



**IMPROVING THE VOCABULARY LEARNING PROCESS OF YOUNG
ADULTS WITH HIDDEN OBJECT GAMES IN A FUN AND
EFFECTIVE WAY**

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TELİF HAKKI VE TEZ FOTOKOPİ İZİN FORMU

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Tez yazma sürecinde bilimsel ve etik ilkelere uyduğumu, yararlandığım tüm kaynakları kaynak gösterme ilkelerine uygun olarak kaynakçada belirttiğimi ve bu bölümler dışındaki tüm ifadelerin şahsıma ait olduğunu beyan ederim.

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To my beloved family,

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GİZLİ NESNE OYUNLARI İLE GENÇ YETİŞKİNLERİN KELİME ÖĞRENME SÜRECİNİ EĞLENCELİ VE ETKİLİ BİR ŞEKİLDE GELİŞTİRME

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ÖZ

Kelime öğrenimi, yabancı dil öğreniminin vazgeçilmez bir parçasıdır. Kelime öğreniminin etkili bir şekilde gerçekleştirilmesini hedefleyen birçok strateji vardır. Teknolojinin gelişmesiyle birlikte bilgisayarlar da bu stratejiler arasında yer almaya başlamıştır. Bu bağlamda, ne kadar etkili olduklarını bulmak için pek çok çalışmada video oyunları da kullanılmıştır. Bu çalışmada, gizli nesne oyunlarının kelime öğrenimine etkileri ve bu oyunların genç yetişkinlere kelime öğrenme deneyimlerinde eğlenceli ve etkili bir yol sağlayıp sağlamadığı araştırılmıştır. Bu amaçla, bu çalışma bir üniversite hazırlık okulundaki 56 alt orta seviye genç yetişkin öğrenciye uygulanmıştır. Bu yarı deneysel karma yöntem çalışmasında, kontrol grubundaki katılımcılar tek dilli sözlükleri kullanarak kelime listeleri yapmış ve deney grubundakiler bir gizli nesne oyunu oynamışlardır. Her iki grubun üyelerine ön test ve son test uygulanmış ve deney grubu ile yapılandırılmış bir görüşme yapılmıştır. Test sonuçları bağımsız ve bağımlı eşleştirilmiş t-testi ile analiz edilmiştir ve yapılandırılmış görüşmedeki cevaplar için bir içerik analizi yapılmıştır. Bulgular, gizli nesne oyununun kelime öğrenmeyi kolaylaştırmanın çok etkili bir

yolu olduđunu ve katılımcıların çođunluđunun bu deneyimi eđlenceli ve etkili bulduđunu gstermektedir. Bu alıřma, dil đrenenleri gizli nesne oyunlarını oynamaya ve aynı anda eđlenceli bir řekilde kelime đrenmeye teřvik edebilir.

Anahtar Kelimeler: kelime đrenimi, kelime đrenme stratejileri, video oyunları, bilgisayar oyunları, gizli nesne oyunları, kelime listeleri, szlk kullanımı

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ABSTRACT

Vocabulary learning is an indispensable part of foreign language learning. There have been many strategies aiming at effective realization of vocabulary learning. With the advancement of technology, computers have also started to take part in these strategies. In this respect, video games have also been used in many studies to find out how effective they are. In this study, the effects of hidden object games on vocabulary learning have been investigated to find out whether these games provide young adults with a fun and effective way in their vocabulary learning experience. To this end, this study was implemented to 56 pre-intermediate level young adult learners in a university preparatory school. In this quasi-experimental mixed method study, the participants in the control group made word lists using monolingual dictionaries and the ones in the experimental group played a hidden object game. A pre-test and post-test were given to members of both groups, and a structured interview was conducted with the experimental group. The test results were analyzed through independent and dependent paired t-test, and a content analysis was conducted for the responses in the structured interview. The findings show

that the hidden object game was a significantly effective way of facilitating vocabulary learning, and the majority of participants found this experience entertaining and effective. This study might encourage language learners to play hidden object games to have fun and learn vocabulary at the same time.

Key Words: vocabulary learning, vocabulary learning strategies, video games, computer games, hidden object games, word lists, dictionary use

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LIST OF ABBREVIATIONS

CBIG	Computer-Based Instructional Games
MA	Master of Arts
MMOG	Massive Multi-Player Online Games
MMORPG	Massively Multiplayer Online Role-Playing Game

CHAPTER 1

INTRODUCTION

1.1. Introduction

In foreign language teaching and learning, there are four basic skills – namely listening, speaking, reading and writing – which the teachers or learners mainly focus their attention on. There are numerous teaching and learning strategies and techniques targeting them. Apart from these basic skills, there are some sub-skills such as grammar, pronunciation, and vocabulary among which vocabulary has a significant place as words are critical in expressing one's self. Schmitt (2000) also highlights this critical significance saying “lexical knowledge is central to communicative competence and to the acquisition of a second language” (p. 55).

Words are the medium to express what one thinks and how one feels. One can absorb the world, learn and understand the things around them with the help of words. That is why teaching vocabulary in a foreign language has always been important as learners understand the world and express themselves using the target language. Parallel to this train of thought, Thornbury (2002) states that the absence of necessary vocabulary knowledge hinders understanding and production in language.

Furthermore, having a good competence in vocabulary greatly helps learners achieve a better competence in aforementioned basic skills and as McCarthy (1990) points out, a meaningful way of communication in foreign language cannot occur without words to express a wider range of meanings.

Realizing the importance of vocabulary and vocabulary learning, many academicians and teachers have tried to find ways to promote vocabulary learning effectively and foster their

learners' vocabulary process. Many strategies from preparing vocabulary lists to forming meaningful contexts, from preparing flash cards to playing word games have been developed. Many new tools have emerged with the great developments in computer technology, such as social networking sites, blogs, educational platforms and computer games.

1.2. Statement of the Problem

Yip and Kwan (2006) highlight the fact that studying and learning vocabulary is boring for learners especially for those who were born in the high-tech era. They do not like studying long lists of vocabulary, matching the definitions with the words or guessing the meaning from the context in a reading passage. Instead, they like to have fun while learning new words, use technology in the process and somehow use these new words again in technology in their daily lives.

Furthermore, the strategies that do not exploit technology are less effective in learning and remembering vocabulary. The learners generally cannot visualize the words they learn or form concepts in their minds. They are restricted to textbooks, vocabulary lists or reading passages. Therefore, they do not have fun and form barriers towards vocabulary learning.

Thinking that the new generation is born to technology, using strategies related to technology as both curricular and extra-curricular activities could have the desired effects on vocabulary learning. In this respect, this study strives to find out whether one such strategy, using hidden object games, would have positive effects on vocabulary learning.

1.3. Aim of the Study

The aim of this study is to find out whether the learners can learn and remember vocabulary items when they play a game that provides visuals for these items and whether they have fun while playing this game and learning vocabulary at the same time. In order to achieve this, a particular type of computer game, namely a hidden object game, will be used.

It is also aimed to discover whether or not the learners are more successful at learning words by means of the hidden object games than traditional methods. Thus, answers to the following questions are pursued in this study:

1. Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the post-test scores of the control and experimental groups?
2. Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the pre-test and post-test scores of the experimental group?
 - 2.1. Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the pre-test and post-test scores of the experimental group in terms of high, medium, and low frequency words?
3. What do the students in the experimental group think about their experience of studying and learning vocabulary through the hidden object game?
4. How do the structured interviews with the students in the experimental group help to explain the statistically significant difference between the pre-test and post-test scores of the experimental group?

1.4. Significance of the Study

Although the teachers can create tailor-made hidden object games suitable for their own settings and purposes, it might not be practical or possible to embed computer games into the curriculum all the time; however, the students, especially those who have problems with vocabulary studies and fail to learn vocabulary through traditional methods, can be encouraged to play these games in their free times as extracurricular activities.

It will be not only enjoyable for them to learn vocabulary while playing a game, but also motivating as they see that they can learn words in an effective and fun way. They might lower their barriers against vocabulary learning or language learning as a whole.

1.5. Assumptions of the Study

The following assumptions are deemed valid in this research:

1. There is a need for more enjoyable and effective strategies for vocabulary learning as students have problems with learning vocabulary effectively and in a fun way.
2. Computer games can be used as a helpful tool in supporting language learning.
3. The students that take part in the research take the study and its parts seriously showing their full competence.
4. The students that take part in the research conduct all the tasks concentrating on them.

1.6. Limitations of the Study

In this research, participants are limited to young adults who study at the preparatory class at the university level. The students' ages, English levels and individual differences are accepted as equal. They are all upper-elementary level learners.

Another limitation concerning the study is the number of students taking part in the experimental and control groups. Although the initial number of students was 105, the final number that could be used in the analysis was 56. Therefore, it would be wise to say that a further study that could be conducted with a larger number of participants would have the chance to bear more reliable results.

1.7. Definitions of Some Key Concepts

The fundamental concept in this research is computer games, particularly hidden object games. Thus, it is important to define these games as well as “play” and “game”.

Play: Prensky (2001) defines play as something one chooses to do to have enjoyment, which is intensely absorbing and promotes social groupings. Along with the fun element, play increases involvement and the feeling of relaxation, helping us learn.

Game: As for the game, Dempsey, Lucassen, Haynes and Casey (1996) describe it as a set of activities with goals, constraints, payoffs and consequences. Prensky (2001) indicates that games are organized plays containing entertainment and fun. According to Smed and Hakkonen (2003), game has three elements:

1. players who participate in the game for different purposes such as fun, diversion, etc.
2. rules that define the limits
3. goals which promote rivalry and conflicts among the players

Computer game: A computer game is defined by Smed and Hakkonen (2003) as “a game that is carried out with the help of a computer program” (p. 3). There are some key elements in computer games that engage the players. Prensky (2001) bring these elements together as rules, goals and objectives, competition and challenge, interaction, representation or a story and finally outcomes and feedback. Gameplay in computer games can be competitive in which players compete against other players or the artificial intelligence and cooperative in which players act together to reach a certain objective.

Types of computer games: There are certain types of computer games such as action, adventure, sports, simulation, role playing, educational and so on. Hidden object games are also one of these types. In hidden object games, there is a certain list of words that correspond to items hidden in the pictures. The player tries to locate these items. The objects that are found are crossed out from the list, and using clues that are acquired from these objects, the player tries to solve puzzles. Although these games may not sound interesting, they can be really enjoyable and addictive.

CHAPTER 2

REVIEW OF LITERATURE

The following section containing the review of literature has two main foci regarding the topic handled in this study; these are vocabulary learning and the utilization of video games. Under the vocabulary learning section, the importance of vocabulary learning and some of the vocabulary learning strategies are reviewed. Within the scope of the utilization of video games, firstly the effects of video games on language learning in general are discussed, and secondly, their effects on vocabulary learning in particular are studied.

2.1. Vocabulary Learning

Vocabulary is defined as “a list or collection of words or of words and phrases usually alphabetically arranged and explained or defined” (Merriam-Webster, 1993, p. 2560). As the definition emphasizes, the term does not only cover single words but phrases as well. Furthermore, Richards and Schmidt (2010) states that “vocabulary is a set of lexemes, including single words, compound words, and idioms” (p. 629). Based on this definition, idioms can also be added to the list of words and phrases building up to include all the words that form a language.

In the light of this information, it is safe to say that vocabulary is one of the important building blocks of a language, and vocabulary learning is the process of developing an understanding of these building blocks (Ramos, 2015). Nation (2001) proposes that this happens in three

dimensions: language use, pronunciation and orthography (the spelling system of a language). In the language use, a particular meaning of a word, its different meanings in different contexts, collocations, word forms and different forms of a word are included (Nation, 2001; Nunan, 2003; Schmitt & McCarthy, 1997). As Richards (1976, as cited in Ghazal, 2007) puts it, knowing a word includes knowing its frequency, limitations in its use, forms that are derived from it, its semantic features and connections, and its connected meanings.

2.1.1. The Importance of Vocabulary Learning

The importance of vocabulary learning whether it is learner's native language, second language or foreign language has been emphasized by many scholars (Gu, 2003; Nagy, 1995; Nunan, 2003; Schmitt, 2000; Thornbury, 2002). Wilkins (1972), for instance, does not see much sense in a correctly formed grammatical sentence if it does not have necessary vocabulary items to give meaning to it. He highlights this importance stating that "while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 97).

Schmitt (2000) also emphasizes the importance of vocabulary pointing out the fact that "lexical knowledge is central to communicative competence" (p.55). In a similar vein, Nation (2001) highlights the mutual relationship between vocabulary and language believing that language use promotes vocabulary learning and lexical knowledge, in turn, adds to the language competence.

According to Thornbury (2002), thanks to the recognition of lexical chunks and syllabus, the hegemony of grammar has ended and the well-deserved attention to vocabulary learning has been given. He states that now most course books give importance to "the grammar of words, to collocation and to word frequency" (p. 14).

As cited in Madarsara, Youhanaee, Barati and Nasirahmadi (2015), Savington (1997) believes that a lack of or a deficiency in vocabulary knowledge poses a vital problem for reading, speaking, writing and grammar skills.

Similarly, in his article Ahmad (2012) discusses that "word power facilitates fluent speaking and effective writing. It substantiates both learners' acquisition of knowledge and production of knowledge. It enriches learners' integrated language skills such as listening, speaking, reading and writing" (p. 71).

This is also reflected by Nation (1994) stating that “a rich vocabulary makes the skills of listening, speaking, reading, and writing easier to perform” (p. viii). Thus, a high competence in these receptive and productive skills requires vocabulary mastery, a deep understanding of words, their uses, forms and collocations. As a result, the importance of vocabulary learning in language acquisition necessitates the adoption of effective vocabulary learning strategies.

2.1.2. Vocabulary Learning Strategies

In this section, vocabulary learning strategies will be reviewed as a part of language learning strategies, then various taxonomies will be covered connected to these strategies.

Merriam-Webster dictionary defines strategy as “the art of devising or employing plans or stratagems toward a goal” (p. 2256), while in language learning it can be defined as "intentional behavior and thoughts used by learners during learning so as to better help them understand, learn, or remember new information" (Richards & Platt, 1992, as cited in Hismanoğlu, 2000). Cohen (2011) defines learning strategies as “thoughts and actions, consciously chosen and operationalized by language learners, to assist them in carrying out a multiplicity of tasks from the very outset of learning to the most advanced levels of target language performance” (p. 7).

As Nation (2001) suggests, vocabulary learning strategies are a part of language learning strategies. In this context, there have been several classifications concerning the learning strategies, however three such classifications come to the fore. These are the taxonomies of Rubin (1987, as cited in Mahdavi & Mehrabi, 2013), Oxford (1990) and O’Malley and Chamot (1990).

Rubin (1987, as cited in Mahdavi & Mehrabi, 2013) identifies learning strategies, communication strategies and social strategies as categories of language learning strategies depending on the direct or indirect contributions of these strategies to learning. In his categorization, learning strategies refer to the ones that directly contributes to language learning. They include cognitive strategies such as clarification, guessing, practice and metacognitive strategies such as planning, setting a goal and so on. Communication strategies are indirectly related to language learning as they are about getting the meaning across and receiving the intended message in a conversation. Finally, the social strategies are activities learners adopt which give them chance to use their knowledge.

In the classification proposed by Oxford (1990), the strategies are divided into two main parts: direct and indirect strategies. While direct strategies are composed of memory cognitive and compensation strategies, indirect strategies consist of metacognitive, social and affective strategies (see Figure 1). Here, as the names connote, the direct strategies are those requiring the mental processing of the language and the indirect strategies support learning indirectly through planning, controlling anxiety and so on.

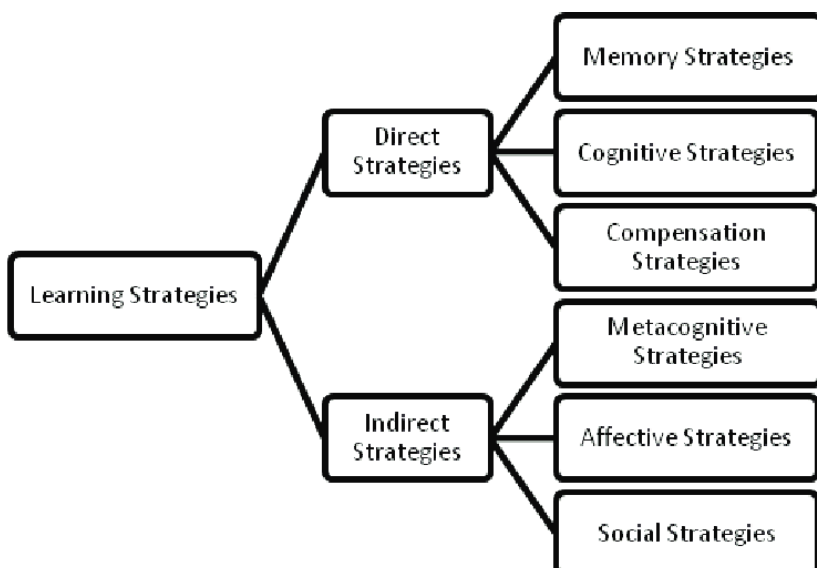


Figure 1. The classification of language learning strategies by Oxford. “*Language learning strategies: What every teacher should know*”, Oxford, R. L. (1990). New York: Newbury House.

Lastly, O’Malley and Chamot (1990) propose three subcategories for language learning strategies. These are cognitive, metacognitive and social/affective strategies. According to their taxonomy, cognitive strategies contain “higher order executive skills that may entail planning for monitoring or evaluating the success of a learning activity” (p. 44), metacognitive strategies “operate directly on incoming information, manipulating it in a way that enhances learning” (p. 44) and finally, social/affective strategies is a broader category that “involves either interaction with another person or ideational control over affect” (p.46).

As for the vocabulary learning strategies, Cameron (2001) describes them as “actions that learners take to help themselves understand and remember vocabulary” (p. 92). Similar to the

language learning strategies, learners are expected to adopt these strategies in order to successfully learn and retain vocabulary items. These strategies are closely related to the language learning strategies discussed above and the taxonomies proposed by researchers either are based on these language learning strategies or have overlapping areas with them (Gu & Johnson, 1996; Ma, 2009; Nation, 2001; Schmitt, 1997).

To begin with, Gu and Johnson (1996) prepared a questionnaire composed of 108 items based on previous research. They asked the participants about their beliefs on vocabulary learning and the strategies they used in their vocabulary learning experiences. In the questionnaire, the strategies were divided into categories of metacognitive regulation, guessing strategies, dictionary strategies, note-taking strategies, rehearsal strategies, encoding strategies and activation strategies (see Figure 2). As Letchumanan, Muthusamy, Govindasamy and Farashaiyan (2016) propose, these strategies can be summed up under two main categories, namely metacognitive strategies “of planning, monitoring and evaluating” and cognitive strategies “of attention, rehearsal, production” (p. 174).

In Schmitt’s taxonomy (1997), there are two main groups of vocabulary learning strategies. These are discovery strategies referring to the learning of the meaning of a new word, and consolidation strategies referring to the strengthening the entry of the word once it has been encountered. Under the former strategies, there are determination and social strategies, while under the latter, social strategies, memory strategies, cognitive strategies and metacognitive strategies are listed. According to Schmitt, when a learner comes across with an unknown vocabulary item, discovery strategies gets activated. The learner tries to get the meaning without referring to anything or anyone. When that fails, social strategies take place and the learner asks the meaning to someone, in most cases, their teacher. When it comes to consolidating a word, in memory strategies, the learner forms a connection between the new word and the present knowledge in their mind. Within the cognitive strategies, the learner does repetition of the word through word lists, writing and so on. Metacognitive strategies lead the learner to control their own vocabulary learning evaluating it at the same time. Finally, in social strategies, the learner refers to someone knowledgeable like they do in discovery strategies. Since social skills can be applied in both discovery and consolidation strategies, they are listed under both headings. As can be seen from this listing, Schmitt’s classification combines the direct and indirect elements in Oxford’s classification of language learning strategies (1990).

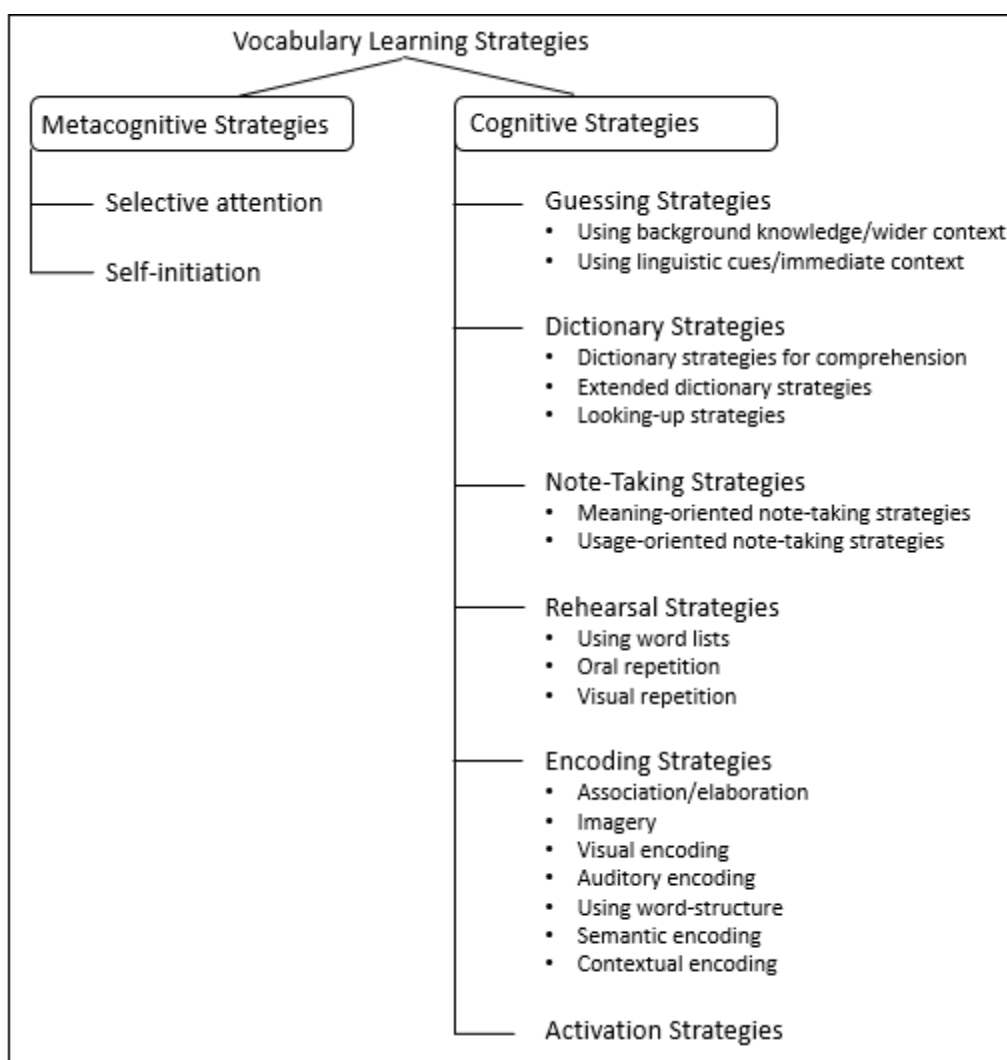


Figure 2. Dimensions and categories based on Gu and Johnson's taxonomy (1996).

In another classification, Nation (2001) divided vocabulary learning strategies into three classes. The first one is *planning* which involves taking action about learning and deciding on the setting and depth of focus on a particular vocabulary item. The strategies of choosing words to learn, aspects of vocabulary knowledge and forming repetition are included in this class. The second class, *source* refers to getting information about a word which might involve all the information about that word. The source could be the word itself, word formation, a dictionary, a teacher or cognates that connect the word with the learner's native language. Finally, there is the *processes* that help establish the knowledge gained about a word through noticing (coming across with a word to be learned), retrieving (remembering the word knowledge when necessary) and

generating (attaching new information to existing vocabulary items and making use of the word knowledge in various contexts). Writing word lists, preparing flash cards, repeating the words, drawing semantic maps, doing word analysis and writing sentences with the learned vocabulary items are all included under this class.

In a more recent classification, Ma (2009) suggested an approach focusing on the process of vocabulary learning that has some similarities with Nation's taxonomy. There are eight stages learners experience. The process is deemed cyclic and once the learners go through all the stages, the vocabulary learning is accepted to be effective. In each stage, one or more of the metacognitive, cognitive, memory and social strategies are adopted. Table 1 demonstrates these stages and the strategies adopted in each stage.

Table 1

Vocabulary Learning Process and Strategies Suggested by Ma (2009)

Stages in vocabulary acquisition	Category of strategies
1. How do you discover new vocabulary?	Social strategies
	Cognitive strategies
	Metacognitive strategies
2. What do you do on encountering new vocabulary?	Social strategies
	Cognitive strategies
	Metacognitive strategies
3. When learning a new vocabulary item, what aspects do you study?	Cognitive strategies
4. How do you organize the information about the new vocabulary?	Cognitive strategies
	Metacognitive strategies
5. How do you memorize vocabulary?	Cognitive strategies
	Memory strategies
6. How do you review vocabulary?	Metacognitive strategies
	Social strategies
7. How do you retrieve vocabulary?	Cognitive strategies
8. How do you make use of new vocabulary?	Metacognitive strategies
	Social strategies

Apart from the classifications above, it should be noted that vocabulary learning could also be divided into two, namely *incidental* and *intentional* vocabulary learning. There have been different names and definitions provided by researches for these two concepts. Schmitt (1994, as cited in Ahmadi, 2017) describes incidental learning as “learning one thing (...) when the learners’ primary objective is to do something else (...)” (p. 51), while Schmitt (1997, as cited in Ahmadi, 2017) proposes that intentional learning is the learning where learners explicitly intent to learn and retain lexical information through rehearsal and memorizing techniques. Thornbury (2002) also mentions these types saying that “some of the words will be learned actively”, while others “will be picked up incidentally” (p. 32). Nation (2006) uses the terms *deliberate* and *decontextualized* for intentional learning, and Oxford and Crookall (1990) call it *decontextualizing* techniques and name incidental learning *contextualizing* techniques. DeCarrico (2001) prefers the term *explicit* to mean intentional learning and *implicit* to mean incidental learning. There is no consensus on which one of these two strategies is better than the other; however, Nation (2006) puts forward that they should not be considered as two very distinct approaches as they can also be used together for more effective vocabulary learning.

According to Ma (2009), the assumption in implicit vocabulary learning is “that words can be acquired naturally through repeated exposures in various language contexts with reading as the major source” (p. 108). In incidental learning, reading or listening is the main focus and the vocabulary learning is considered a by-product. Huckin and Coady (1999) state that in incidental learning through contextualization the learner gets a better understanding of the word’s use and meaning while engaging in two activities at the same time. They also argue that the incidental vocabulary learning is more tailor-made as the learner chooses their own reading materials, and the vocabulary learning depends on this selection. In addition, Hulstijn and Laufer (2001) claim that the words that are acquired through incidental learning will be retained more effectively thanks to the deeper mental processing and used with more confidence in a variety of situations. There is a communicative learning aspect of incidental learning as Schmitt (2000) points out that the reception and production of language with a communicative purpose promote incidental learning. In a similar vein, Aelmi and Tayebi (2011) indicates that “picking up ... lexicon of a language, through getting engaged in a variety of communicative activities” (p. 82) bolsters incidental vocabulary learning. However, for incidental vocabulary learning to be realized, the amount of exposure to language through receptive skills should be high as Krashen (1982, as

cited in Oxford and Crookall, 1990) suggests students largely do reading for the sake of getting pleasure and this practice will, in turn, increase their vocabulary knowledge. However, some researchers (Carter, 1987, as cited in Oxford and Crookall, 1990; Huckin & Coady, 1999) argue that this massive input does not guarantee vocabulary learning. It largely depends on the type of reading materials, the context the unknown word appears and the learner's general vocabulary knowledge (Nation, 1990). In this respect, Dodigovic (2015) argues that the approach to reading such as bottom-up and top-down processing (bottom-up reading being better suitable for incidental learning) of texts is important here, and that the learners should see words in various informative contexts.

For the drawbacks of the incidental vocabulary learning, Ma (2009) discusses that it “inevitably involves a great deal of contextual guessing of the unknown words” (p. 113). What Oxford and Crookall (1990) say, that the learner's inferring the meaning of a word in a context does not ensure that the word is learned completely, seems to add to this train of thought. Ma (2009) also argues that the retention of words learned through incidental strategies is low and much exposure is needed for successful retention. Finally Wesche and Paribakht (2000) criticize incidental learning saying that “inferring word meanings while reading for comprehension, may... lead to comprehension and have the potential to lead to integration of new knowledge for recognition, but it does not necessarily establish the knowledge base needed for subsequent... production of the word” (p. 199).

The practices of vocabulary learning under incidental category include reading, listening, writing and speaking where the focus is always on the comprehension but not on the vocabulary items (Oxford and Crookall, 1990).

Intentional learning, on the other hand, is described as “the deliberate committing to memory of thousands of words (their meaning, sound, and spelling)” by Hulstijn (2003, p. 349). Ellis (1999) sees the distinction between intentional and incidental learning from a focal and peripheral perspective stating that while “incidental learning requires attention to be placed on meaning... but allows peripheral attention to be directed at form”, intentional, or deliberate, learning “requires focal attention to be placed deliberately on the linguistic code (i.e., on form or form-meaning connections)” (p. 35-36). According to Schmitt (2009), intentional learning gives the learner a great chance as it focuses on the vocabulary learning only and this focus provides a

greater chance for vocabulary retention. In favor of intentional learning, Nation (2006) claims that high-frequency words should be considered in vocabulary learning, and Kennedy (2003), in a similar manner, discusses that high-frequency vocabulary items such as collocations should be learned or taught explicitly. Additionally, in his study Elgort (2011) found that this type of vocabulary learning “is not only an efficient and convenient but also a very effective method of... vocabulary acquisition” (p. 399). Finally, although deliberate learning needs a focused effort, it is still easier and faster lightening the *learning burden* suggested by Nation (2006).

The opponents of the deliberate vocabulary learning state that such a learning based on definitions, synonyms, antonyms and so on regardless of context is not effective as it is basically rote learning without the presence of efficient cognitive processing, and the words getting into active use is strained (Ahmad, 2012). Oxford and Scarcella (1994) criticize intentional vocabulary learning claiming that words learned in this way are likely to be forgotten in a short time. Moreover, Aitchison (2003, as cited in Alizadeh, 2016) states that effective vocabulary learning should embed vocabulary items deeply in the mental lexicon and intentional vocabulary learning fails to realize this goal. He also suggests that it is fast but superficial as the vocabulary items are encountered in an isolated form and out of context, and thus, making the active use of words difficult to master.

Word lists, flash cards and dictionary use are practices that are listed by Oxford and Crookall (1990) in this kind of vocabulary learning under the name of decontextualizing techniques as they name it. Ma (2009) contributes to this list with vocabulary cards and memory techniques. Studying word parts, which include affixes and roots, should be added here as they promote vocabulary learning by helping learners associate an unknown word with a known word with the aid of known roots (Nation, 2001).

Finally, some researches argue that intentional vocabulary learning is effective when the context is provided as well. Ma and Kelly (2006) state that learners need to engage in a more deliberate mental process in vocabulary learning than merely try to understand what they read and listen to and that the deliberate process should be embedded in a context. Elgort and Warren (2014) also support this idea saying that incidental vocabulary learning might be effective with higher level learners; however, it should be supported with intentional learning in lower competence levels. Coady (1993, as cited in Ma & Kelly, 2006) believes that the main source of vocabulary

learning is the context. It could be argued that what Oxford and Crookall (1990) suggest as semi-contextualizing techniques might fall under this category. They include word grouping, word and concept association, visual and aural imagery, keyword, physical response, physical sensation and semantic mapping, which combine incidental vocabulary learning and context with intentional vocabulary learning. Ma (2009) adds reading plus activities that focus on vocabulary learning in this list.

In the last decades, multimedia technology such as audio, video, slides and such materials have been embedded into language and vocabulary learning and this has enhanced the students' interest in learning (Abraham, 2008; Constantinescu; 2007; Yue, 2017). Furthermore, computers, games and the Internet have become more advanced and popular, and they have been effective in language and vocabulary learning by themselves and as a supplement to the multimedia aids mentioned above (e.g. Blake, 2013; Ko & Goranson, 2014; Ma & Kelly; 2006; Martins, Steil & Todesco, 2004). In this context, a new term called *gamification* has emerged. Deterding, Sicart, Nacke, O'Hara and Dixon (2011) define gamification as "an umbrella term for the use of video game elements... to improve user experience and user engagement in non-game services and applications" (p. 2435), in our case, in education. According to Cugelman (2013), the idea behind gamification is that the addictive game elements are isolated and used in a routine non-game activity to make it addictive as well. For example, when handling vocabulary learning in class, game elements are added into the procedure such as earning points for each item learned, and this makes vocabulary learning more competitive and motivating.

As the scope of this study is limited to computer games, in the next part of the literature review the studies conducted in this line of research will be presented.

2.2. The Utilization of Video Games and Their Effects on Language Learning

With the advancement in technology and information technologies, computers and video games have had an increasingly influential role in especially young people's lives. They have been engaged in single player and multiplayer online games, and this has encouraged many academicians to carry out studies on the plausible relationship between computer games and language learning. This section tries to investigate these studies in two parts: studies of video games in language learning and studies that focus on video games in vocabulary learning.

2.2.1. Studies on Video Games in Language Learning

As Serafin (2016) discusses, young people spend much time playing computer games and that this practice has a destructive impact on young people's interpersonal relations and health; however, the educators should not try to change this trend, instead they should try to turn it into an advantage by implementing these games in language learning. He also states that through computer games as a source of authentic, real life language unlike the materials used in class, the majority of the participants in his survey (93%) claimed to learn English and improve their main skills, especially reading.

In another study, Amoia, Gardent and Perez-Beltrachini (2011) implemented a three dimensional video game into the system to render the learning experience more fun, to engage the learners and to help them maintain long-term motivation. Although the duration and the subjects in the experimentation were limited, participants found the learning environment to be engaging, entertaining and natural for learning.

In an earlier study, Sorensen and Meyer (2007) carried out an empirically based analysis of children's interaction with digital media. They devised *Mingoville* which is a course based on a computer game for teaching languages in primary school. The focus was on the role of games in different parts of formal and informal education. All in all, they concluded that games provided contextualized simulations that triggered productive thinking, authentic interaction and student motivation in contrast to drill-based exercises.

In a similar vein, Burgos, Tattersall and Koper (2005) argued that great benefits could be obtained by integrating games into educational process to target the specific learning objectives. They specifically focused on generic games instead of educational games as the latter are less common, have particular educational goals, and finally control the flow of the game tightly thus leaving a passive role to the players. The researchers proposed two possible ways based on the integration and the interaction of games and learning scenarios. The first way was to form a link between games and learning flows but without interaction and communication. The main advantage in this approach was its easier implementation for teachers and learning designers. The disadvantage was that the game was an isolated learning object with no consequences to the main learning system. The second way included a tighter integration with ongoing

interaction and communication between the game and learning flow. The main advantage was that the game became a key part in the lesson plan and provided chances for adapting the learning flow on the basis of results and performance from the game. The main disadvantage was that this way needed a technical approach which was not easy to implement. In both ways, it turned out to be that, as Burgos et al. (2005) claims, digital, i.e. computer games “improved certain skills and abilities, provide runtime feedback and allow the learning flow to be adapted on the fly. They also provide a good vehicle to establish social relationships and strengthen cognitive aspects in the player” (p. 2665).

Learning opportunities provided by computer games also encouraged Rankin, Gold and Gooch (2006) to direct their attention to a certain type of computer games, Massively Multiplayer Online Role-Playing Game (MMORPG). They proposed methodology for evaluating second language acquisition in the context of these games that accommodated active learners to assume the role of characters they selected and to start interaction with the other players in the game. MMORPGs trigger social interaction among players as success in the game inhibits solo playing and requires players to interact in the common language and act as a group. For these reasons, the researchers think that MMORPGs provide an interesting learning environment for second language acquisition. With these thoughts, they introduced a game-language learning model and used an MMORPG game as a pedagogical tool for students learning English as a second language. The results showed that although the low competency level of some participants had the researchers question the suitability of the chosen game, it had the potential to improve the vocabulary and conversational skills of the players.

Given the increasing popularity of computer games, Chik (2014) also studied the use of these games in language learning from the perspective of learners’ autonomy. Utilizing the data from gaming sessions, stimulated recall, focus group discussion, individual interviews and online discussion forums, she studied how these players exercise autonomy by gaming both as a leisure and learning activity in five dimensions - location, formality, pedagogy, trajectory and locus of control. The significant findings of this study showed that gamers create learning environments within the games in which they apply learning strategies from school. Gamers also learn through interaction with the game and the other players especially in terms of vocabulary.

In his study, Godwin-Jones (2014) addresses some common issues in using computer games in language learning such as: “what kind of games to choose or to create; how to find the opportunities for language learning within gameplay; and how to integrate gameplay and its associated activities into the curriculum” (p. 9). Although it is not possible to provide clear answers to these questions, he provides some fruitful insight. He discusses that the prolonged immersion in the games especially online games compared to the limited time a drill takes up in class may provide a chance to connect people all around the world who are not really interested in taking part in formal education in classrooms; thus, without taking the fun element out of this practice, embedding gaming into language learning would be the best practice for language learners and teachers. He goes on to say that in these games language learners “are using language in real and meaningful ways to accomplish a task” (p.10) while communicating with the game or other players. Furthermore, they need to use the language in a socially appropriate way in order to succeed in games as pragmatic use is more important than accuracy. The players not only are exposed to cultural knowledge which is otherwise not really possible through a language book but also encounter some situations where they need to utilize certain language use such as requesting help from other players, coordinating actions or giving directions (Zheng, Newgarden & Young, 2012, as cited in Godwin-Jones, 2014). He also adds that through constant feedback from game events and player interactions in different contexts, the games provide reinforcement for previously used vocabulary items and language structures without taking away the fun element. He states that “these activities are taking place in a safe and inviting environment which provides enjoyment and a sense of accomplishment, as progress through the game is recognized and rewarded” (p. 10). Another dimension discussed in his article is the implementation of computer games in the curriculum. As players engage in a game, they do not just play the game and interact in the game, but they also go into forums to learn more about the game or the other players or to simply chat with them. Similar to this, language teachers might make use of ‘wrap-around’ activities for a game (Sykes, 2013, as cited in Godwin-Jones, 2014). The class might engage in class discussions, trivia quizzes, game-based vocabulary tests or journal writing (Godwin-Jones, 2014). Next, he argues that the motivation to learn another language, the autonomy players show, the opportunity for long-term language retention and strong engagement in the game are all positive effects of games on language

learning and learners. Finally, the communities that the players of a game form together bring about a place for sharing where the players feel safe and interact with one another.

The aspect of motivation, which comes to one's mind as far as the computer games and language learning are concerned, is also studied by Al-Jifri and Elyas (2017). In their research, they carried out a focus group discussion and here it was confirmed that "the acquisition of the language via video games is natural due to the fact that motivation is stemming from within the gamers themselves and not being gained from an external incentive" (p. 32). This is generally the case when players choose to play a game instead doing or seeing it as a job. As it was found in all the studied mention above, the extensive game-playing developed the players' second language competence as English is the medium between the players and the games or among the players. The researchers also highlight a different aspect that the computer games incorporate when language learning is concerned which shows that gamers make use of different ways to understand language such as guessing the meaning from the context, looking up a dictionary or interacting in communities when they try to "expand their understanding of the game and... the second language" (p. 32).

Another study that focuses on the motivation and fun aspects of computer games in language learning is the one carried out by Ang and Zaphiris (2008). They divide their study into two parts analyzing two different types of computer games. These are computer games that provide an environment to support language learning (player-game interaction) and that act as a medium to facilitate learning (player-player interaction). For the former type of games, Ang and Zaphiris (2008) provided some examples of 'serious games' referring to games "in which education (in its various forms) is the primary goal, rather than entertainment" (Michael & Chen, 2006, p. 17, as cited in Breuer & Bente, 2010). Here Ang and Zaphiris (2008) highlighted the positive attitudes the players showed towards the games and the importance of artificial intelligence that played an important role in providing a realistic learning experience (Johnson, Marsella, Viljálmsón, Narayanan & Choi, 2004, as cited in Ang & Zaphiris, 2008). In the player-game interaction, the language is mostly limited with what the producers and the game world provide. The dialogues between the player and characters in the game are for understanding the game world, characters and the missions the players get. For the games that exploited player-player interaction, Massive Multi-Player Online Games (MMOGs) were given as examples. Here, the language is not limited to the games as MMOGs "actually encourage social interaction by

enacting stories through collaborative tasks as well as chatting” (Ang & Zaphiris, 2008, p. 22). While in player-game interaction it is important to perceive the language, in player-player interaction language creation becomes more important and stressed, and language is positioned in a focal point. In conclusion, they pointed out that computer games could provide motivation and pleasure in terms of language learning and use.

In addition to the language input, motivation and fun elements computer games generally provide, another advantage of these games – cultural content - should be mentioned as well. Soyooof (2018) states that “one of the most crucial strategies that can improve students’ language learning is being attuned to their knowledge of the target language culture and the development of cultural sensitivity” (p. 95) and that culture and language are intertwined. The notion of intercultural communicative competence has recently been studied as an integral part of language learning (Byram, 1997; Deardoff, 2006; Tran & Seepho, 2016). Parallel to this train of thought, Newton, Yates, Shearn and Nowitzki (2010) list the six principles of intercultural communicative language teaching as follows:

Intercultural communicative language teaching and learning:

1. integrates language and culture from the beginning
2. engages learners in genuine social interaction
3. encourages and develops an exploratory and reflective approach to culture and culture-in-language
4. fosters explicit comparisons and connections between languages and cultures
5. acknowledges and responds appropriately to diverse learners and learning contexts
6. emphasizes intercultural communicative competence rather than native-speaker competence (p. 63).

Soyooof (2018) argues in his study that “video games can provide a situation where they can learn the culture of a new language enthusiastically through their engagement in playing the game” (p. 100). It is really challenging to present the cultural knowledge of the target language in class. However, with the help of well-developed plots and characters, it is possible for computer games to provide this knowledge to the players especially through simulation and role play. In addition, Soyooof (2018) found out that while playing the computer games, players ‘subconsciously’ learn about the target culture, and this minimizes “the influence of students’ first language ego” (Soyooof & Jokar, 2014, as cited in Soyooof, 2018, p. 100).

Unlike many studies that focus on research on children, Butler (2014) conducted research with children studying the elements and structures in computer games that promote attractive and effective foreign language learning. She conducted the research with 82 digital natives aged

between 11 and 12 and came up with elements shown in Figure 3. The elements in her model not only covered the elements that were already covered in literature before, but also new ones such as relaxing, stress releasing and convenient. Thus, this model shows us game elements overlapping with the learning elements and how effective computer games can be in language and vocabulary learning especially for the new generation that sees technology and computers as a part of their lives.

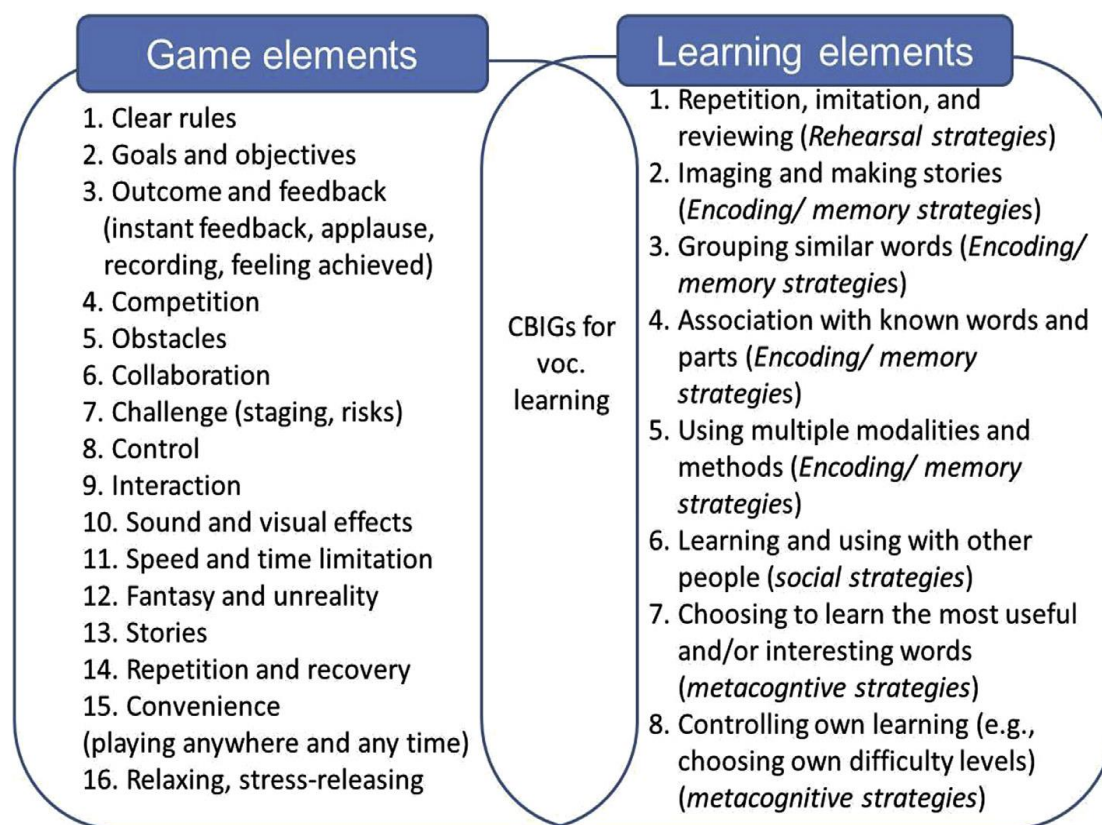


Figure 3: Game and learning elements in computer games according to research by Butler. “The use of computer games as foreign language learning tasks for digital natives”, Butler, Y. G. (2014). *System*, 54, 91-102.

Apart from the effect of computer games on language learning from a linguistic perspective, Khatibi and Cowie (2013) took another stance to evaluate this effect from a neuroscientific point of view. In their synthesis of studies in literature, they found out that there are corresponding brain structures and brain activities involved in computer game playing (or gaming) and language learning. In addition to brain structures such as “the hippocampus, the fusiform and

hippocampal gyri, the occipital and the temporal lobes” (p. 37) that were found to work in both processes, brain activities such as “memory of previously encountered situations... that serves as a foundation for learning new information simultaneously” were identified (p. 37). They concluded that considering this striking parallelism, the use of computer games in language learning and their potential is underrated and requires more investigation.

2.2.2. Studies on Computer Games in Vocabulary Learning

Apart from all the positive effects of computer games on language learning that are mentioned in the previous section, it is discussed that they also have the potential to contribute to vocabulary learning as well. In this section, the studies that solely investigated the effect of computer games on vocabulary learning are reviewed.

In one of these studies, deHaan, Reed and Kuwada (2010) investigated to what degree video game interactivity would help the noticing and recall of second language vocabulary. There were two study groups: the players and the watchers. While the players were interacting with a fast-paced game, the watchers’ duty was only to watch the players and the game. The results showed that both the players and the watchers noticed vocabulary items from the game successfully and recalled these items two weeks later to some extent; however, the watchers were found out to notice and recall vocabulary items more successfully than the players. This finding was based on the fact that the players had to focus on both the game and the vocabulary items simultaneously reducing their awareness of the latter.

Another study that showed the positive impact of computer games on language learning was conducted by Aghlara and Tamjid (2011). Their research included six-to-seven-year-old Iranian girls with no knowledge or competence in English. The treatment group was presented simple English words through an interactive computer game with audio and the control group was taught through flash cards, posters and a blackboard. Based on the findings, they found out that the treatment group was much more successful in learning English vocabulary than the control group thanks to the use of the video game. They concluded that “using such games in the classroom results in better motivation and facilitates the learning process of children and their cognitive achievement” and that “the learning process becomes much more enjoyable and by

engaging children in such games, the stresses involved in the learning process are drastically reduced” (p. 558).

Yip and Kwan (2006) also performed a study to reveal whether online games could be exploited in teaching and learning English vocabulary. In their quasi-experimental study, the subjects, 100 freshmen in engineering department, were divided into two main groups. In the experimental sub-groups, the subjects were to learn certain English words from selected websites by themselves. These websites featured definitions of the target words and games played around these words. The control group was to learn the same target vocabulary through activity-based lessons with the help of English teachers. The difference between the pre-test and post-test results the experimental group received and the difference between the results of the experimental group and those of the control group showed that subjects using the websites that included games were much more successful than the ones going through activity-based learning. In the questionnaire and the interview that followed, it was found out that the games provided an enjoyable way of learning English words. And the majority of the experimental group (70%) regarded games as an effective vocabulary learning tool. Yip and Kwan (2006) listed the criteria for effective online learning games as follows:

- “Interaction with other players;
- Comparison of scores, ...;
- Audio-visual effects, the use of animation, sounds and music;
- Roles that can be selected and taken up;
- A clearly defined scenario;
- Continuous motivation, a balance between challenge and satisfaction” (p. 244).

Furthermore, as Nagy (1995) stated context is an important tool in language acquisition in terms of the breadth (number of words learned) and depth (the amount and quality of knowledge) of vocabulary knowledge, and this has been proven in many studies (Godwin-Jones, 2018; Kermani & Seyedrezaei, 2015; Qian, 1996). In the study carried out by Yip and Kwan (2006), this importance of context was also mentioned by the informants in the interview and they added that it was easier for them to remember the words on the same theme as the games provided them the necessary contexts.

The study carried out by Smith et al. (2013) also focused on the learning of vocabulary through inferencing, which means guessing the meaning of a word from the context. They tried to find out the vocabulary retention with computer games versus hardcopy booklets comparing the participants' performances in these games and vocabulary tests. The results showed that the computer games that are based on inferencing worked better than standard vocabulary practices including word lists and multiple-choice questions. The participants' post-test results proved that they learned better and more vocabulary items through these games. Furthermore, for the second question, a meaningful correlation between the game performance in terms of correct inferences and the vocabulary post-test results was found that supported "the proposal that achievement in the game can predict improved vocabulary learning" (Smith et al., 2013, p. 283). In addition to the success of these video games in helping students to learn vocabulary items through inferencing, it was also proposed that the learning took place in a short time although this was not a direct query that the study aimed to find answers for. Finally, similar to all the studies that are included in this review, this study also established the fact that these games provided a fun and motivating way to learn a particular component of the target language, which is vocabulary in this case.

Similar findings were also announced by Ashraf, Motlagh and Salami (2014) who investigated the usefulness of computer games on vocabulary learning in Iranian context. They compared vocabulary learning in a selection of online games and in a traditional paper and pencil technique with low-intermediate Iranian learners. Their findings showed that thanks to the competitive and cooperative nature of games, the learners in the experimental group with their desire to be the winners were more successful in learning new vocabulary. The context created by the games was both interactive and motivating for the learners and promoted learners to share information easily and subconsciously, and all in all, this led to an enjoyable learning environment for them. The researchers suggested that "the gamers became more interested in playing and wished to achieve better results, and... they tried to learn more new words in addition to the vocabulary prepared for the class" (p. 290).

Lam (2014) sought answers to queries on whether online games help student vocabulary learning and retention and what the students think about using these games in vocabulary learning. She used content generator to have tailor-made 'Fling the Teacher' and 'Jeopardy' games. She also let the participants – 91 freshmen – to create the necessary content for these

games as well. She found out that the students became active learners in both processes of creating and playing and that they focused on the fun and usefulness aspects of the games. She also claimed that they were unconsciously motivated and engaged in the creation of the content. While they were preparing the games, they “took the initiative to clarify any misunderstandings and misconceptions they had about the terminology and explored the different usages and applications of the new words” (Lam, 2014, p. 96) and this triggered student-centered learning. However, three possible drawbacks were also highlighted, namely, unsuitable design of the games, the negative general perception of computer games in society and among the students as an antisocial activity, and the predominance of extrinsic motivation factors such as praise, status and fame over intrinsic ones.

Here, it can be discussed that computer games alone might not be effective enough for meaningful vocabulary learning. Miller and Hegelheimer (2006) concentrated their study on this issue. They worked on adapting a certain computer game (‘The SIMs’) to improve vocabulary learning. The adaptation was through support materials that would complement the vocabulary learning realized in the game. The participants, who were adult English language learners, were divided into three groups. Throughout this five-week project, the first group was given mandatory support materials, the second group was given the support materials but on a voluntary basis, and the third group was not given any support materials at all. The results from the pre-test and the post-test and from the interviews showed that the first group that was given the mandatory support materials performed better than the other two groups. Owing to the communicative and appealing nature of the game, the students had fun and learned at the same time.

Although gender differences in computer game playing have not been taken into consideration in the current study, it should still be mentioned as part of this review of literature. According to Lucas and Sherry (2004):

Based on established social norms, video games are perceived to belong in the male domain, and female players and male players alike experience greater social acceptance by staying within sex-role expectations. Consequently, based on their motivations for inclusion and affection, female players were less likely to be video game players, played for fewer hours, and did not seek out game-play situations for social interaction as much as male players did. Furthermore, female players also were less likely to enjoy game-play situations that involved three-dimensional rotation or games played for competition because they gained a lesser sense of control than they did in other interpersonal or play activities (p. 517).

Also the type of games that males and females play also varies. According to Choi and Tsai's (2007) investigation on gender differences in computer game choices, it was found out that males prefer role-playing, strategy, and action games whereas females prefer puzzles, action, and role-playing games. We can add sports simulations to the list of types of games played by males and platform games to the female's list of favorite game types based on the study by Griffiths (1997). Taking these findings into consideration, the study conducted by Vahdat and Behbahani (2013) could be noted here. In their research, they studied with 40 intermediate Iranian EFL learners, 20 of which were males and 20 were females. The experimental group was directed to study certain vocabulary items through a computer game and the control group studied these items in traditional classes that included text-drill chapters adapted from the computer game used in the experimental group. The statistical results showed that vocabulary learning through the computer game was much more effective than vocabulary learning through traditional classes. This result was based on the reason that the game provided a social context and a learning environment along with the interactivity factor that altogether facilitated vocabulary learning. It was also worth mentioning that "the virtual world, with pictures... and graphics, also helps make an authentic context for learning" (p. 68). About the gender difference aspect of the study, it was revealed that males were more engaged in the computer game than the females. This latter result brings up a concern indicating that while exploiting computer games in classes, gender differences and preferences should be taken into account and suitable games for both genders should be chosen for fostering vocabulary learning.

The motivational effect of video games and their elements were also studied by Shahriarpoura and Kafi (2014) in vocabulary learning context. They interviewed and observed players of a certain computer game. In conclusion, they found out that the computer game in question was not only educational but also fun. They advised language teachers to find a way to integrate computer games into their teaching vocabulary claiming that this integration would engage learners and help with memorization of vocabulary items and interaction. Similar results about the fun element were found in Letchumanan and Hoon's (2012) research as well. They tried to find out whether computer games provided a fun way of learning vocabulary and whether they had any impact on vocabulary acquisition and writing using the vocabulary items they learned through the computer games. The researchers applied two different methods to the same group of subjects. For the first seven weeks the subjects were expected to play a computer game that

taught vocabulary. In the next seven-week period, the participants tried to learn vocabulary through the use of contextual clues, semantic mapping and a dictionary. The participants' achievement was measured by a pre-test, post-test and two essay writing tasks. Regarding the fun element of computer games and their effects on vocabulary acquisition, the findings were meaningful in that the participants mentioned that the games were fun and interesting and could be used to learn new vocabulary, and the pre-test and post-test results supported this showing that computer games were more effective vocabulary learning. However, for the writing tasks and their results, there was no meaningful difference between the results obtained after the application of the two methods.

As for the effects of the hidden object games, an example of which is also the instrument in this study, and their effects on vocabulary learning, Widiarsa, Marhaeni and Adnyani (2017) had a similar study with a post-test only design. A certain hidden object game was used in the experimental group and a conventional way in the control group. The results showed that the experimental group performed better than the control group in the post-test leading the researchers to think that hidden object games were effective in vocabulary learning process and could be used in education.

In short, video games could be claimed to take an important part in learners' lives, be it on the computer, tablets or mobile phones. That is why serious games, those which are designed for learning, and commercial off-the-shelf games, which are commercial games aiming at entertainment, could be invaluable tools to facilitate language and vocabulary learning, since they provide a rich context for learning, a chance for fun and motivating learning through specific goals and objectives. The visual and auditory elements in the games mixed with challenges, collaboration in some games and competition in others add up to the positive learning. The fact that learners play as a character other than themselves promote a stress-free and relaxing learning experience. As a type of computer game, hidden object games also have most of these benefits in language and vocabulary learning. Owing to all these advantages, as Smith et al. (2013) state, the educators are also challenged to make these games a part of their classes in the dynamic gaming world especially to facilitate vocabulary learning, and students should be encouraged to play games to study and learn.

CHAPTER 3

METHODOLOGY

This chapter gives detailed information about the methodology of the present research. First, details about the research design are provided. Second, the participants, data collection tools, and validity and reliability of the study are explained. The chapter is finished with data collection procedure and data analysis.

3.1. Research Design

Dörnyei (2007) defines mixed methods research as “some sort of a combination of qualitative and quantitative methods within a single research project” (p. 44). Also, mixed methods research design can be defined as “a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative methods in a single study or a series of studies to understand a research problem” (Creswell & Plano Clark, 2011 as cited in Creswell, 2012, p. 535). In accordance with these definitions, the present researcher designed his study as mixed methods research because both quantitative and qualitative methods were used in this study.

In addition, Dörnyei (2007) adds that the popularity of mixed methods research is growing because mixing methods provides researchers with three main strengths. These are (a) increasing the strengths by eliminating the weaknesses of qualitative and quantitative methods, (b) providing multi-level analysis of complex issues, and (c) increasing validity.

Firstly, because of their natures, both quantitative and qualitative methods have their own weaknesses such as not dealing with the underlying reasons of the phenomenon under investigation for quantitative method and lack of methodological rigor for qualitative method. However, mixed method researchers can combine the strengths of both research methods and use one's strengths to eliminate the weaknesses of the other one (Dörnyei, 2007), which caused the present researcher to employ both quantitative and qualitative research methods in the present study.

Secondly, mixed methods research can provide researchers with a better understanding of the phenomenon under investigation by “converging numeric trends from quantitative data and specific details from qualitative data” (Dörnyei, 2007, p. 45). According to Creswell (2012), the main assumption of mixed methods research is “that the uses of both quantitative and qualitative methods, in combination, provide a better understanding of the research problem and question than either method by itself” (p. 535). In a similar vein, the researcher used qualitative data in this study to gain a better understanding of the effect of using a hidden object game on the vocabulary learning of the students in the experimental group measured in quantitative data.

With mixed methods research, researchers can also validate their findings by converging both qualitative and quantitative data and corroborating the data through convergence (Dörnyei, 2007). That is, mixed methods research does not mean “simply collecting two distinct “strands” of research – qualitative and quantitative. It consists of merging, integrating, linking, or embedding the two “strands”” (Creswell, 2012, p. 535). Similarly, the researcher's main data was the pre-test and post-test scores of the students. The researcher converged the quantitative and qualitative data and corroborated the main finding through using qualitative data, so the researcher triangulated and validated the findings.

Besides being a mixed methods research study, a quasi-experimental research design was used to conduct the study because the researcher had to work with intact groups in the institution as Creswell (2012) said “In education, many experimental situations occur in which researchers need to use intact groups. This might happen because of the availability of the participants or because the setting prohibits forming artificial groups” (p. 309). As it is mentioned below in this chapter, the research setting was the School of Foreign Languages of a Turkish foundation university, and the researcher worked with the students learning English in the Basic English

Department of the School of Foreign Languages due to their availability to be studied as Creswell (2012) and Dörnyei (2007) stated.

3.2. Participants

Convenience sampling enables a researcher to choose his/her participants because of their willingness and availability to be studied (Creswell, 2012, Dörnyei, 2007). Accordingly, the researcher in this study selected the participants through convenience sampling depending on the availability of the participants. That is, the researcher worked as an English language instructor in the School of Foreign Languages of a Turkish foundation university and conducted the study with 56 students in the Basic English Department.

The initial number of participants that were planned to take part in the research was 105. However, 49 students did not attend the classes given in the institution. That is why 56 students participated in the research. 41 out of 56 participants were male, while the rest were female. Their ages were between 18 and 20. Their level of English was upper-elementary because they were the students in seven C level classes, and C level was considered to be upper-elementary. Three out of seven C level classes were randomly chosen as the control group classes, and the rest were randomly selected as the experimental group classes.

3.3. Data Collection Procedures

To conduct the qualitative and quantitative data collection procedures, a permission was taken from the Directorship of the School of Foreign Languages. Once the permission was granted, the researcher arranged a meeting for information exchange with the class teachers who would carry out the procedures in their respective classes.

First, the researcher browsed through a collection of hidden object games and chose a suitable free-to-play game, which will be introduced later in this section. After a 10-hour gameplay, a list of words with their frequencies – high, medium and low frequency – was made. The frequencies were found depending on the appearance of a word in object finding part of the game. Later, a pre-test (see Appendix A) and a post-test (see Appendix B) were prepared

considering the frequencies of these words. These tests were piloted in a class similar in level to the control and experimental groups.

Next, the researcher briefed the teachers of both the experimental and control groups about the planned process, pre/post-tests and the structured interview (See Appendix C). While the teachers of the experimental groups were given information about the game, how the students would play the game and what the researcher expected of them during the procedure, the teachers of the control groups were informed about the word list (see Appendix D) and dictionary study. The researcher listened to the teachers' concerns, suggestions and feedback and made the necessary adjustments and/or reassurances.

Then the researcher met the participants in the experimental and control groups separately. In both meetings, the researcher told the students about the study in general, how it would be conducted and its seriousness, aims and significance. They were given information about the pre- and post-test. The researcher also mentioned that the participation was on a voluntary basis and those who would not want to take part could quit in the beginning or in any phase of the procedure. The participants were ensured that the results of the study would be secure and only be used within the scope of the present study. The participants in both groups signed consent forms to take part in the study (see Appendix E and F). Apart from these bits of information that apply for both groups, the experimental group was also given information about the structured interview that would be carried out at the end of the procedure. In addition, the researcher presented the hidden object game the effect of which would be sought in this study and showed how it is played. As all the students had tablets as a supplementary tool for their education, downloading the game application and playing the game on their tablets was convenient.

For this experimental study, the hidden object game *Criminal Case* developed by *Pretty Simple Games* is chosen as the game is free to play and provides enough gameplay time necessary for this research. The students could either download the application for their tablets, smart phones or other mobile devices or play the game through their *Facebook* accounts.

In the game the player takes up the role of a police officer collecting evidence in hidden-object scenes to solve mysterious crimes and spot the criminals. The player looks for some standard, generic items and some key objects that are vital in solving the crimes. There is also a timer for each scene. The player earns stars in each successful search for items and uses these stars to

examine clues in the lab, identify objects, carry out interviews with the suspects, do autopsies and so on. The player needs to play the same scene to get enough stars. Finally the player brings together enough evidence to find the criminal and solve the case. The player can play the game with a computer-generated partner or connect with their friends to work on solving crimes as well; thus, the player can share their opinions with their friends.

In the welcoming window of the game, the player sees the crimes, generally murder cases (see Figure 4) and the current progress in the game. On this screen the player can choose a certain crime to work on, see their friends' progress in the game and send them messages or gifts. The player cannot work on new crimes unless the present one is solved. Once the crime is solved, a new episode is available for investigation. There are more than 50 crimes in the game and new ones are being created by the developers. For this experiment, only the first two cases were open for the participants.



Figure 4. The opening screen of the game used in the experiment.

Once a crime episode is selected, the player is greeted with a screen where they choose a scene related to that crime (Figure 5).

During the gameplay, as shown in Figure 6, a place related to the crime is the setting of the object search. There are many items scattered around the place. The player is expected to seek and identify the place of the items that are given in the bottom. Once an item is found, the player clicks on the item and the item disappears giving a certain score and multiplier bonus. These scores and bonuses provide the player with stars. These stars are used in the other parts of the game to further the investigation. The actions, mentioned above, such as doing an autopsy or interrogating a witness can be carried out with the stars the player receives. The player is to find a certain number of items in a certain amount of time to finish a scene. The number of items increases towards the end of the investigation for each crime. And in each scene there are many more items than the ones that appear in the bottom.



Figure 5. The scene selection window in the hidden object game.

On the other hand, the control group was shown the word lists and instructed to write the definitions of words using a monolingual dictionary, their part of speech, sample sentences from a source, and their own sentences including the words.

The experimental study was planned for five weeks. In the first week, the groups were given the pre-test. In the same week the first phase of the study was conducted in one class hour, which was 50 minutes. The experimental group played the hidden object game accompanied with a vocabulary list (see Appendix G), which was provided to the control group as well, to accompany the game. The control group was given the first word list. The researcher and the class teachers were present and vigilant to solve any potential problems that would emerge.

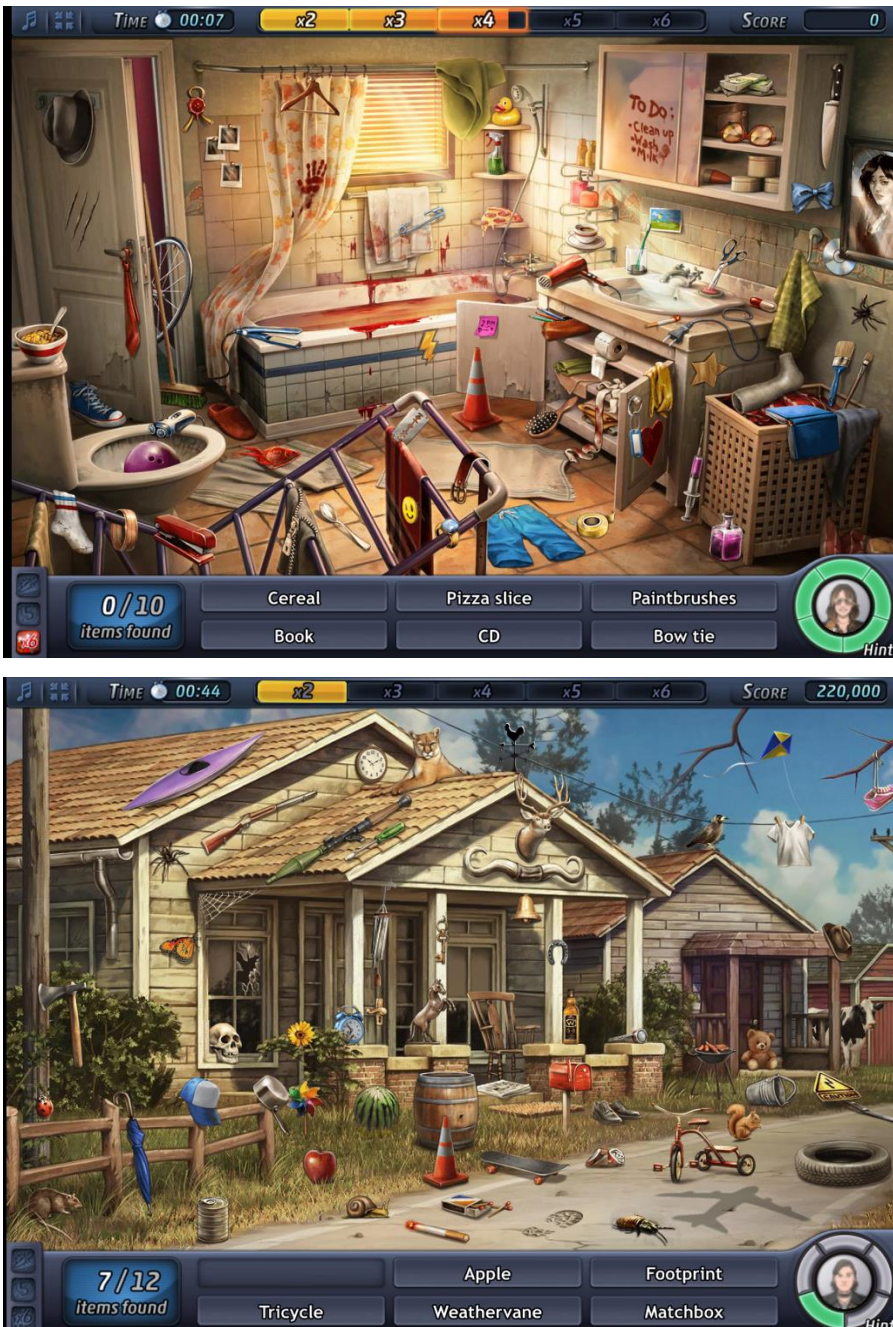


Figure 6. The screenshots of the scenes from the hidden object game.

In the second, third and fourth weeks, the same procedure was applied. On the fifth week, the post-test was given to both groups. After the post-test, the researcher conducted the structured interview with the participants in the experimental group, and he met with the class teachers one last time to get their final opinions.

3.4. Data Collection Tools

Two data collection tools were used to collect data in the research. They are the vocabulary test prepared by the researcher and a structured interview.

3.4.1. Vocabulary Test

50 words were randomly chosen from the hidden object game and considered as the target words to be studied in the experiment. Then four word lists that included these 50 words to be filled in through dictionary studies were created. A vocabulary test based on these words was prepared. To provide the validity and reliability of his vocabulary test, five types of questions were used: categorizing, odd-one-out, fill-in-the-blanks, matching-words-with-definitions, and matching-words-with-pictures, all of which the participants were familiar with because the researcher talked with their teachers to find out what question types were practiced in their course books and asked in their exams. After the vocabulary test was prepared, the researcher shared it with both the advisor and a colleague who had a Ph.D. degree in English language teaching and specialized in language assessment and evaluation. Feedback was taken from the colleague about the construct and content validity of the vocabulary test. In addition, the vocabulary test was piloted with twelve students whose level of English was close to the participants' level of English. The Cronbach's Alpha coefficient of the pilot vocabulary test was 0.742. As a result of these processes, a 30-question vocabulary test was developed and used as a pre-test and post-test in the research.

3.4.2. Structured Interview

The structured interview has six questions that focus on the experiences of the participants with the use of the hidden object game in vocabulary learning. The questions were prepared in

Turkish, and the students were asked to answer the questions by explaining the reasons for their answers in a written way. The questions aimed to find out whether

1. the participants had fun in the experiment,
2. they learned anything in English,
3. they thought new things could be learned in English,
4. what they learned became permanent and was easy to remember,
5. this learning activity could contribute to foreign language learning, and
6. the activity could be used in the other areas of language learning other than vocabulary learning.

3.5. Validity and Reliability of the Quantitative Data

As aforementioned, the construct and content validity of the quantitative data collection tool was provided under the supervision of his advisor and in collaboration with one of his colleagues who had a Ph.D. degree and specialized in language assessment and evaluation. In addition, the Cronbach's Alpha coefficient of the vocabulary test was 0.742. The quantitative data was also triangulated with the qualitative data.

3.6. Trustworthiness of the Qualitative Data

Thick description and peer scrutiny were among the strategies used to make a qualitative study trustworthy (Lincoln & Guba, 1985). Both were used to make the qualitative data trustworthy. First, the qualitative data were analyzed and then this data was shared with two colleagues. One of the colleagues has a Ph.D. degree in English language teaching, and the other one has an MA degree in English language teaching and is a Ph.D. candidate in English language and culture. Both colleagues have qualitative research and content analysis experience. After the content analysis of the qualitative data was finished, the data analysis carried out by the researcher and the two colleagues was compared, the differences were discussed, and afterwards the content analysis was finalized. In presenting the content analysis, the qualitative findings were described thickly.

3.7. Data Analysis

The quantitative data in the research were analyzed through SPSS 20 for Mac. Independent samples t-test was used to analyze the post-test scores of the control and experimental groups. Dependent samples t-test was applied to analyze the pre-test and post-test scores of the experimental group and to analyze the pre-test and post-test scores of the experimental group in terms of high, medium, and low frequency words.

The qualitative data was content analyzed by following the four steps suggested by Yıldırım and Şimşek (2013) as seen in Figure 7 below.

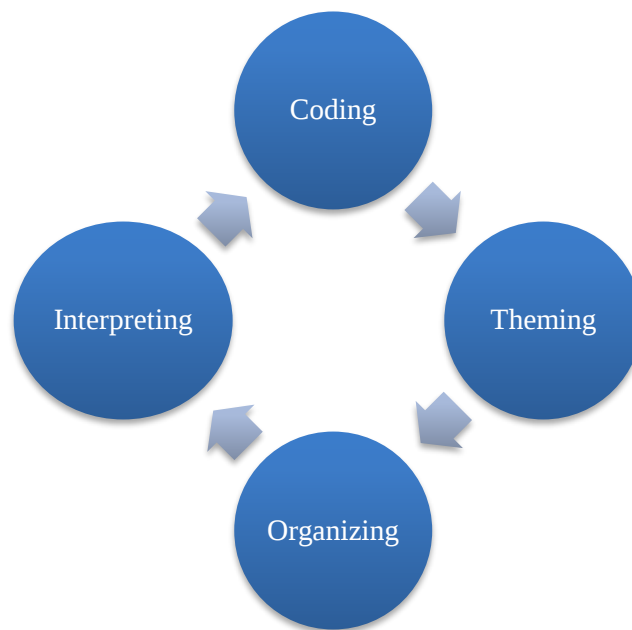


Figure 7. The process of content analysis.

That is, the qualitative data were read many times to code and derived from the data. The qualitative data were categorized into meaningful units and the codes were used to conceptualize these meaningful units. Afterwards, the codes were classified depending on the similarities and differences between them. The themes covering the codes were found and placed under the themes. The qualitative findings were organized based on the themes and described with the quotations taken from the structured interviews. The data were presented without adding any comments or interpretations. Then, the data were interpreted without causing any conflict with the description of the data in the end. The findings of both quantitative and qualitative data analysis will be discussed in detail in the following chapter.

CHAPTER IV

FINDINGS AND RESULTS

This chapter presents the findings of the study in accordance with the research questions. It first starts with the quantitative findings, continues with the qualitative findings, and ends with a comparative analysis of the quantitative and qualitative results. The findings were presented in the order of the research questions.

4.1. The Comparison of the Pre-Test Scores of the Control and Experimental Groups

Table 2 indicates that there was not a statistically significant difference between the pre-test scores of the control and experimental groups ($p > 0.05$).

Table 2

The Independent Samples T-test Result of the Pre-test Scores of the Control and Experimental Groups

Group	N	$\bar{x}$	Sd	t	p
Control	27	20.7037	2.35037	1.667	.104
Experimental	29	18.8966	4.53073		

4.2. The Comparison of the Post-Test Scores of the Control and Experimental Groups

As Table 3 shows below, studying vocabulary through dictionaries and the hidden object game did not create a statistically significant difference between the post-test scores of the control and experimental groups ($p>0.05$).

Table 3

The Independent Samples T-test Result of the Post-test Scores of the Control and Experimental Groups

Group	N	$\bar{x}$	Sd	t	p
Control	27	22.4444	5.07887	-1.273	.208
Experimental	29	24.0345	4.25510		

4.3. The Effect of the Experiment on the Experimental Group's Vocabulary Learning

The experiment, studying vocabulary through the hidden object game led to a statistically significant difference between the pre-test and post-test scores of the experimental group ($p<0.05$) as seen in Table 4 below. The participants' scores increased from 18.8966 to 24.0345.

Table 4

The Dependent Samples T-test Result of the Pre-test and Post-test Scores of the Experimental Group

Test	N	$\bar{x}$	Sd	t	p
Pre-test	29	18.8966	5.30731	-8.270	.000*
Post-test	29	24.0345	4.25510		

* The mean difference is significant at the 0.05 level.

4.4. The Effect of the Experiment on the Experimental Group's Vocabulary Learning in terms of High, Medium, and Low Frequency Words

40 words used in the pre-test and post-test were randomly chosen among the words in the hidden object game and categorized as high, medium, and low frequency words depending on how frequent they appeared in the game. As understood from Table 5, statistically significant differences were found between the pre-test and post-test scores of the words in all word frequency levels ($p < 0.05$). This indicates that the hidden object game could help the participants to learn the target words with varying frequencies better.

Table 5

The Dependent Samples T-Test Result of the Pre-Test and Post-Test Scores of the Experimental Group's Vocabulary Learning in terms of High, Medium, and Low Frequency Words

Word Group	Test	N	$\bar{x}$	Sd	t	p
High Frequency	Pre-test	29	10.5172	3.00738	-7.189	.000*
	Post-test	29	13.6897	2.08915		
Medium Frequency	Pre-test	29	8.6897	2.73996	-3.061	.005*
	Post-test	29	10.0690	2.40433		
Low Frequency	Pre-test	29	5.6207	2.09444	-5.249	.000*
	Post-test	29	7.4138	2.17973		

*The mean difference is significant at the 0.05 level.

4.5. The Students' Thoughts about Their Experience of Studying and Learning Vocabulary Through a Hidden Object Game

Six codes were derived from the content analysis of the structured interviews as seen in Table 6.

Table 6

The Codes Derived from the Content Analysis of the Structured Interviews

Codes
1. Having fun
2. Learning new things in English
3. Being able to learn in English
4. Permanent learning and easy to learn
5. Contribution to English language learning
6. Usability for other aspects of language learning

The findings of the content analysis were mentioned by following the order of the codes in Table 6.

4.5.1. Having Fun

In the experimental group, 25 participants reported that they had fun during the experiment because of two main reasons: learning and game. Seven participants told that they had fun as they learned new words in the experiment as the quotations below indicate:

Student 1: I had fun because I learned new words.

Student 9: Of course I had fun because it [the game] helped me to learn a new word.

Student 21: I had [fun] because I think I learned new words.

In addition, four participants said that the experiment helped their learning since it “reminds the words” for student 7, “helps in English” for student 10, “improves oneself” for student 14, and “improves English to some extent” for student 19. As a result of these effects on their learning, these participants said they had fun in the experiment.

Ten participants also had fun in the experiment because of the game used. Students 6, 12, 16, and 29 found the experiment fun because they were interested in playing games as the excerpts below support:

Student 12: I had fun because playing games is fun.

Student 16: I had fun because I like playing games.

Student 29: I had fun because playing games is enjoyable.

The structure of the game caused students 15 and 20 to find the experiment fun as understood from what students 15 and 20 said:

Student 15: I had fun because it [the game] was both an enjoyable and instructive game.

Student 20: I had fun because learning English with this game was fun and instructive.

For students 8, 11, 22, and 23, the game created a fun learning experience. It is clearly supported by the excerpt below:

Student 11: Yes, I had fun while learning something.

Student 22: I learned something by having fun.

Student 24 reported that he had fun as he considered the experiment as different, and student 2 had fun as she found it useful, yet students 3 and 26 did not mention their reasons why they had fun in the experiment.

On the other hand, four participants did not consider the experiment as fun. While students 4, 27, and 28 did not explain why they did not have fun, student 13 said “I disliked the game” as his reason.

4.5.2. Learning New Things in English

27 participants mentioned that the experiment helped them to learn new things in English mainly owing to its structure. Apart from student 27 who did not mention the reason, 26 participants explained that the game contributed to their vocabulary learning as understood from the excerpts.

Student 7: Yes, because I learned some unknown words.

Student 12: Yes, because we [the students] can only learn words.

Student 21: Yes, because I learned new words.

Student 24: Yes, because there were some unknown words.

Among these participants, 13 participants specified how the structure of the game helped them to learn new words. Four of these participants reported that they learned new words in English better since the game uses visual materials to teach English words. What students 11 and 17 stated supports this finding clearly.

Student 11: Yes, because I learned the words visually in a fast way.

Student 17: Yes. I learned them [the words] easily because I had seen the objects related to the words.

Besides, according to six participants, the game increased their exposure to English, which they believed helped them to learn as English was the language of the game, so the participants had to use their English knowledge a lot to play the game. The quotations below reveal this clearly.

Student 13: Yes, because we [the students] played the game in English.

Student 15: Yes. We [the students] learned compulsorily because the game was in English.

Student 19: Yes. Because we [the students] played the game in English, our knowledge of English vocabulary improved.

The game was a word game, so it engaged two participants in learning the meanings of the words with extra work. That is, student 3 learned new words in the game by “translating words”, and student 25 learned them by “looking up their meanings in a dictionary.” In addition, student 26 told that she learned new words because “the words appear repeatedly in the game.”

Despite what these participants reported, two participants mentioned that they did not learn anything in English in the experiment. Though student 10 did not share his reason, student 4 said: “No, because new words are not learned in this way.”

4.5.3. Being Able to Learn in English

Apart from three participants, the rest believed that using the hidden object game in English language learning could help students to learn something in English because of four factors. The first one is visuality. The structure of the game supports visual learning as the participants studied the target words with the pictures in the game, so five participants mentioned that

students could learn words in English. The following quotations of students 12, 13, and 17 support this finding.

Student 12: Yes, I think students can learn something in English because we [the students] find what we choose with pictures.

Student 13: Yes, because we [the students] find objects from words. Visual memory is always permanent.

Student 17: Yes, because it [the hidden object game] can be a way to support visual memory.

The second factor is encouragement since students 5, 14, and 25 explained that the hidden object game encouraged them to study and learn unknown words as understood from the followings.

Student 5: Yes, because that there are some unknown words in the game, so this causes and encourages us [the students] to learn them.

Student 14: Yes, because they [the unknown words] made me curious, so I learned their meaning.

Student 25: Yes, because the game encourages people to learn.

What encouraged these participants to learn unknown words in the game can be that the game could make learning environment fun because these participants were among the ones who found the experiment fun.

The third factor is the game. According to students 8, 16, 18, 20, 28, and 29, the chosen game could help students to learn words in English due to its structure, content, and effect on the learning environment. The game is in English, so the participants had to use English to play the game as student 10 said: “It has everything in English,” which can result in an obligation to study and learn the words as student 15 said: “The game is in English, so we [the students] had to learn something in English.”

The game in question is a word game which can make language learning fun and includes real-life words, so these could help the game to have an effect on students’ learning in English. What students 8, 18, and 20 said in the interview clearly indicates this finding.

Student 8: Yes, because it [the game] is a fun way of learning.

Student 18: Yes, I think students can learn in English in this way [the experiment], because the words are the ones used in daily life.

Student 20: Yes, because learning with the game is instructive.

The fourth factor is promoting vocabulary learning. Students 2, 6, 11, 19, 21, 22, and 23 reported that the game promoted learning vocabulary in English as seen in the quotations below.

Student 21: Because we [the students] encounter new words, so we learn new words.

Student 23: Because it [the game] helps us [the students] to learn new words.

However, students 4, 9, and 27 told that they did not think the game could help students to learn something in English. Student 4 did not believe that English can be learned in this way, and student 27 thought that students should go to the United States of America to learn English.

4.5.4. Permanent Learning and Easy to Remember

26 out of 29 participants believed that the experiment could make their learning permanent, and they could remember what they learned easily owing to the features of the game. According to students 19 and 21, what made their learning permanent and easy to remember was that the game used visual materials because they told that their visual memory was good. The use of visual materials in the game could help the participants to learn and review the words better as students 11 and 16 explained below.

Student 11: I think what I learned became permanent and easy to remember because the game helped me to review the words visually.

Student 16: Yes, because the words are explained with pictures.

Also, the game enabled the participants to encounter the words they learned repeatedly, so this could also make their vocabulary learning permanent and easy to remember as supported by students 19 and 21.

Student 19: What I learned became permanent and easy to remember because we [the students] constantly saw the same words in the game.

Student 21: Yes, because we [the students] saw one word more than once in the game.

In addition, students 8 and 18 stated that the game included the words used in daily life, so this could help to make their learning permanent and easy to remember. The quotation below clearly reveals this.

Student 18: Yes, since I think that these words can be learned in a permanent way owing to the materials used in normal life.

As aforementioned, most of the participants found the experiment fun, which can show that having fun increases the desire to play the game, so it can result in permanent learning as it happened to students 15 and 25.

Student 15: Yes, as we [the students] enjoyed playing the game, so my learning becomes permanent, and I can remember.

Student 25: Yes, because people cannot forget what they have learned by having fun.

Having fun in the game could also encourage to study more as student 29 did because he looked up the meanings of the words to learn them.

Apart from the features of the game, student 1 stated that he experienced learning words while playing games and could still remember such words, so he thought that the experiment made his learning permanent. The experiment also created a different experience for student 3, which resulted in permanent learning for this student.

Despite 26 participants, three participants did not mention that the experiment made their learning permanent and easy to remember. While students 4 and 5 did not explain their reason, student 28 said “When a level is completed, detailed information about words is not given in the game.”

4.5.5. Contribution to English Language Learning

24 participants thought that the use of the hidden object game contributed to their English learning. Experiencing vocabulary learning through the game created positive feelings among students 1, 3, 7, 8, 9, and 17, which could cause them to believe that the game contributed their language learning as the sample excerpts support.

Student 1: Yes, I believe the experiment can contribute to language learning because I think things done with fun have an effect on education.

Student 3: Yes, because it [the experiment] is effective.

Student 7: Yes, I think the experiment can contribute to language learning because it makes studying vocabulary fun.

Student 8: Yes, because it [the experiment] is fun.

Furthermore, the features of the game could also cause students 11, 14, 15, 18, 19, 22, 23, 25, 27, and 28 to think that the game contributed to their English language learning. The quotations of students 11, 14, 15, 22, 23, and 28 clearly show how the features of the game affected these participants' thoughts about the game.

Student 11: Yes, I think the game can contribute to English language learning because we [the students] do the activity as a review.

Student 14: ... because I use these sentences [in the game] when I make sentences.

Student 15: ... because I think the game can contribute because the game is in the foreign language [English].

Student 23: ... because visual materials and searching are beneficial.

Student 28: ... because it contributes with questions in the foreign language [English] and visual materials.

In spite of 24 participants, students 4, 10, 12, 21, and 29 disagreed that the game could contribute to English language learning. This is because the game is limited to vocabulary learning for students 12 and 21, and it is not game-related for student 29.

4.5.6. Usability for Other Aspects of Language Learning

17 participants did not think that the game can be used for other aspects of language learning mainly in view of three reasons: not believing, limited to words and being a game. Students 7, 13, and 21 did not believe that the experiment can be used to teach/learn other aspects of English language learning such as speaking, listening, or reading. To illustrate:

Student 7: No, because I do not suppose it [the experiment] can be used.

Student 21: No, because it cannot be used in other aspects.

According to students 12, 19, 22, 23, and 25, the experiment is restricted to studying words, so it cannot be used to teach/learn other aspects of English language learning. The following statements of these participants reveal this finding.

Student 22: No, because it [the experiment] aims at practicing words.

Student 23: No, because it's [the experiment's] purpose is to study words.

Student 25: No, because such games increase word knowledge.

Students 17 and 29 did not agree that the experiment can be used to teach/learn other aspects of English language learning because it is only a game and cannot be used with the students who do not like games.

On the contrary, the rest believed that students could learn other aspects of English with the experiment. Though six of them did not explain their reasons for this belief, students 1, 9, 10, and 15 thought that the game could make the experiment useful for teaching/learning other aspects of English as understood below.

Student 1: Yes, because the things done with fun can have instructive effects.

Student 9: Yes, because people can learn a lot of words in the game.

Student 15: Yes, because the game is a different game.

In addition, students 11 and 16 believed that the experiment can be used to teach/learn how to speak in English if the game is integrated with speaking as seen in the quotation below:

Student 16: Yes, it [the experiment] can be used. For example, if the game is played online, we [the students] can also speak.

CHAPTER V

DISCUSSION AND CONCLUSION

The findings and results procured through the qualitative and quantitative procedures mentioned in the previous section have provided meaningful answers to the research questions addressed in this study. This section starts with the discussion of these answers bridging the research questions and the findings and ends with the summary, pedagogical implications and limitations of the present study and suggestions on further research concerning the vocabulary learning strategy studied here.

5.1. Discussion for the Research Questions

In this section all six research questions will be discussed considering the findings obtained from the pre- and post-tests and structured interview.

5.1.1. Discussion for Research Question 1: “Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the post-test scores of the control and experimental groups?”

When the findings presented on Table 3 are analyzed, it can be seen that although there is a mathematical difference between the post-test score average of the control group (22.4444 out of 30) and that of the experimental group (24.0345 out of 30) and the score of the experimental

group is higher than that of the control group (the difference is 1.5901), this difference is not statistically significant ($p>0.05$). There are several possible reasons behind this result.

Firstly, it could be said that making word lists through dictionary use might be an effective vocabulary learning strategy as Schmitt and McCarthy (1997) and Lessard-Clouston (2013) mentioned in their studies. Thinking that these students are upper-elementary students and that intentional vocabulary learning strategies such as word lists and dictionary use (Oxford & Crookall, 1990) are generally effective for the first couple of thousands of words (Huckin & Coady, 1999), this inference seems more plausible. However, it might be argued that the game used in the experimental study is also an effective means of vocabulary learning at this level as it produced similar results with the control group's research-supported vocabulary learning strategy. Here it should be noted that the vocabulary learning strategy used in the game is incidental as the focus is not particularly on vocabulary learning, but on playing the game and having fun. This is in line with what Schmitt (1994, as cited in Ahmadi, 2017) mentioned saying that incidental learning is learning something with a purpose other than vocabulary learning. Thus, within the limited scope of this study along with the limited number of participants in a limited context, it might be claimed that this incidental vocabulary learning strategy enabled through playing the hidden object game is as effective as the dictionary study, a deliberate learning strategy.

Secondly, according to Sarigül (1999), most of the information found in dictionaries cannot be found in other sources, and they are invaluable tools that language learners start using from the beginning. The importance of dictionaries cannot be denied and the learners are and should be aware of this importance. Similarly, Huang and Eslami (2013) highlight the importance of dictionary use as a vocabulary learning strategy stating that dictionary use is a widely-used strategy. Within the light of this information, we can say that the participants in this study are not different from the average language learner in that they are used to dictionary studies and they employ this strategy from the beginning of their language learning experience. That is why it could be argued that they feel safe and familiar with this strategy and their test results reflect this. Again, it is gratifying to see that the game used in the experimental study has a similar effect with an established strategy on participants' vocabulary learning.

5.1.2. Discussion for Research Question 2: “Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the pre-test and post-test scores of the experimental group?”

As the quantitative findings indicate, the experimental group's average score in the pre-test was 18.8966, and it was lower than the average pre-test score of the control group ($\bar{x}$ = 20.7037) before the experiment started. After the experiment, the average score of the experimental group increased to 24.0345 in the post-test, and it was higher than the average post-test score of the control group ($\bar{x}$ = 22.4444). Though this increase did not create a statistically significant difference between the post-test scores of both groups, it led to a statistically significant difference between the pre-test and post-test scores of the experimental group ($p < 0.05$). This probably means that the hidden object game that is implemented in the experimental group's vocabulary learning experience is an effective vocabulary learning tool. There might be several underlying reasons for this result also supported by the qualitative findings of the study.

To begin with, the hidden object game used in this study and similar games promote incidental vocabulary learning. As discussed before, incidental learning is “the process of learning something without the intention of doing so” (Ahmad, 2012, p. 71). Furthermore, in incidental learning, guessing or learning the meaning of a vocabulary item from the context is important (Day, Omura, & Hiramatsu, 1991). As Snow (2005) states, vocabulary learning based on contexts helps form a link between the words and their concepts. Thus, in our context, it can be said that the game used in the experiment provides a context for the participants. The words, especially the ones related to solving the crimes, are presented in a certain context, and this might help the players contextualize the words in their minds and form related concepts around these words.

Next, Harmer (2001) states that in vocabulary learning it is important to make use of visual materials as it makes the learning easier and that using pictures, realia, and so on makes the learning more memorable and enjoyable. The hidden object game used in this study provides pictures for each word that the participants look for in a scene. Even if they do not know the meaning of a certain word, the game provides the player with clues after a certain time of passiveness on the part of the player and highlights the object, and thus, the player could match the word with its picture forming a bridge in their mind with the word and the object it refers to.

In this respect, it might be safe to say that this game helps participants learn words through visuals in a memorable way. According to the qualitative findings, most of the participants thought that the use of the hidden object game could help learn something in English because visual learning is promoted by the structure of the game. That is, pictures were used to study the target words with the pictures by the participants in the game. To illustrate:

Student 12: Yes, I think students can learn something in English because we [the students] find what we choose with pictures.

Another reason for the participants' thought of their success is that the hidden object game could encourage them to study and learn unknown words as understood from what student 5 said: "Yes, because that there are some unknown words in the game, so this causes and encourages us [the students] to learn them."

The fourth reason is that the structure and content of the game could contribute to learning words in English. Students had to use their knowledge of English to play the game in the experiment which includes real-life words; therefore, the content and structure of the game can be considered to have an instructive effect on the participants as pointed out by student 8 who stated "Yes, because it [the game] is a fun way of learning" and student 18 who said "Yes, I think students can learn in English with this way [the experiment], because the words are the ones used in daily life."

Besides, most of the participants believed that the use of the hidden object game in the experiment could make their vocabulary learning permanent and easy to remember. Visualizing vocabulary in the game could help the participants to make their vocabulary learning permanent and remember the words easily as students 11 stated: "I think what I learned became permanent and easy to remember because the game helped me to review the words visually." Frequently encountering the words in the game was considered as a factor in making vocabulary learning permanent and easy to remember for the participants as supported by students 19.

Student 19: What I learned became permanent and easy to remember because we [the students] constantly saw the same words in the game.

Furthermore, according to Ghaedia and Shahrokhi (2016), “to improve incidental vocabulary-learning..., it would be effective for teachers to provide students with target vocabulary items through tasks” (p. 33). Tasks are important in learning as they provide learners with a challenge or a goal to achieve. In this game, there are certain tasks that lie in front of the players. They try to find all the items and clues to solve the crimes. They have to do it in a certain amount of time. If they can do it in a shorter time, they score better and they can progress in the game faster. Therefore, it can be claimed that all these tasks, or challenges, make the vocabulary learning more effective and memorable.

Finally, the reason why the experimental study is successful at helping participants learn vocabulary items might be the fun element in the game. As Blachowicz and Fisher (2004) point out, having fun in vocabulary learning, or learning in general, is important and it sometimes is an element that teachers and learners forget to implement in the learning process. And they remind that there are ways to put the fun element in one of the basic aspects of learning – vocabulary acquisition. Huyen and Nga (2003) also mention that “games bring in relaxation and fun for students, thus help them learn and retain new words more easily” (p. 11). In our context, it might be safe to assume from the structured interview that most of the participants had fun while playing the game. Firstly because it is a game and people like games. It was also because they did something different from the learning activities they do daily in class. Moreover, the challenges and the tasks in the game also made it enjoyable for the participants. That is why their incidental vocabulary learning experience was relatively successful. From the qualitative data it can be seen the main reason for the participants to think that the hidden object game was effective can be the fun element because most of them clearly mentioned that they had fun during the experiment. They learned new words in the experiment, and learning made the experiment fun for them as the quotation below indicates:

Student 9: Of course I had fun because it [the game] helped me to learn a new word.

The chosen hidden object game for the experiment engaged the students who were interested in playing games as student 16 said: “I had fun because I like playing games.” The game also helped the participants such as students 15 and 20 to have fun while they were studying vocabulary in English, so it created a fun learning experience for the participants as student 22 supported this by stating: “I learned something by having fun.”

As a result of all of these factors, the researcher and most of the participants in the experimental group thought that the experiment could contribute to their English language learning through the use of the hidden object game.

5.1.3. Discussion for Research Question 2.1: “Does the use of the hidden object game in vocabulary learning lead to a statistically significant difference between the pre-test and post-test scores of the experimental group in terms of high, medium, and low frequency words?”

As far as the Table 5 is concerned, it can be seen that in all frequency levels there is an increase in participants' performance between the pre-test and the post-test. These frequency levels are obtained by recording how many times a word comes up in a 10-hour gameplay. In the pre- and post-tests there were 17 high-frequency, 13 medium-frequency, and 10 low-frequency words tested. With high, medium, and low frequency words, the test results went up from 10.5172 to 13.6897; from 8.6897 to 10.0690; and from 5.6207 to 7.4138, respectively. In all frequency levels, there was a significant difference from a statistical perspective ($p < 0.05$). This result actually supports Huckin & Coady (1999) who state that the frequency of exposure to vocabulary has a significant effect on implicit vocabulary learning. In a similar vein, Nation (1990) indicates that “to remember a word, one needs to encounter it 5 to 16 times in activities or texts” (p. 2). During the experimental process, the participants repeatedly saw these words on the screen and matched them with the objects. Thus, according to the results, this repetition was meaningful in their vocabulary learning process.

5.1.4. Discussion for Research Question 3: “What do the students in the experimental group think about their experience of studying and learning vocabulary through the hidden object game?”

In the structured interview the participants were asked of their opinions regarding whether they had fun during the experimental study process, whether they learned new things, whether they were able to learn something in English, whether their learning was permanent and easy, whether the experimental study contributed to English language teaching, and whether the game was useful for other aspects of language learning.

The findings show that 25 out of 29 participants stated that they had fun during the learning process not just because it was a game and games are fun but also because they learned new things and learning new things and improving themselves was entertaining as well. The remaining participants mentioned that they did not have fun. For them, the reason was not that games are not fun. They simply did not like the game that was chosen for the experimental study.

The majority of the participants in the experimental group (27 out of 29) mentioned that they learned something new through the hidden object game. As the reason for their learning, some participants mentioned the visuals that were provided during the gameplay. It was fruitful for them to see the objects that the words referred to. Other participants attributed their learning new things to playing a game in the target language because according to these participants, when you do something in English, it is easier to facilitate their learning. The participants holding negative feelings against the game claimed that they did not learn anything new because they thought that this was not a way to learn a foreign language. This might be attributed to their stereotyped beliefs about vocabulary learning maybe because they think that learning could only occur through intentional vocabulary learning strategies. However, this was not clearly mentioned in their responses.

For the next topic, a similar majority (26 out of 29) believe that this game could be used to learn something new English. The reasons are similar with the ones mentioned in the previous topic. Visuality is an important factor that enabled their vocabulary learning and this is repeatedly mentioned in the participants' responses. The game also motivated the learners through enjoyable tasks and challenges. Thus, having fun was mentioned as an important aspect of their learning experience. They also mentioned that the learning environment the game provided was suitable for learning thanks to its structure and content. The fact that the game included real-life words that the participants can come across and have a chance to use in their daily lives. The negative thoughts were, again, about the way a foreign language could be learned. The three participants that held these negative opinions believed that playing a game was not an effective way to learn new things in language learning. This might be because they were mostly taught, or they learned through rote learning and/or deliberate learning strategies.

On the permanence of their learning, the participants speculated that their learning would be permanent because they learned new words through visuals. The pictures of objects provided in the game would be helpful for them to visualize the vocabulary items in their minds. 26 out of 29 learners were positive that they would remember the words later thanks to these visuals. Moreover, the participants believed that it would be easy for them to remember the words as the game repeatedly asked them to find the same objects, and this would contribute to the retention of these items. The game also formed bridges between the words they learned in the game and the objects that they would come across or use in their daily lives. This fact gives them the advantage to remember their gaming experience and the words they learned in it. Similarly, the fun element that took part in every topic in the structured interview holds itself a place under this topic as well. The participants believe that things that are learned in an enjoyable way can be remembered for a longer period of time. However, there is only one reason given for the negative opinions three participants held. It is the lack of supplementary materials or a wrap-up activity at the end of each session of gameplay that would include detailed information about the words in that episode of the game. This argument supports the idea put forward by Cochran (1989) about the importance of wrap-up activities and how they can contribute to learning and the assessment of learning.

Furthermore, 24 participants believe that the learning experience they went through would contribute to their English language learning. This is partly because the game elicited positive feelings towards vocabulary learning. They believe that they could use these words actively in their classes.

Finally, the participants were not so sure about the usability of the game in other aspects of language learning. 17 participants held the opinion that this game is restricted to vocabulary learning. This is understandable as this game is a word-search game and the focus of the game is on words and the pictures they are related to. However, some proponents of the game came up with positive ideas saying that the players could talk to each other about the game as it is an online game.

5.1.5. Discussion for Research Question 4: “How do the structured interviews with the students in the experimental group help to explain the statistically significant difference between the pre-test and post-test scores of the experimental group?”

It is already mentioned that there is a significant difference between the average scores of the pre-test and post-test given to the experimental group ($p < 0.05$). Although there was no such difference between the average scores in the post-test results of the control and experimental groups ($p > 0.05$), the fact that the average score of the experimental group's pre-test is 18.8966 and that of control group is 20.7037 makes it meaningful for the researcher because the experimental group starts the experimental study from a lower score and position and at the end of the study they get better scores than the control group.

This increase, or it may be called achievement, is also reflected by the responses given in the structured interview. In five out of six questions the majority of the participants adopt positive attitudes towards the game and the learning experience it provided. The visual learning chance, the fun element, the novel learning experience, the contextualization of the words, motivating tasks, and challenges can be credited for these positive attitudes

5.2. Pedagogical Implications

This study has some important pedagogical implications for vocabulary learning and the use of video games as a learning tool. The results showed that students engaging in a fun and motivating activity full of visuals and effects, their vocabulary learning efficiency increases through incidental learning. They can easily connect words with the visuals provided in the game.

The new generation of language learners are born in the digital era earning the right to be called digital natives. They do not imagine a world lacking digital technology. They are familiar with most kinds of digital tools such as smart phones, tablets and laptops and they see them as an indispensable part of their lives, and they define themselves by the number of technological tools they use. They see the world, communicate with others and learn through the windows created by these tools. Therefore, the teachers as facilitators need to consider turning this familiarity or dependence into an advantage or a learning opportunity for language learners.

They could use benefits of technology in curricular or extracurricular activities to scaffold their students' learning.

Games, in this respect, could be used effectively as they hold an undeniable part in young people's lives. Their dependence could easily be exploited to provide them with valuable chances for learning. The hidden object game in this study is but a good example of this exploitation. Such games could easily be integrated into class as competitive activities that would exhilarate these digital natives and encourage them to participate in class activities and in their own learning. The game that is used in this study is a generic hidden object game; however, custom made hidden object games consisting of target vocabulary items at a certain level and teaching setting can easily be tailored into class. There are no boundaries for these teaching and learning opportunities as there is no limit to technological advances.

5.3. Limitations

Although the current study has procured positive results pertaining to the effects of the hidden object game on vocabulary learning, this does not mean that it is not bereft of limitations concerning the study itself and the game.

First of all, the vocabulary items in the game are all concrete nouns. It is not really possible to have abstract nouns in such a game. That is why this game might be suggested for low level students but not for advanced learners. It does not mean that advanced learners will not benefit from the game, but the game's efficacy might drop dramatically for these learners. In addition, the words in the game are from a wide range of difficulty levels, from beginning level to advanced level. This might pose a problem for the low-level language learners.

As for the study, the number of participants might pose a problem of generalizability of the results. Higher number of participants might provide different findings. Additionally, the participants in this study were low achievers studying in the researcher's institution. This might have an effect on the performance of both experimental and control groups. They are also low-level learners. It should be noted that high-achievers or high level learners might perform differently in a similar study.

5.4. Suggestions for Further Research

The potential of video games as a language and vocabulary learning tool is deemed to be undeniable. The present study just focused on a certain type of video games – hidden object games – with a certain focus – vocabulary learning. Also, in this study the game was implemented as an extra-curricular activity.

Further research can be carried out on other, more enjoyable games with other skills as focus points. These games could be embedded into lessons making them more motivating, competitive and challenging. Worksheets or wrap-up activities could be planned before and after the gameplay and these studies can be conducted on a range of competence levels.

REFERENCES

- Aghlara, L., & Tamjid, N. H. (2011). The effect of digital games on Iranian children's vocabulary retention in foreign language acquisition. *Procedia - Social and Behavioral Sciences*, 29(1), 552–560.
- Ahmad, J. (2012). Intentional vs. incidental vocabulary learning. *International Association of Research in Foreign Language Education and Applied Linguistics*, 1(1), 71-79.
- Ahmadi, S. R. M. (2017). The impact of incidental and intentional L2 vocabulary learning on depths and breadth dimensions of vocabulary knowledge. *World Journal of English Language*, 7(1), 50-60.
- Al-Jifri, A. A., & Elyas, T. (2017). The impact of video games in the acquisition of English language: The case of Saudi youths. *Journal of Foreign Language Education and Technology*, 2, 15-35.
- Alemi, M., & Tayebi, A. (2011). The influence of incidental and intentional vocabulary acquisition and vocabulary strategy use on learning L2 vocabularies. *Journal of Language Teaching and Research*, 2(1), 81-98.
- Alizadeh, I. (2016). Vocabulary teaching techniques: A review of common practices. *International Journal of Research in English Education*, 1(1), 22-30.
- Amoia, M., Gardent, C., & Perez-Beltrachini, L. (2011). A serious game for second language acquisition. *Proceedings of the Third International Conference on Computer Supported Education*, 394-397.

- Ang, C. S., & Zaphiris, P. (2008). Computer games and language learning. In T. T. Kidd & H. Song (Eds.), *Handbook of research on instructional systems and technology* (pp. 449-462). Hersey: IGI Global.
- Ashraf, H., Motlagh, F. G., & Salami, M. (2014). The impact of online games on learning English vocabulary by Iranian (low-intermediate) EFL learners. *Procedia - Social and Behavioral Sciences*, 98, 286-291.
- Blake R. (2013). *Brave new digital classroom: Technology and foreign language learning*. Washington, DC: Georgetown University Press.
- Blachowicz, C. L. Z., & Fisher, P. (2004). Keep the “fun” in fundamental – Encouraging word awareness and incidental word learning in the classroom through word play. In J. F. Bauman & E. J. Kame’enui (Eds.), *Vocabulary instruction* (pp. 219-238). New York, NY: Guilford Publications.
- Breuer, J., & Bente, G. (2010). Why so serious? On the relation of serious games and learning. *Journal for Computer Game Culture* 4(1), 7-24.
- Burgos, D., Tattersall, C., & Koper, R. (2007). Re-purposing existing generic games and simulations for e-learning. *Computers in Human Behavior*, 23(6), 2656-2667.
- Butler, Y. G. (2014). The use of computer games as foreign language learning tasks for digital natives. *System*, 54, 91-102.
- Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Philadelphia, PA: Multilingual Matters.
- Cameron, L. (2001). *Teaching languages to young learners*. Cambridge: Cambridge University Press.
- Chik, A. (2014). Digital gaming and language learning: Autonomy and community. *Language Learning and Technology*, 18(2), 85- 100.
- Chou, C., & Tsai, M. (2007). Gender differences in Taiwan high school students’ computer game playing. *Computers in Human Behavior*, 23(1), 812-824.

- Cochran, C. (1989). *Strategies for involving LEP students in the all-English-medium classroom: A cooperative learning approach* (Program Information Guide Series Number 12). Retrieved from <https://files.eric.ed.gov/fulltext/ED337039.pdf>
- Cohen, A. D. (2011). *Strategies in learning and using a second language*. Harlow: Longman/Pearson Education.
- Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research (4th ed.)*. Boston: Pearson Education, Inc.
- Cugelman, B. (2013). Gamification: What it is and why it matters to digital health behavior change developers. *JMIR Serious Games* 2013, 1(1). doi:10.2196/games.3139
- Day, R. R., Omura, C., & Hiramatsu, M. (1991). Incidental EFL vocabulary learning and reading. *Reading in a Foreign Language*, 7, 541- 551.
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as student outcome of internationalization. *Journal of Studies in Intercultural Education*, 20, 241-266.
- deHaan, J., Reed, W. M., & Kuwada, K. (2010). The effect of interactivity with a music video game on second language vocabulary recall. *Language Learning and Technology*, 14(2), 74- 94.
- Decarrico, J. S. (2001). Vocabulary learning and teaching. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (pp. 285-299). Boston: Heinle & Heinle.
- Dempsey, J. V., Lucassen, B. A., Haynes, L. L., & Casey, M. S. (1996). Instructional applications of computer games. Paper presented at the Annual Meeting of the American Educational Research Association (AERA), New York.
- Deterding, S., Sicart, M., Nacke, L., O'Hara, K., & Dixon D. (2011). Gamification: Using game design elements in non-gaming contexts. *Proceedings of the CHI '11 Extended Abstracts on Human Factors in Computing Systems*, 2425-2428.
- Dodigovic, M. (2015). How incidental is incidental vocabulary learning? In C. Gitsaki, M. Gobert, & H. Demirci (Eds.), *Current issues in reading, writing and visual literacy: Research and practice*. (pp. 203-215). Cambridge: Cambridge Scholars.

- Dörnyei, Z. (2011). *Research methods in applied linguistics*. Oxford, UK: Oxford University Press.
- Elgort, I. (2011). Deliberate learning and vocabulary acquisition in a second language. *Language Learning*, 61(2), 367-413.
- Elgort, I., & Warren, P. (2014). L2 Vocabulary learning from reading: Explicit and tacit lexical knowledge and the role of learner and item variables. *Language Learning*, 64(2): 365–414.
- Ellis, R. (1999). *Learning a second language through interaction*. Amsterdam: John Benjamins Publishing Co.
- Ghaedi, R., & Shahrokhi, M. (2016). The impact of visualization and verbalization techniques on vocabulary learning of Iranian high school EFL learners: A gender perspective. *Ampersand*, (3), 32-42.
- Ghazal, L. (2007). Learning vocabulary in EFL contexts through vocabulary learning strategies. *Novitas – ROYAL*, 1(2), 84-91.
- Godwin-Jones, R. (2014). Games in language learning: Opportunities and challenges. *Language Learning & Technology*, 18(2), 9- 19.
- Godwin-Jones, R. (2018). Contextualized vocabulary learning. *Language Learning & Technology*, 22(3), 1-19.
- Griffiths, M. (1997). Computer game playing in early adolescence. *Youth & Society*, 29(2), 223-237.
- Gu, Y. & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. *Language Learning*, 46(4), 643-679.
- Gu, P. Y. (2003). Vocabulary learning in a second language: Person, task, context and strategies. *TESL-EJ*, 7(2). Retrieved from <http://tesl-ej.org/ej26/toc.html>
- Harmer J. (2001). *The practice of English language teaching (3rd edition)*. London: Longman.
- Hismanoğlu, M. (2000). Language learning strategies in foreign language learning and teaching. *The Internet TESL Journal*, 6(8). Retrieved from <http://iteslj.org/Articles/Hismanoglu-Strategies.html>

- Huang, S., & Eslami, Z. (2013). The use of dictionary and contextual guessing strategies for vocabulary learning by advanced English-language learners. *English Language and Literature Studies*, 3(3), 1-7.
- Huckin, T., & Coady, J. (1999). Incidental vocabulary acquisition in a second language. *Studies in Second Language Acquisition*, 21(2), 181–193.
- Huyen, N. T. T., & Nga, K. T. T. (2003) Learning vocabulary through games: The effectiveness of learning vocabulary through games. *The Asian EFL Journal*. Retrieved from <https://www.asian-efl-journal.com/1493/main-journals/learning-vocabulary-through-games-the-effectiveness-of-learning-vocabulary-through-games/>
- Hulstijn, J. H. (2003). Incidental and intentional learning. In J. Doughty & M. L. Long (Eds.), *The handbook of second language acquisition* (pp. 349-381). Malden: Wiley–Blackwell.
- Hulstijn, J. H., & Laufer, B. (2001). Some empirical evidence for the involvement load hypothesis in vocabulary acquisition. *Language Learning*, 51, 539-558.
- Kennedy, G. (2003). Amplifier collocations in the British national corpus: Implications for English language teaching. *TESOL Quarterly*, 37(3), 467-487.
- Kermani S. K., & Seyedrezaei S. H. (2015). The effect of contextualized vocabulary teaching on learners' vocabulary learning and retention. *Journal of Language Sciences & Linguistics*, 3(5), 90-95.
- Khatibi, E., & Cowie, E. (2013). *Language learning through interactive games*. Retrieved from <https://muep.mau.se/handle/2043/16116>.
- Ko, M. H., & Goranson, J. (2014). Technology-assisted vocabulary learning and student learning outcomes: A case study. *Multimedia-Assisted Language Learning*, 17(1), 11-33.
- Lessard-Clouston, M. (2013). Word lists for vocabulary learning and teaching. *The CATESOL Journal*, 24(1), 287-304.
- Letchumanan, K., & Hoon, T. B. (2012). Using computer games to improve secondary school students' vocabulary acquisition in English. *Social Sciences & Humanities*, 20(4), 1005-1018.

- Letchumanan, K., Muthusamy, P., Govindasamy, P., & Farashaiyan, A. (2016). An overview of preferred vocabulary learning strategies by learners. *Asian Social Science*, 12(10), 174-179.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.
- Lucas, K., & Sherry J. L. (2004). Sex differences in video game play: A communication-based explanation. *Communication Research*, 31(5), 499-523.
- Lui, S. L. (2014). Use of gamification in vocabulary learning: A case study in Macau. *Proceedings of the 4th CELC Symposium* 15(1), 90-97.
- Ma, Q. (2009). *Second language vocabulary acquisition*. Bern: Peter Lang.
- Ma, Q., & Kelly, P. (2006). Computer assisted vocabulary learning: Design and evaluation. *Computer Assisted Language Learning*, 19(1), 15-45
- Madarsara, A.F., Youhanaee, B., Barati, H., & Nasirahmadi, A. (2015). Intentional vs. incidental vocabulary learning through games by young EFL Persian speakers. *International Journal of Research Studies in Educational Technology*, 4(1), 23-34.
- Mahdavi, M., & Mehrabi, M. (2013). An overview of language learner strategies. *Asian Journal of Management Sciences & Education*, 2(4), 136-144.
- Martins, C., Steil, A. V., & Todesco, J. L. (2004). Factors influencing the adoption of the Internet as a teaching tool at foreign language schools. *Computers and Education*, 42, 353-374.
- McCarthy, M. (1990). *Vocabulary acquisition*. Oxford: Oxford University Press.
- Miller, M., & Hegelheimer, V. (2006). The SIMS meet ESL: Incorporating authentic computer simulation games into the language classroom. *International Journal of Interactive Technology and Smart Education*, 3(4), 311–328.
- Nagy, W. E. (1995). On the role of context in first- and second-language vocabulary learning. *Center for the Study of Reading* (Technical Report No. 627). Champaign, Ill.: University of Illinois. Retrieved from <https://files.eric.ed.gov/fulltext/ED391152.pdf>
- Nation, I. S. P. (1994). *New ways in teaching vocabulary*. Alexandria, VA: TESOL.

- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- Nation, I. S. P. (2006). Language education - vocabulary. In K. Brown (Ed.), *Encyclopaedia of language and linguistics* (pp. 494-499). Oxford: Elsevier.
- Newton, J., Yates, E., Shearn, S., & Nowitzki, W. (2010). *Intercultural communicative language teaching: Implications for effective teaching and learning*. Report to the Ministry of Education.
- Nunan, D. (2003). *Practical English language teaching*. Singapore: McGraw Hill ELT.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press.
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. New York: Newbury House.
- Oxford, R. L., & Crookall, D. (1990). Vocabulary learning: A critical analysis of techniques. *TESL Canada Journal*, 7(2), 09-30.
- Oxford, R. L., & Scarcella, R. C. (1994). Second language vocabulary learning among adults: state of the art in vocabulary instruction. *System*, 22(2), 231-243.
- Prensky, M. (2001). *Digital game-based learning*. New York: McGraw-Hill.
- Qian, D. D. (1996). ESL vocabulary acquisition: Contextualization and decontextualization. *The Canadian Modern Language Review*, 53(1), 120-142.
- Ramos, F. D. R. (2015). Incidental vocabulary learning in second language acquisition: A literature review. *PROFILE Issues in Teachers' Professional Development*, 17(1), 157-166.
- Rankin Y., Gold, R., & Gooch, B. (2006). 3D role-playing games as language learning tools. *Eurographics*, 25(3).
- Rankin Y., Gold, R., & Gooch, B. (2006). *Playing for keeps: Gaming as a language learning tool*. Paper presented at the ACM SIGGRAPH Educators Program 2006, Boston.

- Richards, J., & Schmidt, R. (2010). *Longman dictionary of language reaching & applied linguistics (4th edition)*. Essex: Pearson Education Limited.
- Sarıgül, E. (1999). The importance of using dictionary in language learning and teaching. *Selçuk University Journal of Faculty of Letters*, 13, 153-157.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.
- Schmitt, N., & McCarthy, M. (Eds). (1997). *Vocabulary: Description, acquisition and pedagogy*. Cambridge: Cambridge University Press.
- Serafin, M. (2016). The influence of computer games on second language acquisition. *Edutainment*, 1, 79-86.
- Shahriarpoura, N., & Kafi, Z. (2014). On the effect of playing digital games on Iranian intermediate EFL learners' motivation toward learning English vocabularies. *Procedia - Social and Behavioral Sciences* 98, 1738 – 1743.
- Smed, J., & Hakonen, H. (2003). *Towards a definition of a computer game* (Report No. 553). Turku: Turku Centre for Computer Science.
- Smith, G., Li, M., Drobisz, J., Park, H., Kim, D., & Smith, S. (2013). Play games or study? Computer games in eBooks to learn English vocabulary. *Computers & Education*, 69, 274–286.
- Snow, M. A. (2005). A Model of academic literacy for integrated language and content instruction. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 693–712). Mahwah, NJ: Lawrence Erlbaum.
- Sørensen, B. H., & Meyer, B. (2007). Serious games in language learning and teaching - A theoretical perspective. *Proceedings of DiGRA 2007 Conference*, 559-566.
- Soyoof, A. (2018). Video Game and Culture: A case study of EFL student players' views on their acquisition of cultural knowledge and sensitivity. *International Journal of Pedagogies and Learning* 13, 93-104.
- Thornbury, S. (2002). *How to teach vocabulary*, UK: Longman

- Tran, T. Q., & Seepho, S. (2016). An Intercultural Communicative Language Teaching Model for EFL Learners. *Proceedings of the 4th TESOL Conference: Teaching Methodologies and Learning Outcomes*, 27-72.
- Vahdat, S., & Behbahani, A. R. (2013). The effect of video games on Iranian EFL learners' vocabulary learning. *The Reading Matrix*, 13(1), 61-71.
- Webster's Third New International Dictionary. (1993). English dictionary. Cologne: Könnemann.
- Wesche, M., & Paribakht, T. S. (2000). Reading-based exercises in second language vocabulary learning: An introspective study. *The Modern Language Journal*, 84(2), 196–213.
- Widiarsa, I.G., Marhaeni, A.A.I.N, & Adnyani L.D.S. (2017). The effect of computer-assisted hidden object game on vocabulary mastery of students in SMP N 3 Sukasada academic year 2017/2018. *Jurnal Pendidikan Bahasa Inggris*, 4(2). Retrieved from <https://ejournal.undiksha.ac.id/index.php/JPBI/article/view/13427>
- Wilkins, D. A. (1972). *Linguistics in language teaching*. Cambridge: MFT Press.
- Yıldırım, A., & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri (9th ed.)*. Ankara: Seçkin Yayıncılık.
- Yip, F.W., & Kwan, A.C. (2006). Online vocabulary games as a tool for teaching and learning English Vocabulary. *Educational Media International*, 43, 233-249.
- Yue, N. (2017). Computer multimedia assisted English vocabulary teaching courseware. *iJET*, 12(12), 67-78.

APPENDICES

APPENDIX A. The Pre-Test Given to the Candidates in the Control and Experimental Groups

Student Name:

Date:

Class:

- A. Put the following words under the related category in the table. There are THREE words for each category (1 point each).

FOOD	TOOLS/UTENSILS	CLOTHES	ANIMALS

cow	box cutter	crow	apple
ax	shoes	saw	T-shirt
cookie	snail	shorts	mushroom

- B. Circle the one word that is different from the other words in the set (1 point each).

1. baseball bat / tennis racket / spider web
2. horseshoe / shotgun / revolver
3. cap / glove / hat
4. necklace / ring / bucket
5. jump rope / bullet / yoyo

- C. Fill in the blanks in the sentences using the words given in the box below (1 point each).

umbrella	backpack	footprint	tricycle	wheel
----------	----------	-----------	----------	-------

1. He lost control of his car when a front _____ hit a rock as he approached the first bend.
2. He reached into his _____ and pulled out a small sleeping bag and put it on the ground.
3. Our son has just graduated from a _____ to a proper bicycle.
4. _____ and raincoats are what people need in rainy days.
5. Police believe the _____ in blood could help them find the killer.

D. Match the words with the correct definitions (1 point each)

1. sun _____

2. scissors _____

3. skull _____

4. bandage _____

a. the bones of the head that surround the brain and give the head its shape

b. the star that provides light and heat for the earth and around which the earth moves

c. a long, narrow piece of cloth that is tied around an injury or a part of someone's body that has been hurt

d. a tool for cutting paper, cloth etc., made of two sharp blades fastened together in the middle

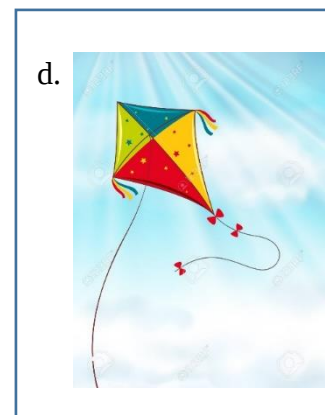
E. Match the words with the correct pictures. (1 point each).

1. mailbox _____

2. kite _____

3. ladder _____

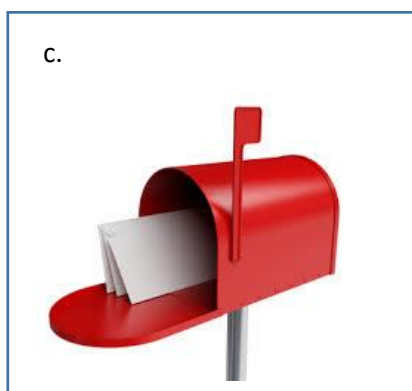
4. watering can _____



APPENDIX B. The Post-Test Given to the Candidates in the Control and Experimental Groups

A. Match the words with the correct pictures. (1 point each).

1. ladder _____
2. mailbox _____
3. kite _____
4. watering can _____



B. Match the words with the correct definitions (1 point each).

1. scissors _____
2. bandage _____
3. sun _____
4. skull _____

- a. a long, narrow piece of cloth that is tied around an injury or a part of someone's body that has been hurt
- b. the bones of the head that surround the brain and give the head its shape
- c. a tool for cutting paper, cloth etc., made of two sharp blades fastened together in the middle
- d. the star that provides light and heat for the earth and around which the earth moves

F. Put the following words under the related category in the table. There are THREE words for each category (1 point each).

CLOTHES	ANIMALS	TOOLS/UTENSILS	FOOD

saw	cow	ax	box cutter
crow	shorts	apple	snail
mushroom	T-shirt	shoes	cookie

G. Fill in the blanks in the sentences using the words given in the box below (1 point each).

wheel	backpack	umbrella	tricycle	footprint
-------	----------	----------	----------	-----------

1. He reached into his _____ and pulled out a small sleeping bag and put it on the ground.
2. Police believe the _____ in blood could help them find the killer.
3. _____ and raincoats are what people need in rainy days.
4. Our son has just graduated from a _____ to a proper bicycle.
5. He lost control of his car when a front _____ hit a rock as he approached the first bend.

H. Circle the one word that is different from the other words in the set (1 point each).

1. hat / cap / glove
2. jump rope / yoyo / bullet
3. bucket / ring / necklace
4. baseball bat / spider web / tennis racket
5. revolver / horseshoe / shotgun

APPENDIX C. The Structured Interview Given to the Experimental Group (in Turkish)

Deneysel Çalışma Sonrası Yazılı Değerlendirme Mülakatı

Katıldığınız akademik çalışma ile ilgili aşağıdaki soruları kendi düşüncelerinize göre cevaplayınız.

1. Katıldığınız deneysel çalışmada eğlendiniz mi?

Evet, çünkü...

Hayır, çünkü...

2. Bu deneysel çalışmada yabancı dilde bir şeyler öğrendiğiniz mi?

Evet, çünkü...

Hayır, çünkü...

3. Sizce bu yolla yabancı dilde yeni bir şey öğrenilebilir mi?

Evet, çünkü...

Hayır, çünkü...

4. Eğer bu çalışmada yeni şeyler öğrendiyseniz, sizce bu öğrendikleriniz kalıcı olur mu ve daha sonra bunları hatırlayabilir misiniz?

Evet, çünkü...

Hayır, çünkü...

5. Sizce katılmış olduğunuz öğrenme etkinliğinin dil öğreniminde faydası var mı?

Evet, çünkü...

Hayır, çünkü...

6. Sizce bu etkinlik dil öğreniminde kelime öğrenimi dışında başka alanlarda kullanılabilir mi?

Evet, ...

Hayır, ...

APPENDIX D. The Vocabulary Lists Given to the Control Group for Word List Study for Four Weeks

Name and Surname:		Week One - Vocabulary List for Control Group
	Part of Speech	Definition / Sample Sentence from Dictionary / Your Own Sentence
skull		
kayak		
bandage		
sun		
helmet		
shotgun		
footprint		
mushroom		
spider web		
baseball bat		
ring		
wheel		

Name and Surname:		Week Two - Vocabulary List for Control Group
	Part of Speech	Definition / Sample Sentence from Dictionary / Your Own Sentence
waterin can		
tricycle		
crow		
kite		
horseshoe		
snail		
screwdriver		
tennis racket		
bucket		
hanger		
wind chimes		
t-shirt		
barrel		

Name and Surname:		Week Three - Vocabulary List for Control Group
	Part of Speech	Definition / Sample Sentence from Dictionary / Your Own Sentence
mailbox		
ax		
backpack		
box cutter		
revolver		
jump rope		
yoyo		
blood		
cookie		
glove		
scissors		
umbrella		
shoes		

Name and Surname:		Week Four - Vocabulary List for Control Group
	Part of Speech	Definition / Sample Sentence from Dictionary / Your Own Sentence
hat		
bullet		
cap		
ladder		
shorts		
saw		
cow		
traffic cone		
necklace		
apple		
crown		
safety pin		

APPENDIX E. Consent Form for the Control Group (in Turkish)

15.02.2019

DENEYSEL ÇALIŞMA KONTROL GRUBU ONAY FORMU

Gazi Üniversitesi İngiliz Dili Eğitimi tezli yüksek lisans programında yürütülen “Improving the Vocabulary Learning Process of Young Adults With Hidden Object Games in a Fun and Effective Way” başlıklı tez çalışmasında bir katılımcı olarak, bu çalışmanın “Hidden object” oyunlarının kelime öğrenme üzerine etkisi hakkında olduğu konusunda bilgilendirildim. Bu doğrultuda:

- bu çalışmanın başlangıç ve bitişinde ön test, son test ve anket uygulanacağı;
- bu çalışmada dört hafta içinde haftada bir saatlik ders süresinde bana verilen kelimelerle ilgili sözlük çalışması yapmam istendiği;
- bu çalışmaya katılımın gönüllülük esasına dayandığı;
- istediğim zaman çalışmanın herhangi bir safhasında bu çalışmayı terk edebileceğim;
- bu çalışmada ne yapmam beklendiğine dair açıklama yapıldığı;
- toplanan bütün verilerin ve verdiğim bütün cevapların gizli tutulacağı ve sadece bu çalışma çerçevesinde kullanılacağı;

hususunda bilgi sahibiyim. Bu bilgiler ışığında bu çalışmaya katılmaya rıza gösteriyorum.

İmza:

APPENDIX F. Consent Form for the Experimental Group (in Turkish)

15.02.2019

DENEYSEL ÇALIŞMA DENEY GRUBU ONAY FORMU

Gazi Üniversitesi İngiliz Dili Eğitimi tezli yüksek lisans programında yürütülen “Improving the Vocabulary Learning Process of Young Adults With Hidden Object Games in a Fun and Effective Way” başlıklı tez çalışmasında bir katılımcı olarak, bu çalışmanın “Hidden object” oyunlarının kelime öğrenme üzerine etkisi hakkında olduğu konusunda bilgilendirildim. Bu doğrultuda:

- bu çalışmanın başlangıç ve bitişinde ön test, son test ve anket uygulanacağı;
- bu çalışmada dört hafta içinde haftada bir saatlik ders süresinde Facebook isimli sosyal paylaşım sitesi üzerinden ücretsiz oynayan Criminal Case adlı oyunu oynamam istendiği;
- bu çalışmaya katılımın gönüllülük esasına dayandığı;
- istediğim zaman çalışmanın herhangi bir safhasında bu çalışmayı terk edebileceğim;
- bu çalışmada ne yapmam beklendiğine dair açıklama yapıldığı;
- toplanan bütün verilerin ve verdiğim bütün cevapların gizli tutulacağı ve sadece bu çalışma çerçevesinde kullanılacağı

hususunda bilgi sahibiyim. Bu bilgiler ışığında bu çalışmaya katılmaya rıza gösteriyorum.

İmza:

APPENDIX G. The Vocabulary List Given to the Experimental Group

watering can
skull
mailbox
tricycle
ax
kayak
backpack
crow
hat
kite
bullet
cap
bandage

horseshoe
sun
box cutter
revolver
ring
snail
helmet
jump rope
mushroom
ladder
screwdriver
shorts
saw

spider web
tennis racket
yoyo
baseball bat
blood
bucket
cookie
cow
hanger
traffic cone
necklace
wheel

glove
scissors
shotgun
footprint
umbrella
wind chimes
shoes
t-shirt
apple
barrel
crown
safety pin



GAZİLİ OLMAK AYRICALIKTIR...