitative data was collected through vocabulary tests that were applied in three weeks intervals during an academic term to measure learners' gain and retention of vocabulary. Furthermore, qualitative data was collected from survey and interviews to obtain learners' perceptions towards the use of vocabulary flashcard tool. The findings showed that there is a statistically significant difference between learners' progress on Quizlet and test scores. It was obvious that vocabulary flashcard tool attributed to learners' vocabulary learning and Quizlet was considered as usable, useful, enjoyable for learning vocabulary in terms of survey results.

Keywords: Vocabulary learning, Computer-based vocabulary flashcard tool, Turkish EFL students.

ÖZET

İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN TÜRK LİSE ÖĞRENCİLERİNİN BİLGİSAYAR TABANLI KELİME BİLGİ ARACI İLE KELİME ÖĞRENİMİ

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Kelime bilgisi yabancı dil ediniminin temel kısmını oluşturmaktadır. Dil öğrenmenin ilk aşamalarında çok fazla kelime öğrenilmesi beklendiğinden, öğrenciler kelime öğrenmek için önemli ölçüde zaman ve çaba harcamalıdır. Eğitim alanında çeşitli yenilikçi araçlar ve yaklaşımlar ortaya çıktığı için, dijital yerliler için eğlenceli ve rekabetçi öğrenme ortamları sağlamak kaçınılmaz hale gelmiştir. Yeni kelimeleri tanıtmak için pratik bir araç olmasının yanında, dijital ve çevrim içi bilgi kartları öğrencilerin kolayca kelime edinmesini destekleyen çoklu ortamlı öğelerini, hemen geribildirimini ve oyun-gibi öğrenme ortamı sunmaktadır. Bu hususta, bu çalışma İngilizceyi yabancı dil olarak öğrenen öğrencilerin Quizlet kelime bilgi kartı aracı üzerindeki ilerlemesinin, onların kelime edinmesine ve kelimelerin aklında kalmasına yardımcı olup olmadığını araştırmayı amaçlamıştır. Araştırma öğrencilerin kelime bilgi kartı aracını kullanmaya yönelik fikirlerini de ortaya çıkarmayı hedeflemiştir. Veriler, 93 yabancı dili İngilizce olarak öğrenen alt-orta seviye Türk Anadolu Lisesi öğrencilerinden toplanmıştır. Nicel veriler, bir akademik dönem boyunca 3 hafta aralıklarla öğrencilerin kelime edinimi ve kelimelerin akılda tutulmasının ölçülmesi için kelime testleri aracılığıyla toplanmıştır. Nitel veriler ise, öğrencilerin bilgi kartı aracı hakkındaki görüşlerini elde etmek için anket ve görüşmeler aracılığı ile sağlanmıştır. Bulgular, öğrencilerin Quizlet üzerindeki ilerlemesi ile kelime bilgisi testleri sonuçları arasında istatistiksel olarak anlamlı farklılık olduğunu ve Quizlet' in kelime öğrenmek için kullanılabilir, kullanışlı ve eğlenceli olarak düşünüldüğünü göstermiştir.

Anahtar Sözcükler: Kelime Öğrenimi, Bilgisayar tabanlı Kelime Bilgi Kartı aracı, Yabancı Dili İngilizce olarak öğrenen Türk öğrenciler.

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Gamze BİLCAN

Eskişehir 2019

STATEMENT OF COMPLIANCE WITH THE ETHICAL PRINCIPLES AND RULES

I hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with “scientific plagiarism detection program” used by Anadolu University, and that “it does not have any plagiarism” whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.



Gamze BILCAN

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LIST OF ABBREVIATIONS

L1	: First Language
L2	: Second Language
ESL	: English as a Second Language
EFL	: English as a Foreign Language
CALL	: Computer-assisted Language Learning
CAVL	: Computer-assisted Vocabulary Learning
CAVI	: Computer-assisted Vocabulary Instruction
PC	: Personal Computer



1. INTRODUCTION

1.1. Background to the Study

“Without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (Wilkins, 1972, p. 111).

Supporting Wilkin’s claim, it is apparent that vocabulary is of crucial importance to interpret the meaning and to master in a language. Many researchers have agreed on the belief that vocabulary learning is an essential component of second and foreign language proficiency (Başoğlu and Akdemir, 2010; Coady and Huckin, 1997; Harley, 1996; Nation, 2001; Renandya and Richards, 2002) and it is accepted as being the central element of language learning (Cellat, 2008, Zimmerman, 1997).

Vocabulary is not a goal itself (Nation, 2001); it is a core constituent of language proficiency providing much of the basis for how well learners speak, listen, read, and write (Başöz, 2013; Renandya and Richards, 2002) as learners need to acquire thousands of words in order to become proficient in the target language (Wilkinson, 2017).

There are some reasons proving the importance of vocabulary learning. First of all, vocabulary enables the learners to understand what they read or hear (Kalecky, 2016) due to the fact that knowing a word is generally considered as comprehending the meaning and its pronunciation (Cellat, 2008). Secondly, setting up a large store of vocabulary not only helps learners describe more concepts but also promotes their fluency and ability to use appropriate words in different contexts (Kalecky, 2016).

In the light of assumptions on lexical competence, knowing a word shouldn’t be reduced to just its meaning and form. It also involves knowing its collocation and frequency, its functions, its syntactic behavior, its forms and derivations, its associations with other words, its semantic value and its different meanings. However, it is not possible to learn and acquire all these aspects of lexical competence at one time (Schmitt, 2000) since it is an ongoing process that continues to develop from childhood to adolescence. Considering the effect of lexical competence on language teaching, Fowle (2002) asserts language teachers begin to question an efficient way of vocabulary teaching to meet the needs of students.

Supposed to learn a majority of words, learners must devote considerable amounts of time and effort to vocabulary study (Wilkinson, 2017) and may be discouraged from making use of language learning opportunities around them such as listening to the radio, listening to native speakers, using the language in different contexts, reading, or watching

television (Renandya and Richards, 2002). As incidental acquisition takes place incrementally over a period of time and without an extensive vocabulary and strategies for acquiring new vocabulary, there is no agreement as to how many and what kinds of exposures are needed for successful acquisition (Coady and Huckin, 1999). Therefore, explicit vocabulary learning is necessary for young learners of foreign and second language since there is not enough time for exposure to new words of the same intensity as in L1 acquisition (Groot, 2000) in the early stages of language learning.

Over the past decades, technology has come to play an important role in the field of education and various innovative tools and approaches have emerged in a way that integrate technology into the learning and teaching processes (Kassim and Ali, 2007). In language teaching, student-centered methodologies gained importance and teachers started to support learners' being responsible for their own learning which also results in independent practice and autonomy. In addition, students today who were born into, grew up and were surrounded by technology, were named as "digital natives" since "they are all native speakers of the digital language of computers, video games, and the internet" (Prensky, 2001, p. 1). Thus, it is indispensable for language teachers to adapt teaching skills and approaches in accordance with the advancements in technology to enable language learning environment appealing for the digital residents who spend all their online time in social interaction (White and Cornu, 2011) so that effective use and approval of these technologies will improve learning environments by fostering collaboration among students and promoting the active creation and sharing of knowledge (Murugesan, 2009).

Through CALL, computers offer privacy to learners allowing them to study at their own pace and enable individual work with immediate feedback so that learners are able to edit their work without being humiliated. Unlike traditional learning techniques, computers with multimedia elements like picture, audio and video can address learners with different learning styles and can arouse the interest in students which may in turn support effective learning.

With the help of multimedia in the form of text, audio and picture; pre-packaged computer programs, word annotations, glossing, online dictionaries and online flashcards fostering the acquisition of so many words (Chien, 2015; Hulstijn and Laufer, 2001), digital flashcards that are easily accessed and used by the language learners via internet and smart phone applications, appeared in vocabulary learning by replacing the most preferred language teaching materials such as word cards and paper flashcards.

There has been an increasing number of researchers who investigated the effectiveness of flashcard tools and programs. Altiner (2011) explored the extent to which a computer-based flashcard program, Anki, helped ESL learners improve their vocabulary. She revealed that that kind of studying was effective for learners to gain greater amount of vocabulary in a shorter period of time and a better chance of retention as well. In another study, McLean, Hogg and Rush (2013) conducted an investigation into the effectiveness of Word Engine as an online vocabulary learning program during academic year and found that greatest improvement on vocabulary size test score belonged to Word Engine group. Participants also suggested that studying with Word Engine out-of-class contributed to learners' receptive vocabulary knowledge. Additionally, Ma and Kelly (2006) demonstrated that by using WUFUN software, learners achieved considerable vocabulary learning rate at the receptive and productive level in both individual use and classroom use.

In this sense, Quizlet is one of the most popular online vocabulary flashcard programs that is used in language learning research. For instance, in Dizon's (2016) study, using Quizlet to study Coxhead's (2001) academic vocabulary list and the learners had statistically significant vocabulary gain and positive perceptions towards Quizlet to study L2 vocabulary. Likewise, Özer and Koçoğlu (2017) compared the effect of using *Quizlet* as a computer-based flashcards program and keeping vocabulary notebooks on EFL learners' vocabulary learning over a week period, hence, it was concluded that there were improvements observed between pre-test and post-test results in both Quizlet and vocabulary notebook groups.

In a study by Chien (2013) demonstrating 76 freshmen's perceptions and practices of making vocabulary flashcards on Quizlet through flashcards, learning records and self-reflection, it was emphasized that integration of online flashcard tool on vocabulary learning and teaching provided practical solutions for EFL learners and teachers. Subsequently, comparing participants' perceptions of and attitudes towards three online vocabulary flashcard websites, Quizlet, Study Stack, and Flashcard Exchange, Chien (2015) also indicated that mainly offered with the word knowledge in terms of form and meaning, these vocabulary flashcard websites enabled participants to improve their vocabulary abilities and develop positive attitudes towards language learning.

Collecting survey data from Japanese university students on the use of Quizlet as a vocabulary flashcard system, Stroud (2014) also underlined the improvement in the overall engagement of students to learn vocabulary. In Xerou's research (2016), students

also appreciated Quizlet due to the independent learning potential, the collaborative group work and the use of the particular technology.

In addition, Kalecky (2016) emphasized that the use of Quizlet leads to higher efficiency, motivation, retention, ability to retrieve the words and students learn faster and enjoy studying with it more than with paper flashcards. Quizlet has also the potential to help students improve their English proficiency through more effective vocabulary learning (Wright, 2016) and is the motivation that learners need to continue practicing in order to master vocabulary (Vargas, 2011).

Regarding these insights, Quizlet was chosen for the present study as an effective flashcard tool for EFL or ESL learners to learn vocabulary. Apart from other studies, the study attempted to investigate whether the progress learners made on Quizlet modes had an effect on learners' vocabulary gain. Conducting vocabulary tests- immediate and post-tests- in three weeks interval, the present study also aimed to find out whether learner retained the vocabulary. Besides, the last objective of the study is to reveal learners' perceptions about using such a tool for vocabulary learning.

1.1. Statement of the problem

Vocabulary learning is cornerstone for language learning and widely accepted as the most predominant language problem (Nation, 1990; Schmitt, 1997; Mokhtar, 2010) During the initial process of foreign language learning, most EFL learners are concerned with the burden of vocabulary learning and worried about dealing with the task of learning thousands of words. It is therefore necessary for beginner or pre-intermediate EFL learners to learn vocabulary in a short period of time, especially for Turkish High School students who are able to practice English only in English classes.

Although digital opportunities (such as EBA, Fatih project, interactive white boards) was introduced by Turkish Ministry of National Education in the last decade, it is still a problem for teachers to use them effectively. From another perspective, learners have only four English lessons per week which is often insufficient for adequate reinforcement (Grace, 1998) and it is not possible for learners to dedicate their time in studying vocabulary outside the classroom.

With the development of technology, internet has led to a previously unimaginable immediate resource for language learners (Mitchell, 2009) in creating an innovative condition for digital native language learners who enjoy using the latest technology such as online resources, smartphones and applications in their life and learning environments.

It is assumed that linking technology and language learning via a vocabulary flashcard program will motivate learners to study vocabulary more easily.

In response to these problems, this study may offer a solution for the inadequate opportunities and awareness for language teachers about the tools to be learned and applied. The present study may also offer engaging learning environment which triggers language learners' enthusiasm for learning and practising vocabulary. aims to explore whether EFL learners' progress on a vocabulary flashcard tool, Quizlet, helps learners learn new vocabulary and retain it. Additionally, the study intends to reflect what learners' perceptions about using such a tool for vocabulary learning are.

1.2. Aim

This study is an attempt to investigate whether a vocabulary flashcard tool is effective for learning and retaining vocabulary in terms of vocabulary test results and learners' progress on Quizlet. The study also intends to depict what learners think about using the web tool for learning vocabulary during an academic term. The research questions that will be answered in the recent research are:

1. Does learners' progress on a vocabulary flashcard tool help EFL learners gain vocabulary?
2. Does learners' progress on a vocabulary flashcard tool help EFL learners retain more vocabulary?
3. What are the perceptions of EFL students towards the use of a vocabulary flashcard tool?

1.3. Significance of the Study

The significance of vocabulary is obvious in language learning literature and the issues how learners best acquire vocabulary are still under discussion. EFL learners need to acquire thousands of words in order to become proficient in the target language; however, they don't have sufficient time to learn adequate amount of words in classroom environment.

In consideration to the belief that today's learners are digital natives who are born into technology and keep up with the new information easily and immediately inside and outside the classroom, the recent online systems in education encourage dynamic, collaborative and even competitive approaches (Stroud, 2014) and have the potential to provide opportunities for engaging, motivating and entertaining learning environment for

language learners. As technology helps create a learning environment that deeply engages students in reflection, conversation and redesign (Ormiston, 2010), foreign language educators now have a huge supply of ever improving tools to help enhance, transform and completely modify learning (Lander, 2016).

Up to now, numerous studies focused on the description of Quizlet as a new online tool for language learning (Ashcroft and Imrie, 2014; Eatherton, 2017; Foster, 2009) its effect on vocabulary learning (Chien, 2013; Dizon, 2016; Franciosi, 2017; McLean, Hogg and Rush, 2013; Lander, 2016; Özer and Koçoğlu, 2017; Sato, Murase and Burden, 2015; Vargas, 2011; Tran, 2016), its comparison with other flashcard programs (Chien, 2015), its comparison with vocabulary notebooks (Özer and Koçoğlu, 2017; Kalecky, 2016) and revealed learners' perception (Chien, 2013; Wolff, 2016; Wright, 2016; Xerou, 2016), engagement (Stroud, 2014) and autonomy (Cunningham, 2017; Sato, Murase and Burden, 2015; Wolff, 2016).

With regard to its pedagogical importance to the teachers and learners of English, vocabulary flashcard tool may help learners to develop a learning strategy on how better and easier they can learn vocabulary. In Turkish EFL context, only two studies examined learners' use of Quizlet as a vocabulary flashcard tool. Özer and Koçoğlu (2017) investigated the effects of using Quizlet on vocabulary learning and recall in a short period of time during a week and found no significant difference among 2 experimental groups (Quizlet group and vocabulary notebook group) and a control group (using none of them). Köse et al. (2016) investigated the vocabulary development of preparatory Turkish EFL learners during 7 weeks however for the three weeks students studied and practiced target words without using the online tool and for the last four weeks students were assigned with exercises from the online tool; however, in this study, learners' recall of the target words wasn't taken into consideration.

This study is a preliminary attempt to make an in-depth investigation of using a vocabulary flashcard tool to help learners gain and retain vocabulary during 12 weeks in terms of learners' progress showing learners' completion of the sets on Quizlet.com. Stressing the validity of using such tools to enhance language learning, the results of the study are also expected to reveal pre-intermediate level Turkish EFL learners' perceptions on a vocabulary flashcard tool based on usefulness, usability and enjoyment of the tool.

1.4. Limitation of the Study

Several limitations have been identified in this study; therefore, study findings should be taken into account accordingly. To begin with, this study was applied on high school subjects who had seven years of English instruction previously and were supposed to be A2-B1 proficiency level in terms of National English curriculum guidelines, hence the results of the study can not be generalized to other EFL learners.

Although participants used Quizlet on their computers or via their smartphones but they were tested with traditional testing procedures, the tests were not given on screen and as all the vocabulary tests included pictures, computer screen might have reflected the pictures better than on print. The tests were not also prepared to test their listening skills although they practiced the pronunciation of the words and example sentences while studying on Quizlet.

This study investigated retention effect over a three-week time due to time considerations and a delayed post-test was not administered to the students. A study examining retention over a longer period of time might reveal more reasonable results as longitudinal studies would provide more accurate results on the effectiveness of such a web tool and at the same time more generalizable results.

Lastly, Quizlet was chosen for the study because of the fact that it is easy to use, it has many study and game modes to practice and also a smartphone application; however, a comparison with a control group not using a web tool for vocabulary learning or with a group using another tool might have illustrated effectiveness of Quizlet.

2. REVIEW OF LITERATURE

2.1. Vocabulary Knowledge and Importance of Vocabulary Learning

Knowing a word is generally defined as knowing form and meaning of a word. While it is undeniable that the form-meaning connection is the first and most fundamental lexical aspect to be acquired and may be sufficient for recognition, much more about lexical items needs to be known to be able to use them productively (Schmitt, 2008). Nation (2001) also explains the knowledge of a word in nine aspects in three categories: form (written, spoken, word parts), meaning (form and meaning, concepts and referents, associations) and use (grammatical functions, collocations and constraints on use). He also emphasizes that these types of knowledge can not be learned at once and suggests three important processes leading to a word being acquired: noticing, retrieval and generative use.

Being the first process encouraging learning, “noticing can occur in explaining word for the learners by giving a definition, a synonym or a first language translation” (Nation, 2001, p. 64). When a language item is considered far from being a message itself but being a part of language, there exists decontextualization. The second major process is retrieval which means repeating a language item. The more retrieval occurs, the faster the memorization of the word by language learner will be. After the first process of noticing such as hearing, seeing, highlighting or noting the word, it is a fundamental step to retrieve its meaning so that learners can acquire the vocabulary items (Kırmızı and Topçu, 2014). The last process generative use means elaboration since it involves retrieval but enriches the memory for an item as well as strengthening it. Generative use occurs “when previously met words are subsequently met or used in ways that differ from the previous meeting with the word” (Nation, 2001, p. 68), that is to say, it is the production of the word in a different grammatical form, in a new context, or with new meaning (Allum, 2004). To sum up, generation effect (Barcroft, 2007) has a positive effect on retrieval for the reason that individuals remember vocabulary items better when they are required to generate them on their own (Slamecka and Graf, 1978).

Even if acquiring vocabulary is not easy and has a complex and varied nature (Schmitt, 2008), vocabulary knowledge establishes an integral part of learners’ general proficiency in a second/foreign language (L2) and is a prerequisite for successful communication (Nation, 2001) to be able to master a language. Knowing the form and meaning is very useful for future receptive use of the vocabulary since when learners

encounter the word again, they recognize other aspects and deeply process the word so that acquisition process is accelerated by enabling productive use later (Kalecky, 2016)

Most of the meaning in language is transpired by words; therefore, lack of vocabulary is the greatest obstacle in using target language effectively (Krashen, 1989) and impedes learners' ability to comprehend or express themselves clearly in English (Folse, 2006). Therefore, learning words is regarded by many as the main task and obstacle in learning another language (Carter and Nunan, 2001). Harmer (1993) also stresses the significance of vocabulary with the following sentences:

If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh. An ability to manipulate grammatical structure does not have any potential for expressing meaning unless words are used (p. 153).

In the field of foreign language learning, efforts to facilitate this complex nature of vocabulary learning, computer technology and educational programs attempted to accelerate vocabulary acquisition process. CALL (Computer-assisted Language Learning) available in multimedia context, online tools, online dictionaries, digital flashcards appeared in the classroom to help language learners study vocabulary. Multimodality, accessibility and interactive opportunities increased the motivation of language learners and effective learning. Since computers fostered learner autonomy and learners studied more independently, CALL applications into teaching and learning encouraged learners' potential to concentrate more on the context.

2.2. Vocabulary Learning Approaches

Approaches to vocabulary learning are generally categorized under two approaches: implicit vocabulary learning hypothesis and explicit vocabulary learning hypothesis (Ellis, 1995), in other words, intentional and incidental vocabulary learning (Nation, 2001).

The implicit vocabulary learning holds that the meaning of a new word is acquired totally unconsciously as a result of abstraction from repeated exposures in a range of contexts (Ellis, 1995) and in communicative activities (Özer and Koçoğlu, 2017). As Krashen (1989) emphasized in Input Hypothesis, language is subconsciously acquired: while acquiring language, the language learner doesn't know that he/she is acquiring. Focus is understanding the message but not the form. The basic principle of the implicit learning is that words can be acquired naturally through repeated exposure in various language contexts with reading as the major source of input (Ma and Kelly, 2006).

Incidental learning that is identical to implicit vocabulary acquisition (Ma and Kelly, 2006), occurs when one is using language for communicative purposes (Schmitt, 2000); therefore, incidental vocabulary learning can be defined as the process of acquiring vocabulary and grammar through the by-product of activities (Nakata, 2011) such as meaning focused communicative activities such as reading and listening (Hulstijn, 2003; Paribakht and Wesche, 1999).

Incidental vocabulary learning appears in the context of an activity that is not explicitly focused on learning vocabulary and also provides opportunities particularly for extensive reading, reading a graded reader (Hulstijn and Laufer, 2001), listening to easy stories, and having a conversation (Beglar and Hunt, 2002; McLean, Hogg and Rush, 2013).

The explicit vocabulary learning hypothesis, however, proposes that vocabulary acquisition is assisted by the use of metacognitive strategies such as noticing unfamiliar word, inferring the word from context and consolidating this new understanding by repetition and associational learning strategies such as semantic or imagery mediation techniques as people are active processors of information (Ellis, 1995) or direct memorization techniques (Coady, 1993; Nation, 2001).

Explicit learning emphasizes deliberate or conscious effort (Özer and Koçoğlu, 2017). As well as explicit vocabulary learning, intentional vocabulary learning highlights that learner undertakes with the intention of gaining new knowledge (Crandell, 2017; Groot, 2000) and is aware of learning or the goal of an activity (Hulstijn, 2003). Rather than engaging learner in meaning focused activities, the link between meaning and form needs to be established (Ma and Kelly, 2006), hence paying attention specifically on the information to be learned gives the greatest opportunity for its acquisition (Schmitt, 2000). Intentional vocabulary learning involves targeting a particular aspect of language and employing a specific strategy to acquire it (Ashcroft and Imrie, 2014), direct, teacher fronted instruction about a word and using flashcards to work on a word learning activity promotes deliberate vocabulary learning (Gardner, 2013).

Diagnosing the words learners need to know, presenting words for the first time, elaborating word knowledge, and developing fluency with known words (Beglar and Hunt, 2002), intentional vocabulary activities are conducted primarily for vocabulary development (Nakata, 2011) such as word cards, memorizing words lists, using a dictionary to look up new words (McLean, Hogg and Rush, 2013).

2.3. Intentional vs. Incidental Vocabulary Learning

Ma and Kelly (2006) stress that incidental learning suggests a considerable amount of guessing of the unknown words from context and context alone does not always speed up meaning transfer; as a consequence, quality and quantity of lexical processing in incidental learning is insufficient to help the learner comprehend the exact meanings of words, correct usage and correct. Laufer (2003) also opposes incidental vocabulary learning by claiming that L2 learners need to read around 200.000 words in a context in order to learn 108 target words subconsciously; however, in her study, she found that students gained 70 percent of the new words that were on posttests immediately after explicit vocabulary exercises (Laufer, 2005). Likewise, Nakata (2008) proposes that “vocabulary learning from context alone is not sufficient, particularly in a context where learners have little exposure to the target language outside the classroom, and should be complemented with word-focused activities” (p. 5).

Without explicit strategies for acquiring an extensive new vocabulary, learners often fulfill less than their potential and may be disheartened from using language learning opportunities around them such as listening to the radio or native speakers, practicing the language in different contexts, reading, or watching television (Renandya and Richards, 2002).

Coady (1993) also favors explicit teaching of a base vocabulary should be built up at the early stage of acquisition by leading to automaticity and associated with contextual learning during the later stages. In L2 pedagogy, designing tasks that grabs learners’ attention on vocabulary learning and enhancing awareness for efficient vocabulary learning strategies are of critical importance (Hulstijn, 2001).

As learning only from context would require extensive amount of time and comprehensible material to master the same amount of words (Kalecky, 2016), intentional vocabulary learning is an effective way that leads to greater and faster gains, with a better chance of retention (Hulstijn, 2003) and of reaching productive levels of mastery (Schmitt, 2008).

Confirming the number of studies supporting the significance of intentional vocabulary learning in language learning, this study emphasizes that the explicit focus on intentional vocabulary learning via a vocabulary flashcard tool enables more efficient learning and better retention in a short period of time by diminishing the incremental nature of vocabulary learning.

2.4. Learning Vocabulary with Flashcards

Flashcards are sets of cards bearing information-words on one side and pictures or definitions on the other side (Chien, 2013) and are thought to be a particularly effective deliberate learning tool for studying vocabulary (Ashcroft and Imrie, 2014) where learners can learn many words in a short time (Fitzpatrick, Al-Qarni, and Meara, 2008; Nation, 2001) and get the meaning of the word from the memory (Özer and Koçoğlu, 2017).

Vocabulary learning through flashcards is an invaluable pair-associated vocabulary learning activity which supports learners in grasping a great deal of words in a limited time (Webb, 2009) since flashcards can be complemented with pictures and require the learner to retrieve the content before flipping the card over, as opposed to a vocabulary list in the notebook, where the word and its translation are presented next to each other (Kalecky, 2016).

Although vocabulary learning with flashcard is considered as behaviourist learning model (Hulstijn, 2001; Nakata, 2011), several numbers of studies revealed the effectiveness of flashcards depending on some factors. To begin with, learners' using flashcard to study at their own pace enabled them greater responsibility of their learning and a sense of control over learning (Teng and He, 2015) that significantly increase the rate of lexical acquisition (Nation, 2002, 2003) and learner autonomy.

Furthermore, learning vocabulary with flashcard naturally lends learners to a metacognitive learning strategy known as spaced learning (Nation, 2003) which is essential for long-term retention (Groot, 2000; Hulstijn, 2001) as regularly revisiting lexical items over a long period of time contributes to a more structured study regime for students (Ashcroft and Imrie, 2014).

Cards can be grouped according to lexical sets, collocation patterns, items to be learnt in preparation for a test (Ashcroft and Imrie, 2014). Setting the unknown words aside, learners can spend more time reviewing words they have difficulty with; moreover, effective spaced learning may help learners make the most of cards that eventually leads to considerably improved retention (Nakata, 2008). Studying with cards also prevents list effect and when the students write them on their own, the process of writing itself can be beneficial for their retention (Kalecky, 2016).

Another benefit of using flashcards is that flashcards are available for the students both in the class and outside in their extracurricular time (Başoğlu and Akdemir, 2010) so that they are portable and can be studied during almost any free moment (Ashcroft and

Imrie, 2014). By expanding learners' vocabulary and serving as an effective strategy to study outside the classroom (Kalecky, 2016), flashcards can be personalized to the needs and learning goals of individual learners (Elgort, 2011). Flashcards, along with their usually convenient size, also make learners prime tools in spaced repetition, an effective word memorization technique (Nation, 2013).

In general, using flashcards is thought to have a positive motivational effect on students (Ashcroft and Imrie, 2014), since flashcards are fast and fun to use and they have multi-sensory appeal and occupy only a short time (Stutz, 1992). Given these pedagogically sights about flashcard learning, it is useful to examine whether a flashcard programs maximizes vocabulary gain and improves vocabulary retention.

2.5. Computer-based Flashcard Use in Vocabulary Learning

Computer technology has improved in recent years and CALL is increasingly offering L2 students a range of opportunities for vocabulary practice and learning over and above pencil and paper activities (Hirschel and Fritz ,2013).

The interactive nature of CALL, with its ability to assess the input text without revealing the answer, and to give immediate feedback provides the motivation and means to encourage students to make greater and repeated efforts to recall and produce newly learnt words, thus potentially strengthening memory for them (Allum, 2004). Computer-assisted language learning (CALL) also includes enhanced presentation of materials due to its multimedia capabilities, introduction of new exercise types and positive effects on students' learning motivation (e.g. Allum, 2004; Ellis, 1995; Hulstijn, 2001; Nation, 2001).

Nation (2001) stated that language teachers and learners had the chance to find effective ways to practice vocabulary since computers offer a very effective way of putting beneficial vocabulary learning principles into practice especially in terms of spaced repetition and retrieval. He continues:

CAVL (Computer-assisted Vocabulary Learning) can set up conditions very effectively. Noticing can be encouraged through coloured, highlighted or flashing text. Retrieval can be encouraged through the use of delay and providing gradually increasing clues. Generative use is encouraged through meeting the vocabulary in a variety of contexts and in a variety of forms: spoken written and pictorial (p. 109).

In this respect, vocabulary learning with computers is more efficient than through the use of traditional learning methods (Chien, 2015) and has a significant effect on the vocabulary learning of EFL students (Ahmadian, Amerian and Goodarzi, 2015; Levy,

1997). Learners are not only exposed to repetition of vocabulary, which is believed to be more effective than massed repetition (Nation, 2001), but also receive instantaneous feedback and work at their own pace controlling their own learning (Hanrahan, 2005; Sagarra and Zapata, 2008).

Considering the benefits of learning vocabulary, apart from many computer-based programs and technological aids such as concordancers, electronic dictionaries, computerized exercises, hypertext, glosses, and the internet (Başöz, 2013), computer-based flashcard programs have been developed and they continue to be popular and to be widely used among language teachers and learners.

Flashcard software programs are designed in a paired-associate format that encourage learners to study L2 vocabulary by associating the L2 word form with its L1 definition, L2 synonym, or L2 definition (Nakata, 2011).

There are numerous numbers of flashcard programs available for vocabulary learning in a second language learning environment and some of them are widely used around the world (Altınır, 2011). As Nakata (2011) emphasized, various flashcard programs were gaining popularity for vocabulary learning (Crandell, 2017) and they were extensively used around the world. Indeed, it is evident that the variety of functionalities offered by the digitalization of flashcards, has resulted in a comprehensive platform for vocabulary study with many advantages (Ashcroft and Imrie, 2014).

To start with, EFL learners learn more vocabulary words via multiple modalities of presentation containing text, sound, pictures or games with words in the target language, video and L1 equivalent counterparts (Chien, 2015) that have a real impact on learning (Al-Seghayer, 2001). Chun and Plass (1996) also underline that organizing information in working memory seems to be aided by learners making connections between the verbal and visual system, hence it helps in linking information to components of the mental model in long-term memory. Similarly, multimedia learning and dual coding theory (Paivio, 1986) explain that human cognition in terms of two dynamic processes for storing verbal and visual information. The verbal information processing deals with text or sound and the nonverbal information processing deals with images, pictures, animations or videos. The theory assumes that the multiple representation of information leads to better retention as Underwood (1989) suggested, "We remember images better than words; hence, we remember words better if they are strongly associated with images" (p. 19).

Since computer-based flashcard programs can offer numerous ways for the presentation of new words by means of their multimedia capabilities, it can in turn

increase learners' motivation and autonomy (Allum, 2004; Hulstijn, 2001; Kalecky, 2016; Nation, 2001). When learners have full autonomy and control the pace of learning, they are likely to hold positive learning attitudes toward using computers and multimedia in learning vocabulary (Ali et al., 2012).

Nakata (2011) conducted a comprehensive investigation of nine flashcard programs according to the 17 criteria derived from previous studies on flashcard learning as well as paired-associate learning. The investigation suggested that the nine programs, many of whom take advantage of the multimedia capabilities of CALL by allowing learners to add audios, images, or videos to flashcards, exploit the advantages of computer-based instruction.

Another benefit of a computer-based flashcard program is that it can record a learner's progress over a period of time and it can arrange the order of words that can help learners study difficult words more often than easy items (Nakata, 2008; Pyc and Rawson, 2007). With computer programming, retrieval can be practiced more easily by language learners (Allum, 2004). As Hulstijn (2001) asserted, the ideal software program would combine the function of a personal lexical information with the function of a drill master, providing opportunities for rehearsal while keeping a record of the learner's performance and putting it in categories such as 'well known', 'known but still in need of regular rehearsal', 'not known and in need of frequent rehearsal'.

McLean et al. (2013) also investigated the efficacy of the online flashcard site Word Engine among Japanese university students and illustrated that the site fostered L2 vocabulary development. In Altiner's study (2011), as the participants' achievement on the tests increased significantly while using a vocabulary software, Anki that is based on space repetition, the software had a positive impact on the learners' vocabulary learning.

Given the widespread benefits of using computer-based flashcards, this study assumed that learners' use of a vocabulary flashcard tool helped vocabulary learning. With regard to this assumption, aside from other studies, the present study aimed to investigate whether learners' progress on study and games modes of the tool affected their achievements on the vocabulary test. This research also intended to survey learners' perceptions towards the use of vocabulary flashcard tool.

2.6. Quizlet as a Vocabulary Flashcard Tool

Quizlet is one of the widely used online interactive learning platform enabling electronic bilateral flashcards, that can be used to study any subject especially for learning

languages (Kalecky, 2016) through the software on a PC or free mobile application (Dizon, 2016). Despite being designed for self-study, teachers can create classes, invite students and assign teacher-made flashcard sets (Kalecky, 2016). With its additional feature, teachers can also track learner progress or activity in terms of the modes accomplished by the student.

Nakata (2011) formed a list of criteria for evaluating digital flashcards from 17 studies on flashcard learning and Quizlet met the majority of his criteria among which is the flashcard creation and editing include: supporting users create their own flashcards, having multilingual support, providing users creating for multi-word units, supporting users add various kinds of information on the card (such as audio, image), supporting for data entry (such as meaning that is supported by many languages), automatically supplying information about lexical items such as meaning of the new words from a database and providing learners to create their own sets of flashcards. Quizlet also has learning criteria such as having a presentation mode, retrieval mode, receptive recall, receptive recognition, productive recall, productive recognition and supporting adapted sequencing. Lastly, the number of words studied in one session can be controlled and altered by user. However, the software progressively doesn't increase the retrieval effort for an item, encourage generative use of an item and support expanded rehearsal.

Quizlet also offers three learning activities:

1) Learn (read the definition and type in the word); 2) Speller (read the definition, listen to the sound clip, and type in the word); and 3) Test: a) Written Question (reading the definition and type in the word), b) Multiple-Choice Question (read the sentence and choose the best answer), c) True and False Question (read the word and check its definition). Quizlet also offers two games: 1) Scatter (match words with definitions), and 2) Space Race (speedy spelling) (Chien, 2015, p. 114).

On the other hand, in addition to these activities, two learning modes and a game have been added recently: Flashcards (review the word with its definition, picture and audio), Write (read the definition and write the word) and Quizlet Live, the newest feature and a live classroom activity. Names of the modes have been renamed: Speller as Spell, Scatter as Match, Space Race as Gravity.

Unlike paper flashcards, which learners tend to study by themselves, Quizlet enables users to create a virtual class on the Quizlet website, redefining the vocabulary learning experience and application allows learners to share resources and interact in ways impossible with paper resources (Ashcroft and Imrie, 2014). Furthermore, Chien (2013) proposes that there is greater potential for making use of Quizlet in learner-centric and

collaborative ways as Quizlet makes it very easy to create, import, export, and share terms, so this is not a time-consuming process.

Quizlet users can create a free account for studying existing flashcard sets or creating a new one. Having a Quizlet account, they can join in the class. Figure 2.1 and 2.2 is a screenshot of the browser-based version of the Class page and Study modes.

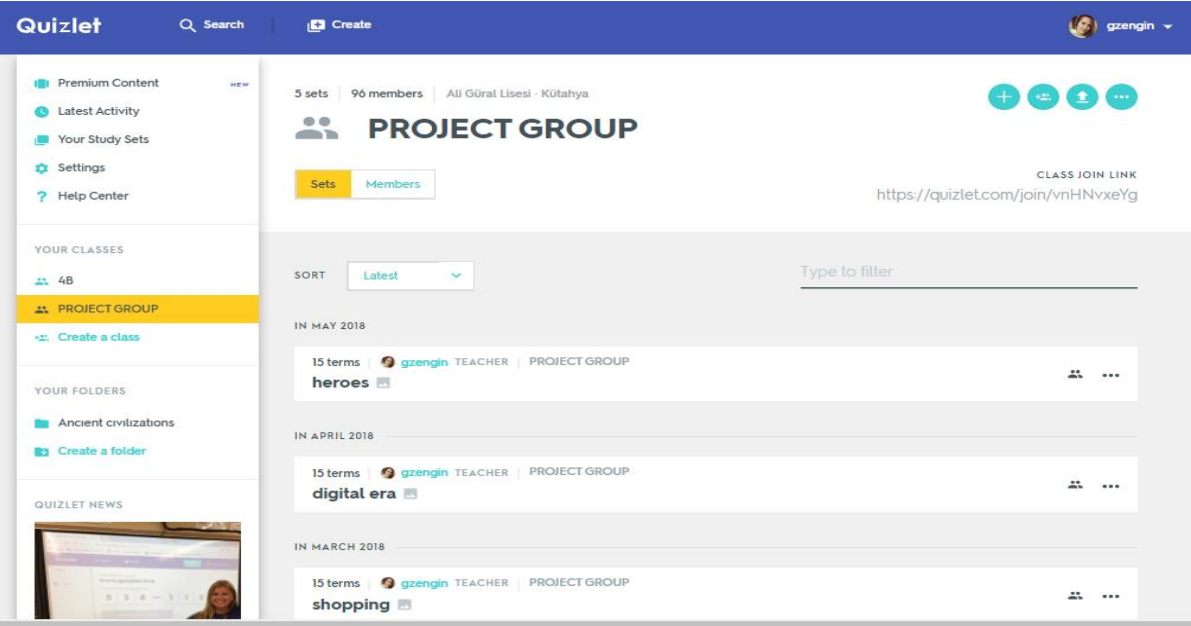


Figure 2.1. Quizlet Class Page

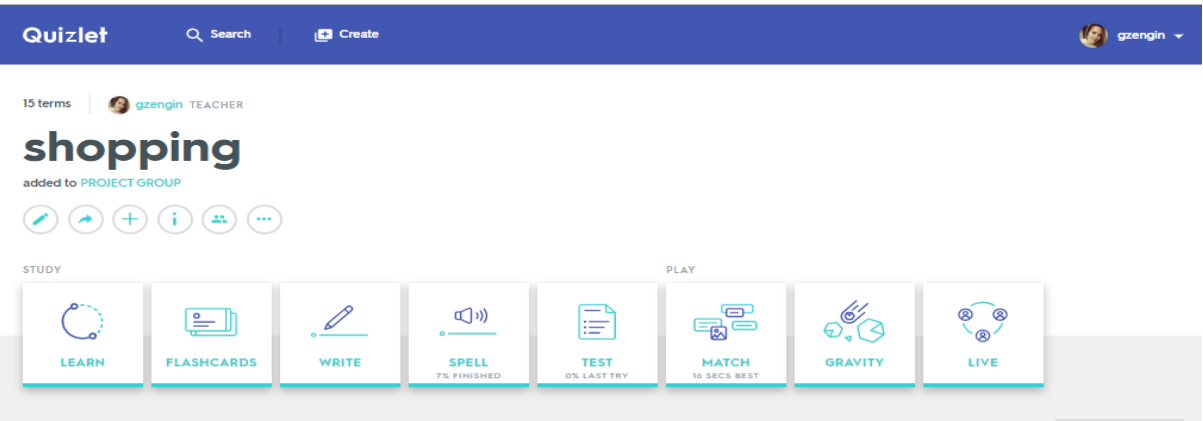


Figure 2.2. Quizlet Study and Game Modes

Figure 2.3 presents the Flashcards mode on Quizlet website.

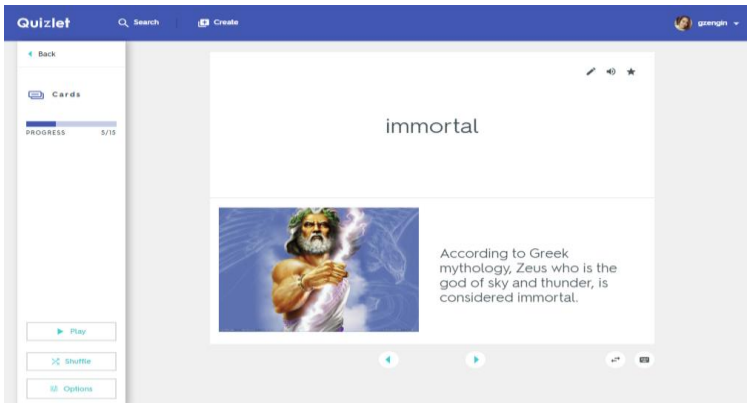


Figure 2.3. Flashcards mode on the Quizlet website

As seen in Figure 2.3, Flashcards mode gives users the opportunity to review the words that are accompanied with the definition, picture or audio. In this study, example sentences rather than L1/L2 definition were prepared for each target word by the researcher as Nation (2001) also suggests that providing a sentence context for a word not “because more information is provided about the word, but learners have to have the ability and motivation to use this information” (p. 309), it develops complete receptive and productive knowledge of a word (Crandell, 2017). Clicking the cards reveals the other side of the card and it is possible to adjust the setting the cards to show the word before the example sentence/ word or to display the picture with example sentence/ word. Moreover, users can hear the correct pronunciation of the word and example sentence as well.

Quizlet Learn mode is shown in Figure 2.4.

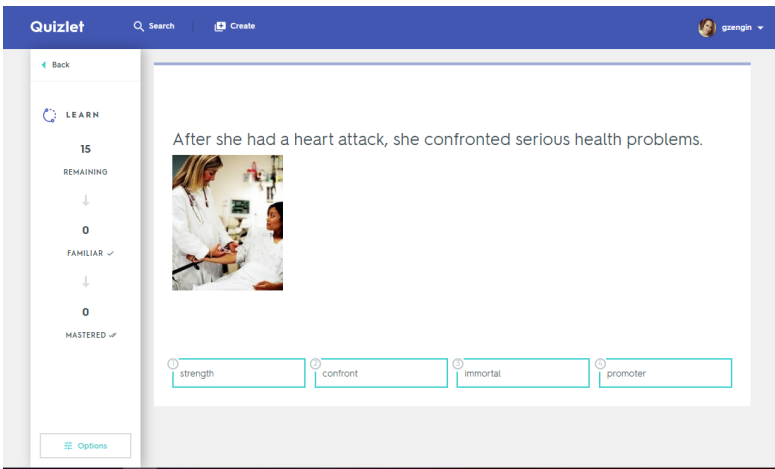


Figure 2.4. Learn Mode on the Quizlet website

On the Learn mode seen in Figure 1.4., users see one side of the card and they are asked either to type the text of the other side or to choose the correct option. A tally for each correct and incorrect responses is kept. If the card is responded incorrectly, it will reoccur more frequently until it is successfully learned.

Figure 2.5 shows Write mode on Quizlet website.

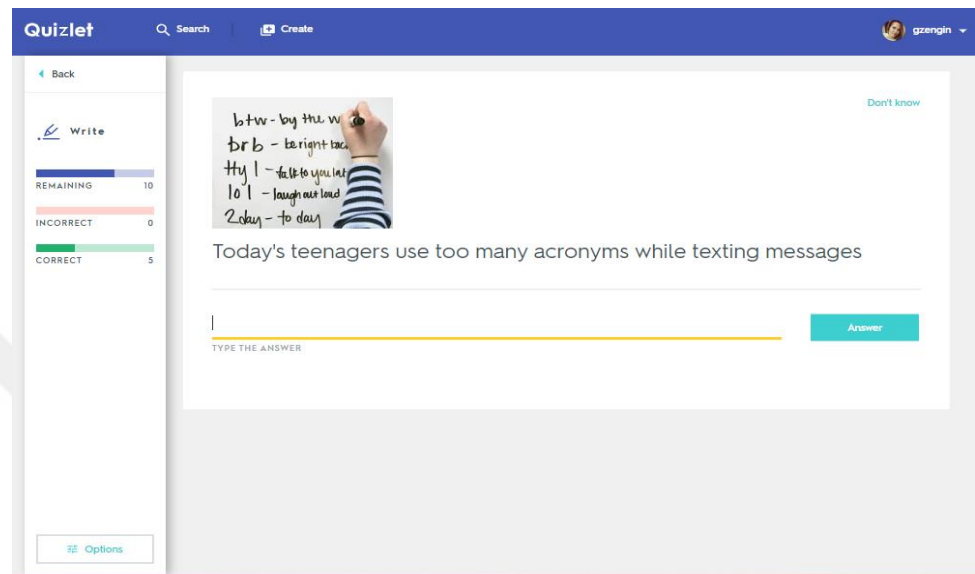


Figure 2.5. Write mode on the Quizlet website

As seen in Figure 2.5, Write mode enables users to practice typing the term correctly according to the example sentence and picture given. It is also possible to write the sentence vice versa.

Quizlet Spell mode is shown in Figure 2.6.

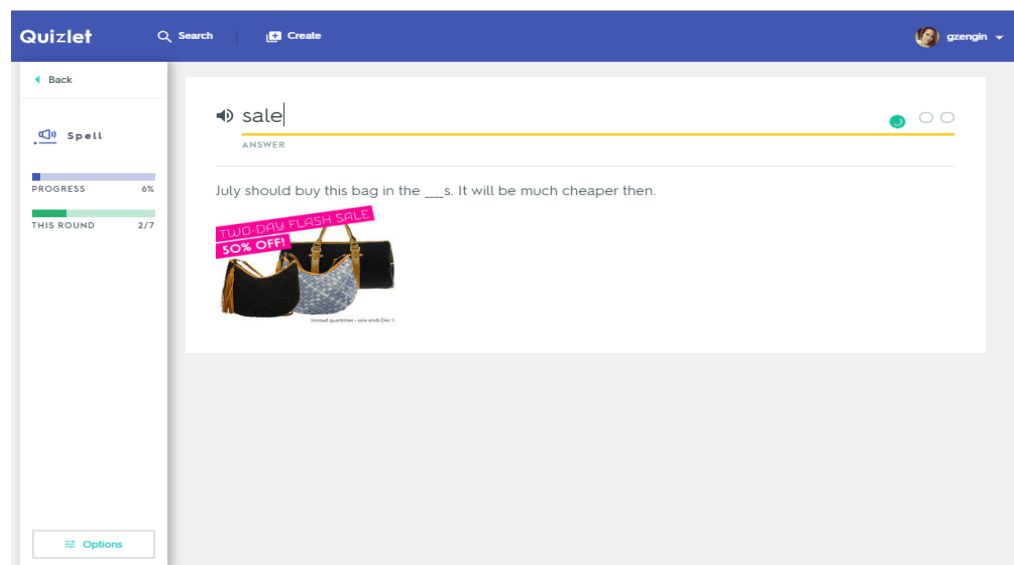


Figure 2.6. Quizlet Spell page

On the Spell page, seen in Figure 2.6, users are expected to type what they hear as they listen to the audio of the target word. When users see the example sentence with a blank, they manage to complete the sentence by filling in the word. Users can also select which side of the cards they would like to practice spelling.

Figure 2.7 is screenshot from Test mode on Quizlet website.

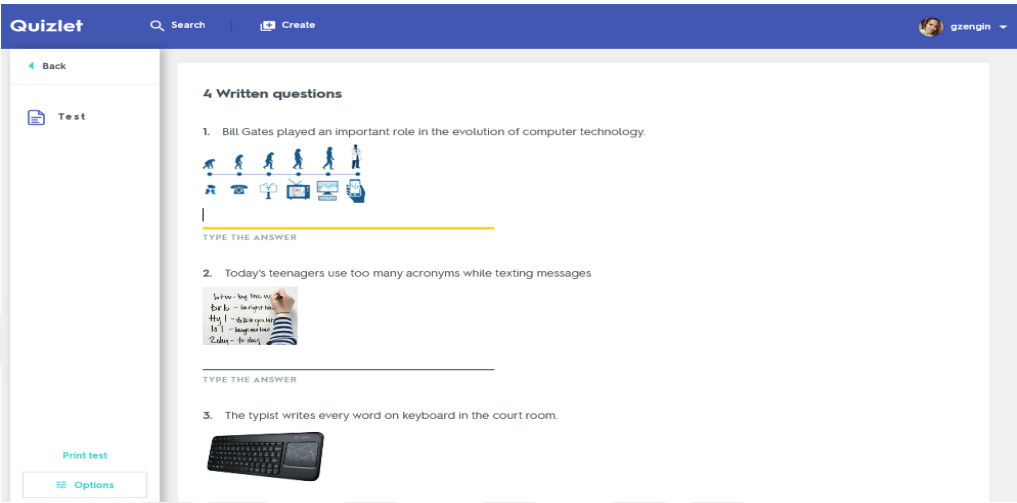


Figure 2.7. Test Mode on the Quizlet website.

Shown in Figure 2.7, Test mode consists of a quiz whose questions are randomly chosen from the set studied. The number of items on the quiz is specified and question types include written, matching, multiple choice, true or false questions. After the test is completed, users can review their correct or incorrect answers and retest.

Figure 2.8 is a screenshot from Match Game on Quizlet website.

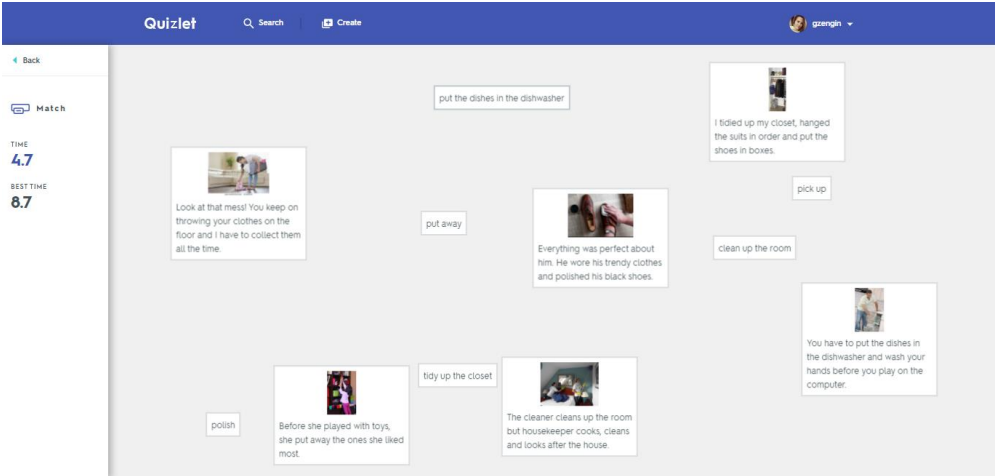


Figure 2.8. Match game on Quizlet website

To practice flashcard sets, users can also play games like Match, Gravity and Live offered by Quizlet. On the Match mode, presented in Figure 2.8., users are expected to drag the correct corresponding sides of flashcards in a set to make them disappear. The aim of the game is to clear the screen as quickly as possible, to get better score than the user's own previous score or to break the other users' time record.

Figure 2.9 is a screenshot from Gravity Game on Quizlet website.

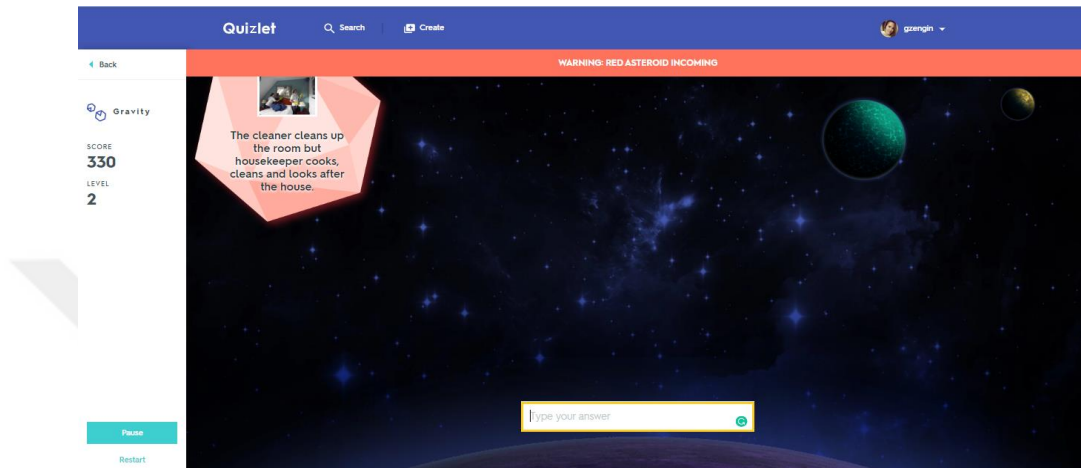


Figure 2.9. Gravity game on the Quizlet website

As seen in Figure 2.9., Gravity is a game of typing the term while the example sentence is displayed on the screen. The task is to type term or example sentence correctly in order to protect the planet from incoming asteroids. As the game progresses, it becomes faster and example sentences fall more frequently. Therefore, users need to finish typing before they reach the ground.

Quizlet's newest game Live, is a real classroom activity designed to be introduced by an instructor. It can be played via their personal computers at home and smartphones in class. After players enter the code that the teacher gives, Quizlet constructs groups of players according to the number of users who are online. Each player belonging to the same group has three or four cards including example sentences and pictures; however, he or she can not see the other groups' cards. During the game, each group works together to find the correct match (the other side of the card) for a displayed side of a card (Crandell, 2017). If all the group members complete the corresponding side of the flashcard given to them without making mistakes in a quickly way, they can be the winners of the game.

Figure 2.10 is a screenshot from Live Game on Quizlet website.

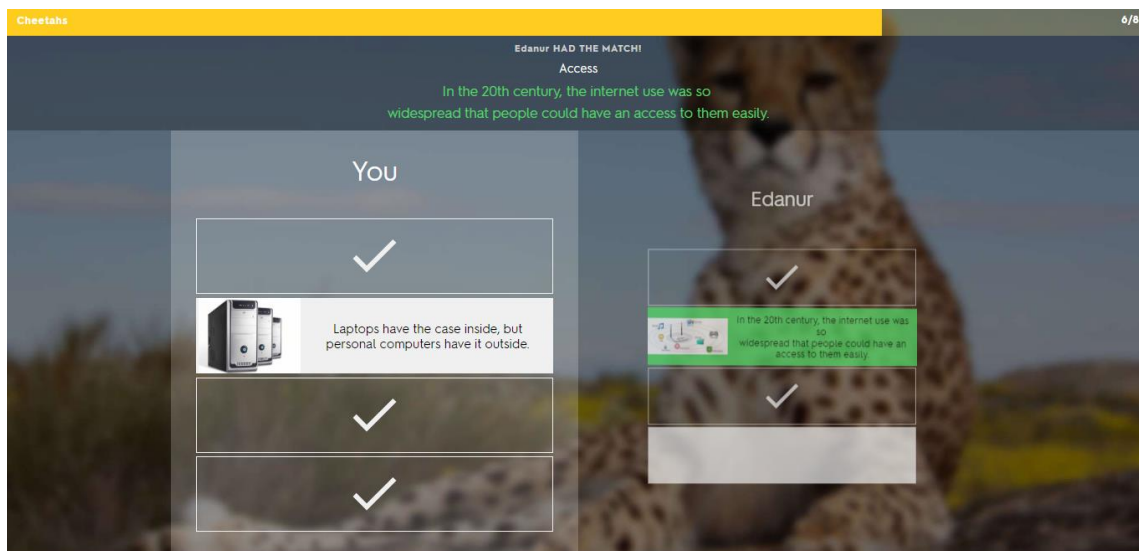


Figure 2.10. Quizlet Live game on the Quizlet website

The object is to finish all the matches faster than the other teams. As soon as the game finishes, Quizlet also presents a review page for the teacher that displays vocabulary terms matched correctly and incorrectly by giving immediate feedback on the terms to be reviewed for the next class. (Wolff, 2016).

Quizlet Live offers entertaining and competitive atmosphere for the players. In a recent study by Jackson III (2015), Quizlet was appreciated over Educreations, a mobile application based on creating and sharing instructional videos. Giving a mark or grade after each study session, the availability of L1 translations and the games enabled Quizlet to be preferred by university students (Jackson III, 2015). Moreover, Chien's (2015) study highlighted Taiwanese EFL learners' positive attitudes towards using Quizlet to improve their vocabulary compared to the two different vocabulary flashcard websites: Study Stack and Flashcard Exchange.

Quizlet is also an interactive platform that provides the learners with instant feedback as they go through the activities within a set of words, supports retrieval and helps the learners with better retention (Kalecky, 2016). Dizon (2016) also administered the Vocabulary Levels Test in a pre- and posttest design to illustrate the students' improvements in their vocabulary knowledge as they were using Quizlet to study the Academic Word List (Coxhead, 2000).

Crandell (2017) states some important reasons why Quizlet enhances vocabulary learning experience:

1) learners can hear as well as see the information presented on the cards; and 2) users can engage in several activities in which they must type from memory one side of a card when the other side is presented to them, requiring them to do more than passively review the cards (p. 22).

Quizlet's engaging platform owes to its convenient interactive features that motivate students to study. What is more, when brought together with appropriate learner training, Quizlet can facilitate learner autonomy and engagement in the second language classroom (Cunningham, 2017). Giving learners control over learning process naturally makes it more interesting and engaging for them (Chien, 2013). By sharing their vocabulary sets, learners can also study each other's flashcard sets.

If upgraded to Quizlet Teacher, teachers can also monitor their students' progress as it presents a chronological list of all students including the details such as students' recent activities and the sets studied (Ashcroft and Imrie, 2014). On Class Progress page, the teacher is able to overview learners' activities on each mode and it is possible to see when it was started, finished and played for the last time.

Figure 2.11. is screenshot of Quizlet Class Progress page.

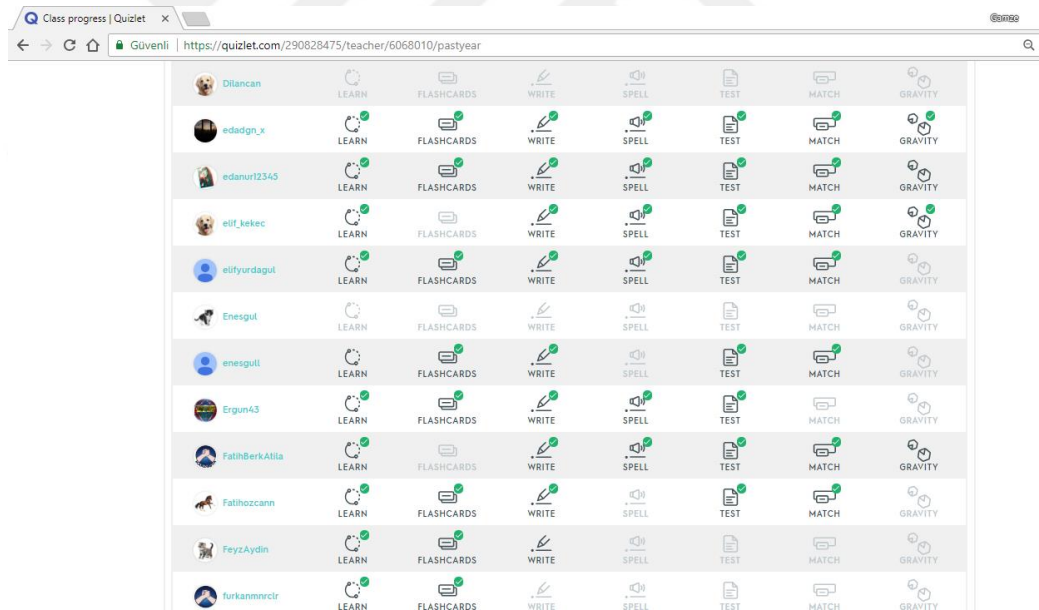


Figure 2.11. Quizlet Class Progress Page

To sum up, the employment of technology could be seen as more motivating for the learners and although the mobile application has a limited functionality, Quizlet serves as a purposeful tool to revise vocabulary, which is more accessible than a computer and also more favored by the students (Kalecky, 2016). Joining in a class on Quizlet increases the

motivation by giving students a sense of advancement and encouraging friendly competitions with their peers (Ashcroft and Imrie, 2014).

In this research, Quizlet was chosen to study vocabulary for some reasons. First of all, it is a popular flashcard program preferred by large number of people. Secondly, the program is so user-friendly that learners easily get accustomed to use it via computer and smartphone application without any payment. Due to its accessibility, it is also much easier for learners to review the vocabulary sets on the smartphone application. Furthermore, multimedia capabilities of Quizlet (e.g. inserting visual elements, pronunciation of words and example sentences) keep learners' attention so that they can learn the target words and create a motivating and entertaining environment to study vocabulary. Considering all these benefits, this study aimed to provide effective vocabulary learning for EFL learners and make a lasting impact for vocabulary retention.

3. METHODOLOGY

3.1. Introduction

The present study aims to examine the effect of using vocabulary flashcard tool for gaining and retaining vocabulary and it also intends to depict intermediate level Turkish EFL learners' perceptions about the vocabulary flashcard tool.

This chapter has five sections which consist of research design, participants and settings, data collection procedure, data collection instruments and data analysis. In the first section, design of the study is discussed. The second section introduces the settings and the participants of the study. The third section provides the details of data collection procedure and description of instructional instrument. The fourth section depicts data collection instruments that are employed in this study. The final section will cover the overall procedure for the data analysis.

3.1. Design of the Study

This study possesses a within-subjects quasi-experimental design (Creswell, 1994), without having a control group. The treatment group was constructed from intact classes that subjects are not randomly assigned (Nunan, 1992). A type of vocabulary flashcard tool was implemented to all students and the study was organized around immediate tests and post-tests that were later compared to each other in order to find out any difference in vocabulary gain within the group in the study. The procedure lasted for four months in total. At the end of the procedure, survey and interviews were applied in order to reveal learners' perceptions of using a vocabulary flashcard tool.

3.2. Participants and Setting

The subjects of the present study were 10th Grade 93 students in an Anatolian High School. At first, 96 students belonging four classes took part in the study. But three of the students were excluded from the study due to not attending school regularly after the implementation process started. Participants consisted of 15-16 years old pre-intermediate level students who had been placed with examination by High School Entrance Test. There were 51 female and 42 male students in the study.

The research was conducted in the second semester of 2017-2018 Academic Year. Participants had English classes for four lesson hours a week as a compulsory course that is determined by the Turkish Ministry of National Education. They only had main course

class during a week and are tested two times during a term. They also practiced vocabulary by memorizing and doing vocabulary exercises during a unit.

After the seminar held by the researcher, all learners decided to participate in the recent research and agreed to study vocabulary via a vocabulary flashcard web tool '*Quizlet*' voluntarily. In order to increase students' motivation and involvement, it was announced that after they had received tests after the implementations, their vocabulary test scores would be taken into consideration as bonus grades for their classroom participation scores in English classes at school. The researcher as the teacher conducted the recent study.

3.3. Data Collection Procedure

A mixed method approach was employed in this study as triangulation strategy. The quantitative data were gathered via the vocabulary tests and survey and the qualitative data were collected via follow-up interviews to find out further insights into the students' perception on using a vocabulary flashcard tool. The quantitative data preceded qualitative data in order to explore test variables first and to search in more depth during qualitative phase.

The procedure consisted of four implementation sessions during a term. Before the sessions, 20 target words for the first unit and 15 target words for the other three units (65 target words in total) were determined from the vocabulary parts of the units that belong to Turkish Ministry of National Education English lesson curriculum. Vocabulary for each unit belonged to different themes, such as: household chores, shopping, digital era and heroes. Later on, the example sentences were prepared including the target vocabulary. Each session comprised of the following steps: First, the sets on Quizlet were created by the teacher so that target vocabulary was ready to be practiced on Quizlet website/ application in learners' free time. Then, in their class time, the vocabulary was studied in accordance with the vocabulary exercises in the course book. Lastly, immediate tests and post-tests were treated in three-week intervals.

As mentioned above, each session consisted of three weeks of implementation. Table 3.3.1. shows schedule of the implementation period of the study.

Table 3.1. Schedule of the tests and the implementation period

TESTS	FEBRUARY				MARCH				APRIL				MAY			
	WEEK				WEEK				WEEK				WEEK			
	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th
Immediate test (1)	*															
Post-test				*												
Immediate test (2)					*											
Post-test								*								
Immediate test (3)									*							
Post-test												*				
Immediate test (4)													*			
Post-test																*

— This line shows the duration of students’ practising new vocabulary for each unit.

* This icon shows the application of the tests.

During the implementation period, learners studied vocabulary on Quizlet by memorizing flashcards, matching, doing tests and playing games. During class time, learners practiced vocabulary by doing matching and filling exercises and as the time allows, they played *Quizlet Live* with their classmates once a week. Immediate tests and post-tests were prepared by the researcher. Immediate tests were administered hereafter in order to measure learners’ immediate vocabulary gain. Three-weeks later, post-tests were applied in order to measure vocabulary recall. As units changed every three weeks, the new vocabulary also changed. The other sessions followed the same procedure with previous one.

3.3.1. Description of the instructional material

In this study, participants studied the target vocabulary by using ‘Quizlet’ that is one of the most well-known online flashcard tools for language learning as mentioned before in 2.6 Quizlet as a Flashcard Tool.

Quizlet offers several study modes (Crandell, 2017). On the Flashcards page, users can review the words as they would review paper flashcards. Users can turn on/off the audio and choose which side of the card to be displayed on options menu. Just by clicking, it is possible to see the other side of the card and other cards respectively. On the Learn page, users are asked to type the word in accordance with the example sentence or representative picture given as the other side of the card. A tally is kept of correct and incorrect responses during the activities so that cards for which a user gave an incorrect response reoccur more frequently until the user can successfully text the word. On the

Spell page, users are expected to type what they hear correctly. The Test page creates a test including fill in the blank, multiple choice and true-false questions from the cards prepared. After completing the test, users can review their performance.

The most effective, and most recently added feature of Quizlet is the Live option (Eatherton, 2017). When students log in Quizlet Live with a code given by the teacher, the participants are sorted into teams, where each team member will need their own device in order to play. All team members will see the question along with three potential answers and whole team communicates in order to determine the best answer quicker than the other teams.

As mentioned above, Quizlet, contains colorful pictures and enjoyable games for language learners and also possesses some notable features. Firstly, it provides both positive and negative immediate feedback which helps to motivate students and improve their performance (Ashcroft and Imrie, 2014). Secondly, it serves multi-sensory input for each student. Quizlet integrates multimedia capabilities through providing the definitions and the pronunciation of the target words, so the users easily get the meaning with correct pronunciation (Özer and Koçoğlu, 2017). Moreover, being able to see written/picture form and to hear the pronunciation of the words at the same time appeals to both senses simultaneously. Thirdly, Quizlet provides a flexible learning environment as students can spend more time on the cards they have been mistaken or listen to the pronunciation of a word as many times as they want or go back and forward to learn and memorize better. Lastly, learners receive immediate feedback and have an opportunity to study at their own pace that also motivates them and develops their autonomy.

Regarding these features, this tool was specially chosen for the study as it is thought to be efficient for EFL language learners who have difficulty in memorizing vocabulary.

3.4. Data Collection Instruments

3.4.1. Vocabulary tests

Vocabulary tests were prepared based on the vocabulary that were expected to be taught according to Turkish Ministry of National Education 10th Grade English Lesson Curriculum. Vocabulary tests covered four units (Household Chores, Shopping, Heroes and Digital Era) studied during the implementation process (See Appendix 1.). In order to find out whether learners gain and retain these words, 4 immediate tests and 4 post-tests were applied in terms of their progress on Quizlet. Learners' progress on Quizlet was determined by the Class Progress menu that was only visible to the teacher. On the

Class Progress, teachers can track and open each student's profile and check on their activity, or see the cumulative list of vocabulary sorted by the number of mistakes that the class has made in a particular set (Kalecky, 2016). In this research, after the immediate tests and post-tests had been applied, researcher captured Class Progress page screen that showed each learner's study progress.

The data were collected through vocabulary tests measuring both meaning and form aspects of vocabulary receptively and productively. As most vocabulary researchers distinguish between passive (receptive) and active (productive) knowledge of a word (Nation, 2001), the vocabulary tests were carefully prepared by the researcher and checked by supervisor. To measure students' receptive knowledge of a word, a matching test in which learners were required to match an example sentence including the target word with the picture equivalent was prepared. To measure productive knowledge of a word, a write-the-word test in which learners were supposed to write the missing target words in the example sentences was prepared. For vocabulary tests and Quizlet sets, researcher constructed contextual sentences for each target word which were later checked and corrected by thesis supervisor. In order to decrease the familiarity of the sentences, example sentences in vocabulary tests were different from the ones given in Quizlet.

Three weeks after each implementation, post-tests which were same with the immediate tests, were given to the students to measure long term retention of target vocabulary items (Kalecky, 2016) as students independently retrieve target information at intervals that are as long as a month (Bahrick, 1987). Unannounced post tests were applied in students' regular class hours.

In this research, the vocabulary targeted for the study was determined from four sequential units of the textbook regarding the vocabulary parts of the units. For each implementation session, 20 target words for the first unit and 15 target words for the other three units were chosen according to the vocabulary parts of the units belonging English course book; therefore, 65 words in total were studied at the end of four implementation sessions. In the matching test, scoring was analyzed by giving one point for each correct answer that is the total score was 15 or 20 points for it. In write-the-word test, students were supposed to write all the words for each question correctly but one spelling mistake was considered correct if it would not change the meaning of a word.

3.4.2. Survey and interviews

The consequent step was to investigate the perceptions of the learners towards the use of Quizlet via survey-based and interview-based data collection procedure. Surveys are the most commonly used descriptive method in educational research (Cohen, Manion and Morrison, 2002) as the purpose of survey is generally to obtain a snapshot of conditions, attitudes and/or events at a single point in time (Nunan, 1992). Firstly, with the purpose of gathering students' perceptions of using Quizlet, the students were asked to complete the survey which was adapted from Ranalli's (2009) Post Project Survey including 20 Likert- scale items based on usefulness, usability and enjoyment categories. At the end of the whole implementation process, participants were asked to complete the survey prepared in Turkish that enables learners to understand the items better (See Appendix 11.). Survey items in Turkish was checked by the supervisor. The reliability of the survey was also checked with Cronbach alpha's coefficient that was 0,94 which indicating great internal consistency of the items (Gliem and Gliem, 2003).

Second, structured interviews were conducted in order to minimize researcher bias and increase generalizability of the findings (Qu and Dumay, 2001). Before the interview, researcher determined all the questions that were parallel with the questionnaire items in terms of three categories: usability, usefulness and enjoyment. Later, depending on Class Progress menu on Quizlet Teacher, researcher counted each student's progress in 7 study modes of Quizlet: Learn, Flashcard, Write, Spell, Test, Match, Gravity and selected 6 students according to their minimum, average and maximum participation on Quizlet. Together with this, the participants' audio taped answers were first transcribed in Turkish and then translated into English by the researcher. Lastly, a content analysis on the interviewees' responses was conducted by the researcher and independent researcher.

3.5. Data Analysis

Two steps were included for data analysis procedure. Quantitative data were statistically analyzed with the descriptive statistics, paired samples t-test and correlations. Qualitative data analysis from the interviews indicating participants' perceptions towards the use of Quizlet as a vocabulary flashcard tool. The researcher asked interview questions and transcribed the participants' audio recorded answers in Turkish and then translated them into English. Later, an independent researcher who had a PhD degree in English Language Teaching was asked to categorize the data individually in terms of usability, usefulness and enjoyment. Researcher and the other researcher scored 6 participants'

interview responds in order to ensure the inter-rater reliability of the data analysis. All disagreements were discussed until agreement was reached and interrater reliability coefficient was found (91.7%).

Researcher investigated gain and retention of the new vocabulary over a period of time via vocabulary tests to answer the first two research questions. In this step, descriptive statistics was analyzed to indicate the mean scores and the standard deviations based on vocabulary tests' results. Furthermore, paired samples t-test was conducted for data analysis to show whether there is a statistical difference between immediate tests and post-tests.

Moreover, the present study revealed the relationship between learners' progress and immediate/post-tests. Learners' progress was taken into account in terms of Class Progress page on Quizlet. Each user's completing the study and games modes was checked by the researcher according to Class Progress table which included the list of all users and Quizlet modes. When the modes were completed until all the questions were answered correctly, the modes were marked with green ticks by Quizlet. Researcher saved screenshot of the progress table twice before each immediate test and post-test. Data analysis for learners' progress was determined by counting the ticks for each user.

In order to answer the third research question, questionnaire and interviews as data collection instruments were used to identify the perceptions of EFL learners towards Quizlet vocabulary flashcard tool. Questionnaire results were analyzed with descriptive statistics to compute the means and standard deviations of each item.

3.6. Conclusion

In this chapter, the methodology used to carry out the study was described in terms of its setting and participants, research design and procedure and data analysis. In the next chapter, the details of the data analysis as well as the results revealed will be discussed in detail.

4. RESULTS

4.1. Introduction

This chapter presents the findings of data analysis to address three research questions. With this respect, this chapter deals with the issue of the extent whether a vocabulary flashcard tool can help EFL learners gain and retain new vocabulary and whether learners find the web tool useful for learning vocabulary.

Research Question 1: Does learners’ progress on a vocabulary flashcard tool help EFL learners gain vocabulary?

In order to examine the learners’ gaining new vocabulary, 4 immediate vocabulary tests were administered during the intervention process to measure students’ recognition of the words. Every vocabulary test consisted of two parts: matching and writing-the-word. In “matching” part, students were expected to match the example sentence with the equivalent pictures. In “writing the word” part, students were supposed to fill in the blanks with the appropriate target word according to the example sentences and pictures given.

93 participants’ vocabulary test results were analyzed and means and standard deviations for scores received from all assessments were calculated. Due to the purposes of this study, a significance level of $p<.05$ was used to make all determinations of statistical significance. Table 4.1. demonstrates the descriptive statistics for all immediate test results.

Table 4.1. *Descriptive Statistics for all immediate test results.*

	Minimum	Maximum	Mean	Std. Deviation
Immediate test 1	6	20	15,15	3,647
Immediate test 2	4	15	12,03	3,002
Immediate test 3	2	15	11,33	3,288
Immediate test 4	7	15	11,45	2,324

Measures of central tendency (means and standard deviations) for all immediate tests were compared. Table 4.1 demonstrates that the mean score of the first immediate test was 15.15 ($SD = 3.647$) and the mean score of the second immediate test was 12.03 ($SD=3.002$). In terms of the third immediate test results, the mean was $M=11.33$ ($SD=3.288$) and considering the students’ last immediate test results, the mean score was 11.45 ($SD=2.324$). It is understood from the analysis that the highest to the lowest mean scores can be ranged from second, fourth, third and first immediate test.

In order to find out whether there is a significant correlation between the learners’ progress on Quizlet and their immediate test scores, both Class Progress menu on Quizlet website showing each student’s completed activities on Quizlet modes and vocabulary test results were analyzed.

Table 4.2. *Correlation table to show the relationship between immediate test scores and learners’ progress on Quizlet.*

		Learners’ Progress on Quizlet
Immediate test result (1)	Pearson Correlation	,415**
	Sig. (2-tailed)	,000
	N	93
Immediate test result (2)	Pearson Correlation	,040
	Sig. (2-tailed)	,702
	N	93
Immediate test result (3)	Pearson Correlation	-,027
	Sig. (2-tailed)	,800
	N	93
Immediate test result (4)	Pearson Correlation	,322
	Sig. (2-tailed)	,002
	N	93

**. Correlation is significant at the 0.01 level (2-tailed).

As seen in Table 4.2, there is a moderate positive correlation between the learners’ progress on Quizlet and their first immediate test scores ($r = .415$) and correlation is significant at $p < .01$ level. There is also a moderate positive correlation between the fourth immediate test scores and learners’ progress on Quizlet ($r = .322$). It is understood that as they studied more on Quizlet, their immediate test scores tended to increase during the three weeks of implementation. However, the relationship between second immediate test results and students’ progress on Quizlet indicates a weak positive correlation ($r = .040$) and there is not a statistically significant relationship between progress made to practice new vocabulary on Quizlet tool and second immediate test scores. This means that students’ own progress on Quizlet during the second implementation process had almost no effect on the scores for the second immediate test. It is also understood that there is not a statistically significant correlation and there is a negative weak relationship between the learners’ progress and the third immediate test scores ($r = -.027$). The findings showed that students' progress on Quizlet didn’t almost affect the performance in vocabulary tests.

The results indicated that although there was a significant correlation between the first immediate test results and learners’ progress on Quizlet, no significant relationship was found between second immediate test results and learners’ progress until the second immediate test. Findings also showed that there was a negative relationship between the

third immediate test results and learners’ progress on Quizlet. In other words, learners’ studying more on third Quizlet set was not necessarily associated with higher immediate-test scores. Lastly, students’ progress on Quizlet slightly correlated with fourth immediate test. It can be inferred from the analysis that students’ progress on Quizlet didn’t lead to significant differences for the immediate vocabulary tests.

Research Question 2: Does learners’ progress on Quizlet help EFL learners retain more vocabulary?

With an intent to find out students’ recall of words, 4 post-tests were administered. Based on the results of immediate tests and post-tests, descriptive statistics and paired samples t-test were analyzed. A significance level of $p<.05$ was used to make all determinations of statistical significance. The mean scores of immediate vocabulary tests and post-tests for all implementations are presented in Table 4.3.

Table 4.3. Descriptive statistics for the immediate tests and post-tests.

	Minimum	Maximum	Mean	Std. Deviation
Immediate test 1	6	20	15,15	3,647
Post-test 1	5	20	16,76	3,506
Immediate test 2	4	15	12,03	3,002
Post-test 2	5	15	12,43	2,943
Immediate test 3	2	15	11,33	3,288
Post-test 3	4	15	13,11	2,194
Immediate test 4	7	15	11,45	2,324
Post-test 4	7	15	12,52	2,244

Measures of central tendency (means and standard deviations) for both immediate tests and post-tests were compared in Table 4.3. To start with the first vocabulary tests, the mean score of the first immediate test was 15.15 ($SD = 3.647$) and it increased to 16.76 on the post-test which was tested three weeks later ($SD = 3.506$). Like the first immediate and post-test results, the mean score of second immediate test ($M= 12.03$, $SD=3.002$) went up ($M=12.43$, $SD= 2.943$). Among all tests, the variance between the third immediate and post-test mean scores was the highest one as the mean score of the former ($M=11.33$, $SD=3.288$) was nearly two points below the latter ($M=13.11$, $SD=2.194$). Concerning the students’ last two vocabulary tests, the mean score for the fourth post-test ($M=12.52$, $SD=2.244$) was higher than the fourth immediate test ($M=11.45$, $SD=2,324$). The fact that all post-test results were higher than immediate test results, highlighted that there was a vocabulary recall after the intervention period. After students’ taking the immediate tests, they managed to give more correct answers in the post-tests.

All participants increased their scores compared during the three-weeks period, it can be deduced from that they showed a much better improvement in learning target words. As learners completed practicing vocabulary items during a unit in two weeks' time, their study on Quizlet must have helped learners retain vocabulary after three weeks and also increase their motivation.

Participants were assigned to vocabulary tests in three weeks interval. Table 4.4 demonstrates the paired samples t-test for all immediate tests and post-tests.

Table 4.4. Paired samples t-test table for all immediate tests and post-tests.

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1	Immediate Test 1 & Post-test 1	-1,613	3,277	-4,746	92	,000
Pair 2	Immediate Test 2 & Post-test 2	-,398	2,318	-1,655	92	,101
Pair 3	Immediate Test 3 & Post-test 3	-1,774	2,802	-6,106	92	,000
Pair 4	Immediate Test 4 & Post-test 4	-1,065	1,994	-5,150	92	,000

The paired samples t-test was conducted on data obtained from first immediate test and post-test results. Table 4.4 indicates that there is a statistically significant difference between the first immediate and post-test results ($T(92) = -4.746, p = .000$). The results implied that there was vocabulary gain during the three-weeks of training and learning vocabulary with Quizlet facilitated an increase in learners' vocabulary knowledge. Based on the data obtained from the second immediate and post-test results, although there is a slight increase from the scores of the immediate and post-test, there was not a statistically significant difference between the second immediate test and post-test results at the $p < .05$ level ($T(92) = -1.655, p = .101$). However, there is a statistically significant difference between the third immediate test and post-test ($T(92) = -6.106, p = .000$). When, the increase of the mean scores were compared, students made the highest improvement as third immediate test mean scores rose up from 11,33 to 13,11 during the third intervention process. There is statistically significant difference between the fourth immediate test and post-test ($T(92) = -5.150, p = .000$).

In order to find out the relationship between the learners' post-test scores and their progress on Quizlet, correlation analysis was made. Correlation table is presented in table 4.5.

Table 4.5. Correlation table to show the relationship between post-test scores and learners' progress on Quizlet.

Learners' Progress on Quizlet		
Post-test result (1)	Pearson Correlation	,410**
	Sig. (2-tailed)	,000
	N	93
Post-test result (2)	Pearson Correlation	,320**
	Sig. (2-tailed)	,002
	N	93
Post-test result (3)	Pearson Correlation	,328**
	Sig. (2-tailed)	,001
	N	93
Post-test result (4)	Pearson Correlation	,257*
	Sig. (2-tailed)	,013
	N	93

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

As shown in table 4.5, there is a moderate positive relationship between the learners' progress in Quizlet and their first post-test scores ($r = .410$) and a significant correlation at $p < .01$. It is clear that as learners' progress on Quizlet increased, their test scores also increased. This result is also supported by the paired samples t-test analysis showing significant difference between the first immediate and post-test. Moreover, a moderate positive correlation was found between the learners' progress on Quizlet and second post-test scores ($r = .320$) and correlation is significant at the $p < .01$ level. Although the paired-samples analysis shows statistically non-significant difference between second immediate and post-test, learners tended to give more correct answers as they studied on Quizlet website. Regarding the relationship between learners' progress on Quizlet and the third post-test scores, there is a moderate positive correlation between the learners' progress on Quizlet and third post-test ($r = .328$) and the correlation is significant at $p < .01$ level. It is implied that learners' progress on Quizlet affected the third post-test scores in a positive way. Lastly, a positive relationship was found between learners' progress and fourth post-test scores ($r = .257$) and correlation is significant at the $p < .05$ level. This result shows that as learners' progress on Quizlet increased, their post-test scores also increased.

After having answered the two research questions, it was concluded from the findings that learners had already gained vocabulary and retained it during the implementation process. In other words, in terms of statistically significant differences between immediate test results and post-test results, learning vocabulary with Quizlet promoted an increase in vocabulary knowledge of the learners. The results also implied that learners' vocabulary post test scores are in a positive relationship with their Quizlet

progress. The more learners studied the vocabulary on Quizlet and practiced the Quizlet modes, the better their test scores were.

Research Question 3: What are the perceptions of EFL students towards the use of a vocabulary flashcard web tool?

The question asking how students found learning vocabulary with Quizlet was answered mainly from data gathered from participants` responses on the survey given and interviews at the end of the study. Analysis of the survey and the interviews were categorized in terms of usefulness, usability and enjoyment of the tool (Ranalli, 2009). For the content analysis of interviews, researcher and the independent researcher scored 6 participants` interview responds. Among 69 codes, six codes were considered inconsistent in terms of three categories: usefulness, usability and enjoyment. Interrater reliability was 91.7% and all disagreements were discussed, paying close attention to the three categories, until agreement was reached.

To start with the first category, participants indicated that they found learning experience with Quizlet useful for their vocabulary learning according to survey results. On a Likert-scale of 1 to 5, with 1 showing “strongly disagree” and 5 showing “strongly agree”.

Table 4.6. *Perceptions of usefulness*

Survey items	Mean	SD
4) Pictures and example sentences were useful for me to remember new words.	4.10	1.11
11) I learned many new words by looking at the example sentences.	4.02	1.02
14) I have already known how to arrange my vocabulary study.	3.75	1.10
15) I think Quizlet can help me improve my vocabulary.	4.27	0.83
16) Quizlet enhanced my success in English.	3.48	1.19
17) Quizlet help me learn new words easily	4.05	1.03
18) My vocabulary has improved since I started using Quizlet	4.17	1.03

As in Table 4.6, findings showed a clear agreement that their vocabulary has improved since they started using Quizlet (M = 4.17, SD = 1.03) and Quizlet could help them to improve their vocabulary knowledge (M = 4.27, SD = 0.83). Moreover, students learned the vocabulary more easily with Quizlet (M = 4.05, SD = 1.03). Quizlet could also be a helpful tool for learners by presenting them new vocabulary as they found the example sentences and pictures useful (M = 4.10, SD = 1.11) and these sentences

facilitated the learning process ($M = 4.02$, $SD = 1.02$). Compared with the usefulness of example sentences, there was a slightly less agreement with the ratings that students had already known how to arrange their vocabulary study ($M = 3.75$, $SD = 1.10$) and Quizlet helped them to enhance success in English lessons. ($M = 3.48$, $SD = 1.19$).

These results were also in accordance with the data from interviews. In general, the positive comments about the usefulness of the program were mentioned throughout the interviews. Some of them indicated that their vocabulary has improved since they started learning vocabulary with Quizlet. Quizlet helped them to remember more words easily so that they can use it in the future. Their responses to the question whether their vocabulary improved were given below as representatives of similar survey results.

S1: Of course, Quizlet helped me to improve my vocabulary. I used Quizlet regularly and with the help of games, I remembered more words easily.

S2: Quizlet really helped me to improve my vocabulary. Actually, I am not a kind of student who revises the unknown words regularly but with Quizlet, I realized that I learned words more perpetually. Now on, if I hear or see the word in somewhere else, I can recognize it easily.

S3: Learning vocabulary with Quizlet helped me to understand books and films being in English. I realized that I inferred the meanings of the words better when looking at the sentences. Because of this, Quizlet was useful.

S4: Learning vocabulary with Quizlet is very useful. I am planning to be a foreign language class student next year. I want to study vocabulary by creating Quizlet sets for the unknown words I encountered while reading books.

During the interviews, participants elaborated on the usefulness of Quizlet by stating that learning vocabulary with images and example sentences were very helpful for them to remember those words. Some of the participants indicated that they could try to guess the word with the help of pictures and understand meaning of it from the context.

S4: Displaying a word on flashcard with pictures, example sentence helped me retain the word perpetually. Moreover, while playing games, your knowledge of the vocabulary is getting better.

S1: Learning vocabulary with Quizlet provided more perpetual knowledge by means of pictures and example sentences. Moreover, we can have the opportunity to revise again and again.

Based on the usability category, data obtained from the surveys and interviews were analyzed and students' answers indicated in Table 4.7.

Table 4.7. *Perceptions of usability*

Survey items	Mean	SD
2) It was easy to use Quizlet.	4.45	0.80
3) I understood the purpose of Quizlet clearly.	4.35	0.91
5) I have not experienced any technical difficulty with Quizlet.	4.10	1.11
6) I used “easy”, “moderate” and “hard” options of Quizlet to play the games.	3.73	1.15
10) It is practical for me to use Quizlet application on my smartphone	3.56	1.27

Findings demonstrated that Quizlet is a practical website and easy to use. Based on the results shown in Table 8, participants agreed that Quizlet was easy to use ($M = 4.45$, $SD = 0.80$) and its purpose of use is clearly understood ($M = 4.35$, $SD = 0.91$). Most of them didn’t encounter with a technical difficulty while studying on Quizlet ($M = 4.10$, $SD = 1.11$). However, there is a less agreement on students’ using the options (easy, moderate, and hard) before playing the games ($M = 3.73$, $SD = 1.15$) and their using Quizlet on their smartphones ($M = 3.56$, $SD = 1.27$).

When interviews were analyzed, all of them supported the idea that they understood the purpose of Quizlet and used it easily. According to survey results, learners felt comfortable while using it and they emphasized studying on Quizlet smartphone application is very practical for them. Furthermore, they emphasized that it is more fun to study words on Quizlet than looking them up in a dictionary.

S4: I studied on Quizlet regularly because rather than looking a word up in a dictionary, I am having fun while using Quizlet. What is more, new generation is within technology, so learning vocabulary with Quizlet is more usable.

S2: I liked Quizlet. Having some visual, audial elements and example sentences makes Quizlet really practical. You can also download its application so that you can study the words on your smartphone whenever I want.

During the implementation process and interviews, it is understood that none of the students experienced technological difficulties while they were using the application. However, one of them (S3) proposed that using Quizlet without any connection to the internet would be better. Especially, when the students were asked what kind of features could be included, all the participants except S1 thought it was sufficient, but she suggested that some new games could be included in Quizlet.

Considering enjoyment category, responds to the survey results were depicted in Table 4.8.

Table 4.8. *Perceptions of enjoyment*

Survey items	Mean	SD
1) Using Quizlet for vocabulary learning is enjoyable.	4.16	0.85
7) I liked “Match” game most.	3.56	1.27
8) I liked “Gravity” game most.	3.16	1.17
9) I liked “Quizlet Live” game most.	4.12	1.05
12) Learning vocabulary with Quizlet is interesting	3.98	1.00
13) It is motivating to use Quizlet to learn new words.	3.85	1.09
19) I would use Quizlet again in the future after this class is over.	3.59	1.20
20) This kind of tools should be included in language courses.	4.20	0.97

As a result, according to survey results, most of the students enjoyed using Quizlet and stated that using Quizlet for vocabulary learning is enjoyable ($M = 4.16$, $SD = 0.85$) and interesting ($M = 3.98$, $SD = 1.00$). Students also liked playing games with their friends. The highest mean score of a game that was played on Quizlet belongs to “Quizlet Live” ($M = 4.12$, $SD = 1.05$), then “Match” game ($M = 3.56$, $SD = 1.27$) and lastly “Gravity” ($M = 3.16$, $SD = 1.17$). For general implications, students really felt motivated to use Quizlet to learn vocabulary ($M = 3.85$, $SD = 1.09$) and would use it again in the future after this class was over ($M = 3.59$, $SD = 1.20$). It is also understood that majority of the students supported this kind of tools should be included in language courses ($M = 4.20$, $SD = 0.97$)

In the interviews, participants expressed how they felt about using Quizlet for their vocabulary learning. They indicated that they liked it because they enjoyed playing games. With the help of Quizlet, they both learned new words and enjoyed playing games with their classmates.

S5: Quizlet helped me improve my vocabulary knowledge both having fun and learning, both playing with games and doing the tests.

S6: At school, we were playing “Quizlet Live” and this was what I liked most. Because playing with my schoolmates was creating a competitive atmosphere.

S3: I liked “Gravity” and “Quizlet Live” games most. I liked “Gravity” because we want to do the highest score. I guess I liked it because of this. At the same time, playing “Quizlet Live” in the class was really enjoyable.

S1: I liked “Test” mode most. I understood how much I knew the words I had learned.

S2: The best mode that I liked most was “Write” due the fact that when I heard the word, I could write the word easily. I also think Quizlet improved my listening skills.

S4: I liked “Quizlet Live” most. Because playing it with my friends creates a rivalry and this makes learning vocabulary more entertaining.

To sum up, participants found the vocabulary learning process with Quizlet useful and indicated that their academic vocabulary improved since they started using Quizlet which also supported the findings of the first and second research question. Learners also found it easy to use because they can study the words on smartphone application and learned the words with the help of images, sounds and example sentences. Finally, they asserted learning vocabulary with Quizlet is enjoyable and they had positive feelings about using it.



5. DISCUSSION AND CONCLUSION

5.1. Introduction

This chapter presents the discussion of the findings, describes limitations of the study, and concludes with suggestions for future research about the use of vocabulary flashcard web tool for vocabulary learning.

5.2. Discussion

The present study attempted to answer three research questions. In order to answer the first research question whether Turkish EFL learners gained vocabulary using a vocabulary flashcard web tool, the study investigated the relationship between their immediate vocabulary test results and learners' progress on Quizlet. As correlation analysis indicated, there was a strong relationship between learners' progress on Quizlet and their immediate test results. It seemed that Quizlet helped learners gain vocabulary. This finding corresponded with the claims of Laufer, Meara, and Nation (2005) that using flashcards is an effective way for learners to increase their vocabulary size. Moreover, Quizlet has the potential to be a powerful vocabulary learning tool and improve test scores and vocabulary acquisition of the learners if used properly (Lander, 2015; Wright, 2016).

Ashcroft and Imrie (2014) revealed that the effects of using digital flashcards on vocabulary learning can be explained by the positive results that emphasize the variety of functionalities offered by the digitalization of flashcards and integration of digital flashcards into language learning. It is evident to indicate that enabling learners to use online vocabulary learning platforms such as Quizlet can enhance the behavioral, emotional, and cognitive development of individuals compared to more traditional methods such as textbooks and can also increase the potential for vocabulary acquisition and retention (Stroud, 2014). Dizon (2016) also conducted an experiment in a small class of high-level English learners studying the Academic Word List (Coxhead, 2000) via Quizlet and found out the improvements in learners' vocabulary knowledge in terms of Vocabulary Levels Test in a pre- and post-test design. He also mentioned it clearly that learners had positive attitudes towards using Quizlet to improve their vocabulary and supported its implementation in an EFL class settings.

The second research question attempted to find out whether learners' progress on Quizlet affected learners' vocabulary recall. In terms of correlation analysis revealing the relationship between learners' post test scores and their progress on Quizlet, a significant relationship was found. This result implied that learners' tendency to give more correct

answers correlated with their study progress on Quizlet. Having investigated whether using Quizlet as a tool to store and practice vocabulary is efficient in terms of long-term retention of a new vocabulary item, students' ability to retrieve it and use it correctly, Kalecky (2016) underlined the strong correlation between time and progress in the Quizlet groups with regard to the learning outcomes.

Another result obtained from the analysis of paired samples t-test to answer the second research question revealed that there were significant differences in learners' immediate and post- test scores. This result corresponded with study of Özer and Koçoğlu (2017) as they found that Quizlet group performed slightly better than vocabulary notebook group in vocabulary learning and retention and the participants using Quizlet flashcard software showed significant differences not only pre-test and post-test results, but also between pre-test and delayed post-test results.

Regarding the findings, it was promising for learners' retention when vocabulary with pictures, audio files and example sentences were integrated to the tool. Thus, Quizlet as the flashcard web tool provided multimedia capabilities that helped learners recall the words. Kalecky (2016) also emphasized that using Quizlet led to significantly better long-term retention, which can be attributed to the combination of words with lexical meaning and use of pictures that supported the retrieval. Thus, multimedia learning focusing on the use of visual and verbal modalities helped interpreting vocabulary learning and retention results efficiently by revealing the positive effect of intentional vocabulary learning on vocabulary learning and recall (Özer and Koçoğlu, 2017).

With Quizlet, it is much easier to create flashcards by adding pictures, audio and the definitions of the terms (Wright, 2016). Quizlet has also kept the students completely engaged through immediate feedback and its appeal to visual, auditory and kinesthetic learners (Cunningham, 2017). Integrating multimedia capabilities through providing the definitions and the pronunciation of the target words, Quizlet allows the participants easily get the meaning with correct pronunciation (Özer and Koçoğlu, 2017). However, in a research carried out by Altiner (2011), participants stressed that the computer-based flashcard program, Anki, would be much more interesting and motivating if it provided pronunciation, definitions and example sentences of the target words, rather than just the definition of the words.

Third research question examined what the EFL learners' perceptions for using Quizlet as a vocabulary flashcard tool were. The data gathered through survey and interviews were evaluated in terms of three categories: usefulness and usability and

enjoyment. In terms of usability, subjects stated that they found Quizlet easy, practical to use and that they wished to use it for future vocabulary studies. Confirming the results of Wright's (2016) study, most of the learners in this study emphasized they really liked the tool as they learned the target words by playing various games and modes, which indicates that language learners will be more likely to adopt it for their own studies. Giving learners control over learning process naturally makes it more interesting and engaging for the learners, as stated by Foster (2009). Regarding learners' perceptions of enjoyment, learners indicated that Quizlet is different, interesting, enjoyable and motivating for vocabulary learning in the recent study. In a similar vein, the results of a questionnaire administered by Dizon (2016) indicated that the students had positive perceptions of Quizlet to study L2 vocabulary. Kalecky (2016) also found out that students themselves perceived Quizlet as easier to use and a more entertaining way of revising vocabulary compared to a bilingual list in their vocabulary notebook. They also enjoyed studying with the games, not only because of the sense of competitiveness but also because they subjectively felt that they helped them with spelling, pronunciation and attributing meaning to individual words. Additionally, he concluded that students will learn more with electronic flashcards, because Quizlet is more interactive, provides the learners with instant feedback as they go through the activities within a set of words, supports retrieval and helps the learners with better retention.

Quizlet Live, among all features, was liked most according to the survey and interview results as students enjoyed sharing the competitive atmosphere with their classmates. Designed to bring fresh energy into the classroom, Quizlet Live not only helps students enhance vocabulary skills, but also helps them develop teamwork and communication skills (Wollf, 2016). Aside from the obvious benefit of reviewing the material, Live feature give the opportunity to practice the soft skills career and technical education so that students will be able to learn problem solving, teamwork and communication (Eatherton, 2017). According to the key findings of Yip and Kwan (2006), online games proved to be more effective as a tool to study vocabulary and students were also more motivated and confident, especially by the sense of achievement created by the games. Integration of a computer-based flashcard program into vocabulary learning process changes learners' attitudes toward vocabulary learning to a great extent (Altiner, 2011). Quizlet also offers students opportunities for control (with the words and games), attention (with graphics and scores), relevance (with system feedback telling students their weak points and needs for study focus from game scores), confidence (with the

progress made through scores), and satisfaction (with competitions and game rankings among class members) (Stroud, 2014). To sum up, students prefer using such tools in their foreign language learning process as these tools are enjoyable and provide learners dynamic platforms (Bozna, 2017).

5.3. Implications

Ever since technology penetrated into every phase of life, language learners have been provided with many opportunities including educational software and web tools that have become so widespread in schools and in learners' daily lives. Today, language learners are no longer confined within the classroom walls where the teacher plays the central role as a medium for the provision of language learning resources (Keleş, 2013). Hence, language teachers should be aware that EFL learners find learning vocabulary both a difficult and boring process, but they can change their learners' negative perceptions by adopting new strategies, such as technology integration into learning (Altiner, 2011).

Technology requires the teacher to understand how it works and the different ways technology can be used; however, it takes time to learn a program well enough to teach it to others and allow the students to be comfortable with learning from it (Vargas, 2011). Although the introduction of engaging task elements such as choice, competition and autonomy may result in higher motivation, teachers still need to consider guiding students on the use and practice to learn vocabulary with regards to the skills being used, recycling of difficult words and spacing of repetition (Stroud, 2014). Respectively, offering engaging and lively classroom activities for more effective vocabulary learning, language teachers played the key role in introducing a tool and in helping learners realize and increase their learning potential in an interesting and enjoyable way.

From pedagogical perspective, in the CALL classroom, there is a great potential for making use of Quizlet in learner-centric and collaborative ways (Chien, 2013); therefore, Quizlet can be a gateway to help learners develop strategies for independent learning as its interactive game-like platform seems to lead to willingness for continued development (Cunningham, 2017), enjoyment and motivation to practice vocabulary. With the help of such tools, they can benefit from the content or create new ones according to their needs and make language learning process more practical. Kalecky (2016) also pointed out that Quizlet could be very useful for promoting learner autonomy because it is designed primarily for self-study that students can create their own sets (with the vocabulary that

they find important), search for ready-made ones of their preference and star the difficult items as they go through the sets, so that they can get back to them later. Based on the immediate feedback and their progress they made, users can decide when and where they want to study (provided that they have synchronized their words with their smartphone, which can then be reviewed offline).

It is therefore suggested that a computer-based learning tools may be one type of supplement to the regular curriculum in teaching English. However, before integrating tools for language learning into the curriculum, language teachers should be encouraged to use software materials by organizing training courses and seminars for CAVI applications. Teachers should also know the content of a learning tool and confirm its convenience for their learners in order to be able to use them efficiently in the classrooms.

Above all, governments have the responsibility to take an action to enable educational technologies in and outside the classrooms and to extend innovative learning opportunities for digital natives who are active and autonomous learners in investigating and sharing information. Ministry of Education needs to take the frequently encountered restrictions such as financial barriers, availability of software, technical knowledge and acceptance of technology into consideration and hence allow language teachers use commercially available software, programs and tools for language instruction.

Consequently, though this study investigated the efficiency of a vocabulary flashcard tool for vocabulary learning, further research should reveal the efficiency of the learning tools and applications for the four main skills of foreign language learning: listening, reading, speaking and writing. Aside from the recent study expressing EFL learners' use of a web tool for vocabulary language learning, research area can be broadened with the studies attributed to the learners of other foreign languages.

5.4. Conclusion

With the aim of investigating the effectiveness of a vocabulary flashcard tool for vocabulary learning, first of all, the study looked into the relationship between learners' progress on a vocabulary flashcard tool and vocabulary test scores, then examined whether there was a significant difference between learners' immediate and post test scores.

To analyze the relationship between learners' progress and vocabulary tests, Class Progress page presenting the list of users' completion of Quizlet modes was investigated. While students' progress didn't affect their performance before immediate tests, there was

a moderate positive relationship between post test results and learners' progress on Quizlet. The improvement in learners' vocabulary test scores until the end of whole implementation process can be explained by students' motivation to use a vocabulary tool that is also available as a smartphone application. Quizlet also offers learners to study at their own pace which in turn increase autonomy.

The study also searched for whether there was a significant difference between immediate and post-test results and found out that learners' scores increased significantly. It was indicated that Quizlet as a vocabulary flashcard tool complemented with multimedia elements such as picture, audio helped learners retain the target word better. As learners pass through the activities, Quizlet provides immediate feedback so that learners have the chance to practice the target words more often. Engaging learners to study vocabulary leads to effective and active learning.

Finally, the study attempted to reveal learners' perceptions towards the use of vocabulary flashcard tool. Based on survey and interview results, it was concluded that Quizlet helped learners improve vocabulary and learn new words easily. While studying on Quizlet, users hadn't experienced any technical difficulty as Quizlet was easy to use and practical. Lastly, using Quizlet for vocabulary learning was really enjoyable since learners really liked playing games with their peers in a competitive atmosphere.

5.5. Suggestions for Further Research

The recent study was conducted on high school students but a study from different age groups can be investigated. Similarly, focusing on ELT students having pre-intermediate level of proficiency may not reveal generalizable results, a further research can be applied to students from different proficiency levels to see whether a vocabulary flashcard tool may help learners learn vocabulary.

A control group was not implemented in this research; consequently, it would be noteworthy if a future study compared the efficiency of Quizlet to paper-based or other web tools for vocabulary learning. Likewise, teacher-made Quizlet sets contained multimedia elements without L1 definition. Further research may compare the groups who has L1 definition and L2 definition while studying on Quizlet.

This study investigated learners' three-weeks of vocabulary retention during four months, but a study consisting longer period of time such as an academic year may provide more reasonable results.

To measure learners' vocabulary learning, vocabulary tests including “writing the word” and “matching” parts were prepared; however, different question types may be designed and conducted since they will be important for testing learners' receptive and productive vocabulary use. Listening and writing tests can also be administered for further research.

Lastly, the efficiency of the vocabulary flashcard tool can be investigated in a further study in which learners can type the words themselves, explore the tool better and prepare them for autonomous learning process instead of the one the teacher created in the recent study.



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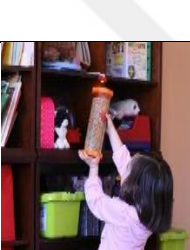
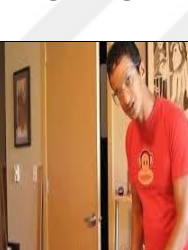
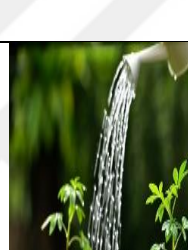
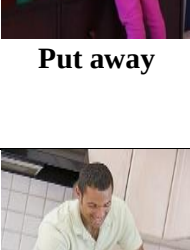
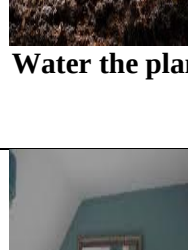
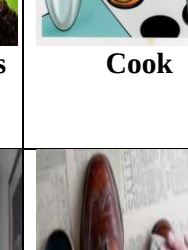
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APPENDICES

APPENDIX 1.

HOUSEHOLD CHORES		SHOPPING	DIGITAL ERA	HEROES
-Household chores -Do the laundry -Take out the garbage -Make the bed -Dust the furniture -Mop -Vacuum -Sweep up -Mow the lawn -Set the table	-Put away -Tidy up the closet -Fix up the apartment -Water the plants -Cook -Put the dishes in the dishwasher -Pickup -Hang up the clothes -Clean up the room -Polish	-Trendy -Old-fashioned -Leather -Cotton -Woollen -Spot -Fur -Prefer -Changing room -Receipt -Cash -Refund -Purchase -Sale -Price tag	-Digital era -Evolution -Pros and cons -Device -Search -Printer -Network -Keyboard -Subwoofer -Monitor -Case -Speaker -Acronym -Access -Netiquette	-Hero -Villain -Strength -Speed -Immortal -Heal -Escape -Cruel -Carjacker -Agility -Bitter -Wrestler -Confront -Promoter -Track down

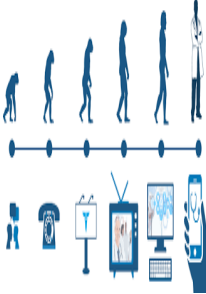
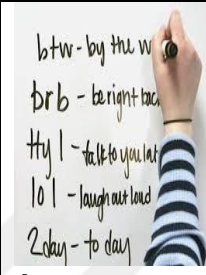
APPENDIX 2. HOUSEHOLD CHORES FLASHCARDS

 Household chores	 Mow the lawn	 Sweep up	 Vacuum	 Mop
 Dust the furniture	 Make the bed	 Take out the garbage	 Set the table	 Do the laundry
 Put away	 Tidy up the closet	 Fix up the apartment	 Water the plants	 Cook
 Put the dishes in the dishwasher	 Pick up	 Hang up the clothes	 Clean up the room	 Polish

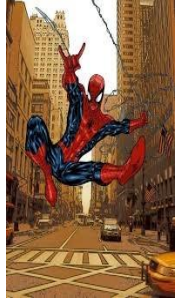
APPENDIX 3. SHOPPING FLASHCARDS

				
Trendy	Old-fashioned	Leather	Cotton	Woollen
				
Spot	Fur	Prefer	Changing room	Receipt
				
Purchase	Sale	Price tag	Cash	Refund

APPENDIX 4. DIGITAL ERA FLASHCARDS

 Digital Era	 Evolution	 Pros and cons	 Device	 Search
 Printer	 Printer	 Keyboard	 Acronym	 Monitor
 Case	 Speaker	 Subwoofer	 Netiquette	 Access

APPENDIX 5. HEROES FLASHCARDS

 Hero	 Villain	 Strength	 Speed	 Immortal
 Heal	 Escape	 Cruel	 Carjacker	 Agility
 Bitter	 Confront	 Wrestler	 Problem	 Track down

APPENDIX 6. HOUSEHOLD CHORES TEST

A) Write the word into the brackets.



I hate doing _____, so I have to find someone to clean my house.



I went outside my house to _____ and water the plants.



She must _____ because she doesn't want her mother to see it messy.



He _____ and then put the soup into the bowl.



My parents tried to _____ the apartment before we moved.



My mother expects me to _____ and vacuum the carpet.



Every apartment occupant is to _____ before 8 p.m.



The glass has been broken into pieces. I need to _____ them



He took his glasses and started to _____ with an handkerchief.



When I was a child, I helped my grandmother _____ the garden

B) Match the sentences with the pictures.

				
_____	_____	_____	_____	_____
				
_____	_____	_____	_____	_____

- 1) If you water the plants, you help them to grow.
- 2) He will cook our friends a delicious Italian meal.
- 3) You should hang up the clothes when the washing machine stops.
- 4) The floor was so wet, so the women mopped the floor.
- 5) She put away the old books while she was organizing her library.
- 6) Carmen tried to make the bed after she had woken up.
- 7) When my mom is away, I am the one who does the laundry and ironing.
- 8) Everywhere is dusty so we had better clean up the room.
- 9) After the dinner, I always help my mum while she is putting the dishes in the dishwasher.
- 10) Alan, please pick up your socks on the floor and put them into the washing machine!

APPENDIX 7. SHOPPING TEST

A) Write the words into the brackets.



Vegan people never eat meat, wear _____ clothes and use make up with animal ingredients.



After you have pay for your meal, we will give you a _____.



Excuse me, I want to change the t-shirt that I bought last week. But, I have lost my receipt. Can I still get a _____?



If you wash _____ sweaters in the washing machine at 30°C, it may get smaller.



My parents _____ small dogs because they think the big ones are much wilder.



Excuse me, there is not a _____ on this jacket. Could you please check it?



Wearing _____ clothes makes me feel good and it is part of my job in the fashion industry.



Which one is heavier: a kilo of iron or a kilo of _____?

B) Match the sentences with the pictures.



- 1) In 1980s, dresses, shirts and skirts with spots were very trendy.
- 2) I sometimes forget to take enough cash with me when I go shopping, so I pay by credit card.
- 3) Leather sofa becomes so sticky whenever I sit on it in summer.
- 4) I don't think she is stylish, she really wears old-fashioned clothes.
- 5) You can try on the clothes in the changing room to see if they are the right size.
- 6) Shopping malls can be overcrowded especially during sales.
- 7) If you aren't happy with your purchase, you can return it any time you want.

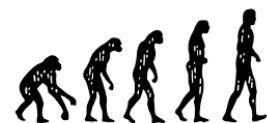
APPENDIX 8. DIGITAL ERA TEST



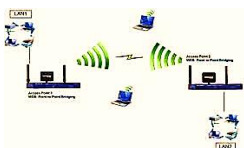
We live in a _____ that technological devices make our lives easier.



The most popular _____ engine is Google.



The theory of _____ was first mentioned in Darwin’s book “Origin of Species”



I think a problem has occurred with the wireless connection as my personal computer has no _____ to internet.



Government has developed a program to solve the railway _____ problems.



NATO is an _____ for North Atlantic Treaty Organization.

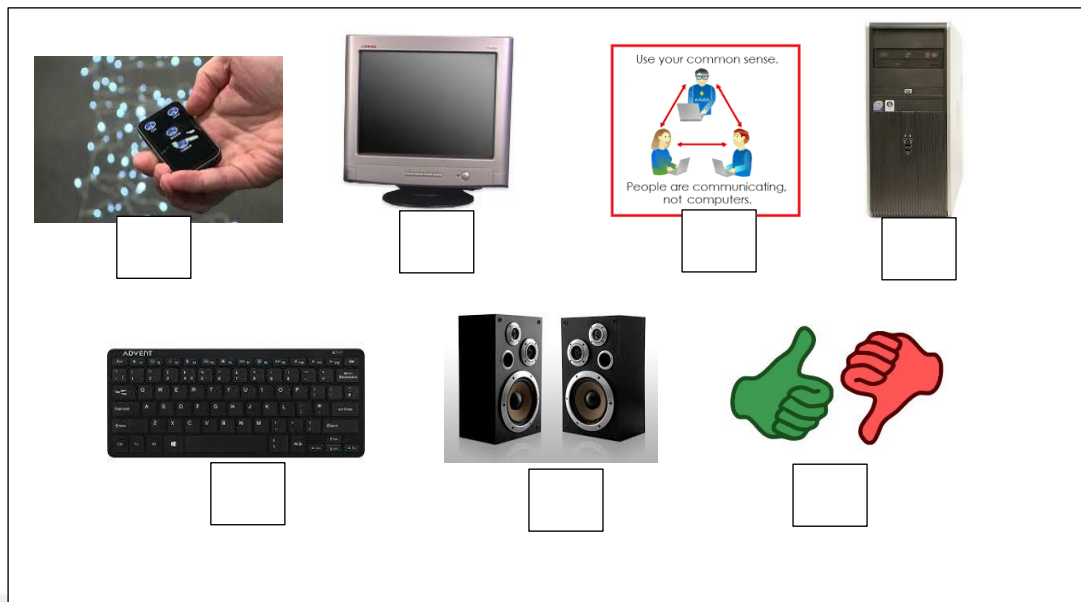


New modified car has louder exhausts, neon lights and _____.



You should correct the spelling mistakes you have done before you print it from the _____.

B) Match the pictures with the sentences below.



- 1) You should consider the pros and cons of the product before buying it.
- 2) The test sentences were presented on a computer monitor word by word.
- 3) There will be two big speakers for audio system in our graduation ceremony.
- 4) Before you record your voice, attach your microphone to the computer case.
- 5) It is extremely bad netiquette to leave a chat room without saying goodbye.
- 6) We have a device like remote control in order to switch on or off the lights in the room.
- 7) She told us how easy it was to use the computer and showed some shortcuts on the keyboard.

APPENDIX 9. HEROES TEST

A) Write the missing word into the brackets.



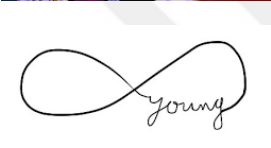
The _____ attacked her while driving and then stole her bag.



Ronaldo combines speed and _____ as a successful footballer.



In many fantastic films, there is always a battle between heroes and _____s.



When we were young, of course we felt _____ as if we would live forever.



After the footballer had broken his promise, _____ didn't pay him full money.



She spent many years trying to _____ her lost child.



The nurse helped to heal the soldier's _____.



His coach advised him to eat 20 eggs to be a strong _____.

B) Match the sentences with the pictures below.

- 1) I didn't like the film which we watched last week since it had a bitter end.
- 2) Schumacher turned the last corner, gained speed and came first in final F1 race.
- 3) Superman is a superhero who is able to fly wherever he wants.
- 4) Lion King confronted with the Scar and warned him to go away.
- 5) He lost his strength and fell down in the Olympic competitions.
- 6) Don't you think it is cruel to kill animals for their furs?
- 7) The prisoner escaped from the prison and killed the prison guard with his gun.

APPENDIX 10. SURVEY

		Kesinlikle Katılmıyorum	Katılmıyorum	Fikrim yok	Katılıyorum	Kesinlikle katılıyorum
1	Kelime öğrenmek için Quizlet' i kullanmak çok eğlencelidir.					
2	Quizlet' i kullanmak kolaydı.					
3	Quizlet' in kullanılma amacını açıkça anladım.					
4	Resimler ve Örnek cümleler, kelimeleri hatırlamam için yeterliydi.					
5	Quizlet' i kullanırken teknik bir sıkıntı ile karşılaşmadım.					
6	Quizlet' te oyunları “kolay, orta, zor” seçeneklerini ayarlayarak oynadım.					
7	En çok “Match- Eşleştir” oyununu sevdim.					
8	En çok “Gravity- Yer çekimi” oyununu sevdim.					
9	En çok “QuizletLive- QuizletCanlı” yarışmasını sevdim.					
10	Quizlet' in akıllı telefon uygulamasının da olması kullanışlıdır.					
11	Örnek cümlelere bakarak birçok kelime öğrendim.					
12	Quizlet ile kelime öğrenmek farklı ve ilginçtir.					
13	Kelime öğrenmek için Quizlet' i kullanmak motive edicidir.					
14	Nasıl kelime öğrenilir onu öğrendim.					
15	Bence Quizlet, kelime öğrenmemi geliştirmeye yardımcı olabilir.					
16	Quizlet yardımıyla İngilizce ders başarıım arttı.					
17	Quizlet ile kelimeleri daha kolay öğreniyorum.					
18	Öğrendiğim İngilizce kelime sayısı arttı.					
19	Bu dersten sonra da Quizlet kullanmaya devam edeceğim.					
20	Bu tür web araçları dil öğretimine dahil edilmelidir.					

APPENDIX 11. INTERVIEW QUESTIONS

- Do you think Quizlet helped you develop your vocabulary learning?
- What is the reason of using Quizlet most/ least?
- What did you enjoy most about using Quizlet? Why?
- Which study or game mode you liked most?
- How do you think Quizlet could be used differently so that it can be better for your vocabulary learning? Or what kind of features can be added to Quizlet?
- Would you prefer to use Quizlet for your future vocabulary learning?



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