



**EFFECTS OF GAMIFICATION ON STUDENTS'
MOTIVATION AND VOCABULARY
DEVELOPMENT**

Gülşah UYAR

Master's Thesis

The Department of English Language Teaching

2019

(All rights reserved.)

REPUBLIC OF TURKEY
ATATÜRK UNIVERSITY
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
DEPARTMENT OF FOREIGN LANGUAGE EDUCATION
ENGLISH LANGUAGE EDUCATION DIVISION

**EFFECTS OF GAMIFICATION ON STUDENTS' MOTIVATION AND
VOCABULARY DEVELOPMENT**

(Oyunlaştırmanın Öğrencilerin Kelime Öğrenimi Başarısı ve Motivasyonuna Etkisi)

MASTER'S THESIS

Gülşah UYAR

Supervisor: Assist. Prof. Dr. Ayşegül TAKKAÇ TULGAR

Erzurum

June, 2019

KABUL VE ONAY TUTANAĞI

Gülşah UYAR tarafından hazırlanan “Oyunlaştırmanın Öğrencilerin Kelime Öğrenimi Başarısı ve Motivasyonuna Etkisi” başlıklı çalışması 21 / 06 / 2019 tarihinde yapılan tez savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yabancı Diller Eğitimi Ana Bilim Dalı, İngiliz Dili Bilim Dalında yüksek lisans tezi olarak kabul edilmiştir.

Jüri Başkanı: Doç. Dr. Mustafa Zeki ÇIRAKLI
Karadeniz Teknik Üniversitesi



Danışman: Dr. Öğr. Üyesi Ayşegül TAKKAÇ TULGAR
Atatürk Üniversitesi

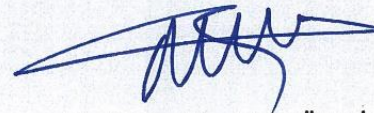


Jüri Üyesi: Dr. Öğr. Üyesi Oktay YAĞIZ
Atatürk Üniversitesi



Enstitü Yönetim Kurulunun
.../.../... tarih ve sayılı
kararı.

Bu tezin Atatürk Üniversitesi Lisansüstü Eğitim ve Öğretim Yönetmeliği'nin ilgili maddelerinde belirtilen şartları yerine getirdiğini onaylarım. 28 Haziran 2019



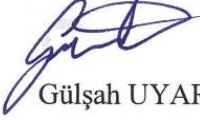
Prof. Dr. Mustafa SÖZBİLİR

Enstitü Müdürü

ETİK VE BİLDİRİM SAYFASI

Yüksek Lisans Tezi olarak sunduğum “Oyunlaştırmanın Öğrencilerin Kelime Öğrenimi Başarısı ve Motivasyonuna Etkisi” başlıklı çalışmanın tarafımdan bilimsel etik ilkelere uyularak yazıldığını ve yararlandığım eserleri kaynakçada gösterdiğimi beyan ederim.

21 /06 / 2019


Gülşah UYAR

Tezle ilgili patent başvurusu yapılması / patent alma sürecinin devam etmesi sebebiyle Enstitü Yönetim Kurulunun .../.../.... tarih ve sayılı kararı ile teze erişim 2 (iki) yıl süreyle engellenmiştir.

Enstitü Yönetim Kurulunun .../.../.... tarih ve sayılı kararı ile teze erişim 6 (altı) ay süreyle engellenmiştir.

ACKNOWLEDGEMENTS

There are many people I owe appreciation and gratitude. First of all, I am grateful for all the comments and contribution of the thesis committee members. It was a pleasure to study with my supervisor Assist. Prof. Dr. Ayşegül TAKKAÇ TULGAR who was always friendly and helpful during the thesis process. I would like to thank Assist. Prof. Dr. Oktay YAĞIZ who was a thesis committee member and the person with whom we decided on the topic of gamification and research design of the study as my previous supervisor. Moreover, it was an honor and pleasure for me to meet and get ideas of Assoc. Prof. Dr. Mustafa Zeki ÇIRAKLI with whom I had a chance to study in METU when I was a graduate student.

I am indebted to my friend Tuba ÖZTURAN for her endless support and encouragements which helped me a lot in all stages of my thesis. I also would like to thank my students who were impressively volunteer to participate in the study and shared their precious opinions.

Last but not the least, I dedicate this thesis to my family who always give their countenance to me and I send special thanks to them to be able to feel their support for all my life.

Gülşah UYAR

ABSTRACT
MASTER'S THESIS
EFFECTS OF GAMIFICATION ON STUDENTS' MOTIVATION AND
VOCABULARY DEVELOPMENT

Gülşah UYAR

May 2019, 97 Pages

Purpose: The study aimed to find out the effects of gamification on students' knowledge of vocabulary and motivation towards English vocabulary learning by collecting germane information about gamification and comparing different types of games.

Methodology: This study was conducted for 8-week with 48 third-grade university students at an engineering faculty in Turkey. The study adopted a quasi-experimental research design with experimental and control groups. Both qualitative and quantitative data collection methods, which included pre-tests and post-tests to measure the achievement of the students before and after gamification, motivation questionnaire, and semi-structured interviews, were employed to achieve results in accordance with the aim of this study.

Findings: The results of the quantitative data of the study indicated that gamification contributed to success of the students in English vocabulary statistically more than the traditional method. Moreover, semi-structured interviews and utility value in the questionnaire revealed that students in the experimental group had more positive feelings towards learning English vocabulary after gamification. However, no significant change or difference in the other values of the questionnaire could be found within-groups and inter-groups. Besides, qualitative data results indicated that students in the experimental group developed a positive attitude towards learning English vocabulary, and they benefited from the board games more when compared to tech-based games with the help of game elements which were experienced more in the former.

Conclusion: According to the results of the study, it can be concluded that gamification can foster students' achievement and motivation in a positive way with the benefit of game elements and fruitful and interactive environment that games present.

Keywords: gamification, games, game elements, motivation, vocabulary

ÖZ

YÜKSEK LİSANS TEZİ OYUNLAŞTIRMANIN ÖĞRENCİLERİN KELİME ÖĞRENİMİ VE MOTİVASYONUNA ETKİSİ

Gülşah UYAR

Mayıs 2019, 97 Sayfa

Amaç: Bu çalışma oyunlaştırmayla ilgili veriyi toplayarak ve farklı oyun türlerini karşılaştırarak, oyunlaştırma yönteminin, öğrencilerin İngilizce kelime öğrenimi ve motivasyonlarına etkisini incelemeyi amaçlamaktadır.

Yöntem: Çalışma sekiz haftalık bir süreçte Türkiye’de bir mühendislik fakültesindeki 48 üçüncü sınıf öğrencisiyle yürütülmüştür. Çalışmada kontrol ve deney grupları ile yarı-deneyssel araştırma deseni kullanılmıştır. Öğrencilerin başarı düzeylerini ölçmek amacıyla ön-test ve son-testler, ve motivasyon düzeylerini görmek için motivasyon anketi ve yarı yapılandırılmış görüşmeler olmak üzere nitel ve nicel veri toplama araçlarından faydalanılmıştır.

Bulgular: Bulgular oyunlaştırmının öğrencilerin başarı üzerinde geleneksel yöntemle göre istatistiksel olarak daha çok katkı sağladığını göstermiştir. Dahası, yarı yapılandırılmış görüşmeler ve anketteki yararlılık değeri sonuçları, oyunlaştırma sonrasında deney grubundaki öğrencilerin İngilizce kelime öğrenmeye karşı daha olumlu düşüncelere sahip olduklarını ortaya çıkarmıştır. Öte yandan, anketteki diğer değerlerde grup içi ve gruplar arası düzlemde istatistiksel açıdan bir fark bulunamamıştır. Bunun yanı sıra, nitel veri sonuçları deney grubundaki öğrencilerin İngilizce kelime öğrenimine karşı daha olumlu yaklaşım gerçekleştirdikleri ve teknoloji temelli oyunlara nispeten oyun öğelerini daha fazla deneyimledikleri kart oyunlarından daha çok fayda sağladıklarını göstermiştir.

Sonuç: Çalışmanın sonuçları göz önüne alındığında oyunlaştırmının oyun öğeleri ve oyunların sunduğu verimli ve etkileşimli atmosferden yararlanarak öğrencilerin başarı düzeyleri ve motivasyonlarını geliştirdiği sonucuna varılabilir.

Anahtar Kelimeler: oyunlaştırma, oyunlar, oyun öğeleri, motivasyon, kelime

TABLE OF CONTENTS

KABUL VE ONAY TUTANAĞI.....	i
ETİK VE BİLDİRİM SAYFASI.....	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
ÖZ.....	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
CHAPTER ONE.....	1
Introduction	1
Statement of the Problem	1
Significance of the Study.....	2
Purpose of the Study.....	3
Research Questions	3
Assumptions	4
Limitations.....	4
The Definitions of Related Terms	5
CHAPTER TWO.....	6
Literature Review	6
Games	6
Game elements.....	7
Game-based learning.....	11
Gamification	13
Theories behind Gamification	15
Motivation.....	15
Self-determination theory.....	16
Csikszentmihalyi’s flow theory.....	19
Keller’s ARCS model.	20
Fogg’s behavior model.....	21
Goal-setting theory.....	22
Gamification and Vocabulary Development	23
CHAPTER THREE	28

Methodology.....	28
Introduction	28
Research Design	29
Participants and Settings.....	31
Data Collection Instruments	32
Questionnaire.	32
Pre-test and Post-test.	33
Semi-structured interview.	33
Data Collection Process.....	34
Games used in the study.....	35
Data Analysis.....	38
Quantitative data analysis.	38
Qualitative data analysis.	39
Role of the Researcher.....	40
Reliability and Validity	41
CHAPTER FOUR	43
Results	43
Introduction	43
Quantitative Results.....	43
Findings about the difference between control and experimental groups in terms of students' motivation towards English vocabulary before gamification.	43
Findings about the difference between control and experimental groups in terms of students' motivation towards English vocabulary after gamification.....	44
Findings about the difference within the control group in terms of students' motivation towards English vocabulary before and after gamification	45
Findings about the difference within the experimental group in terms of students' motivation towards English vocabulary before and after gamification.	46
Findings about the difference between control and experimental groups in terms of students' English vocabulary test scores in pre-test.....	47
Findings about the difference between control and experimental groups in terms of students' English vocabulary test scores in post-test	48
Findings about the difference within the control group in terms of students' English vocabulary test scores in pre-test and post-test.	48
Findings about the difference within the experimental group in terms of students' English vocabulary test scores in pre-test and post-test.....	49

Qualitative Data Results	49
Findings about the students’ opinions of the advantages of gamification during lectures.	49
Findings about the students’ opinions of the disadvantages of gamification during lectures.	52
Findings about the comparison of effectiveness of board games and technology-based games from the participants’ points of view.	54
Findings about the participants’ desire to use different tools to learn vocabulary out of the classroom.	55
CHAPTER FIVE	58
Discussion, Conclusion, and Recommendations	58
Discussion.....	58
Effects of gamification on achievement.....	58
Effects of gamification on motivation.....	63
Conclusions and Recommendations	66
REFERENCES	68
APPENDICES	75
APPENDIX-1. Vocabulary-Learning Motivation Questionnaire	75
APPENDIX-2. VOCABULARY PRE-TEST.....	78
APPENDIX-3. VOCABULARY POST-TEST	80
APPENDIX-4. INTERVIEW QUESTIONS (Turkish).....	82
APPENDIX-5. INTERVIEW QUESTIONS (English)	83
CURRICULUM VITAE	84

LIST OF TABLES

Table 1. <i>Subscales and Number of Items in the Motivation Questionnaire</i>	32
Table 2. <i>Overview of Research Questions and Data Analysis</i>	40
Table 3. <i>Inter-Group Motivation Comparison Before Gamification</i>	43
Table 4. <i>Inter-group Comparison in Motivation Levels after Gamification</i>	44
Table 5. <i>Motivation Level Of The Control Group Before And After Gamification</i>	46
Table 6. <i>Motivation Level Of The Experimental Group Before And After Gamification</i>	46
Table 7. <i>Inter-Group Comparison Of Pre-Test Results</i>	47
Table 8. <i>Inter-Group Comparison Of Post-Test Results</i>	48
Table 9. <i>Pre-Test And Post-Test Comparison Of The Control Group</i>	48
Table 10. <i>Pre-Test And Post-Test Comparison Of The Experimental Group</i>	49

LIST OF FIGURES

<i>Figure 1.</i> Gamification Framework of Zichermann and Cunningham (2001).....	7
<i>Figure 2.</i> Gamification Framework of Werbach and Hunter (2012).	8
<i>Figure 3.</i> Integrative Gamification Framework (Kim, Song, Lockee, & Burton, 2017).	8
<i>Figure 4.</i> The self-determination continuum (Gagné & Deci, 2005).....	17
<i>Figure 5.</i> Factors in Self-Determination Theory.	18
<i>Figure 6.</i> Csikszentmihalyi's flow theory (Cunha, 2012).....	19
<i>Figure 7.</i> Keller's ARCS model.....	20
<i>Figure 8.</i> Fogg's behavior model.....	21
<i>Figure 9.</i> Relationship between goal difficulty and performance (Locke, 1968).	23
<i>Figure 10.</i> Qualitative and quantitative research (Cresswell, 2002 p.549).	29
<i>Figure 11.</i> Quasi-experimental design with control and experimental group-(Cresswell, 2002 p.310).	30
<i>Figure 12.</i> Research design of the study.	31
<i>Figure 13.</i> A sample of Taboo Card.....	36
<i>Figure 14.</i> Screenshot of Kahoot in projector and mobile phone during a game.....	37
<i>Figure 15.</i> A screenshot of Quzilet during a game.	38
<i>Figure 16.</i> Process of qualitative data analysis.	39
<i>Figure 17.</i> Expectancy effect of gamification.	45
<i>Figure 18.</i> Aspects of gamification that lead to learning.	52
<i>Figure 19.</i> Possible disadvantages of gamification.	54
<i>Figure 20.</i> Reasons behind the effectiveness of board games.....	55
<i>Figure 21.</i> Some students' previous learning ways vs. new ways they are planning to apply.	57

LIST OF ABBREVIATIONS

EBYU : Erzincan Binali Yıldırım University

SDT : Self-Determination Theory



CHAPTER ONE

Introduction

This study aimed to find the effects of gamification on students' motivation for and achievement in learning English vocabulary. This chapter consists of the statement of the problem, the significance of the study, research questions, assumptions, limitations, and definition of related terms.

Statement of the Problem

Vocabulary knowledge in a language is the key factor to be able to use the language skillfully (Bakar & Nosratirad, 2013). However, despite its importance, building a good range of vocabulary is also one of the most difficult parts of language learning. A more systematic way is required to expand students' vocabulary and to help them to express themselves more clearly and easily (Nation, 2002).

One of the biggest problems in English vocabulary classes is that students are not exposed to English enough because of inadequate lesson hours in higher education, generally two hours each week, and limited opportunities to review subjects. Furthermore, students also have other lessons which they are responsible for except English. So, they cannot spare adequate time to English and they have difficulty in deciding where and how to start studying vocabulary. These situations destroy the motivation of most students to learn words and block their learning. Therefore, using present lesson hours as active and efficient as possible, and making learning more permanent for students are significant. As vocabulary plays an important role in learning a language, obstacles in front of teaching/learning new words should be negotiated.

In addition to the difficulty of vocabulary learning and problems in lesson hours in higher education, based on the time Generation Z is growing, traditional methods seem boring and useless in most settings including education. Therefore, companies, states, instructors, etc. are looking for new ways to attract and engage new generation. So, traditional methods can be replaced with contemporary ones to be able to appeal to the new generation as millennials are very accustomed to web-based tools, they like spending time and sharing online (Flores, 2015).

Employing methods that enable students to repeat new words frequently and recognize them in different contexts and that is interesting for the new generation can support vocabulary learning and make word retrieval easier. In this regard, lessons should be planned to encourage students to be active during the class and be interested in vocabulary learning outside the class and revise the words they have learned.

As a solution to the problems mentioned above, gamification, which has attracted growing attention in the educational area, is one of the ways that can be effectively used. Using gamification tools makes vocabulary lessons more efficient, enjoyable, and motivational and keeps students in countenance to revise vocabulary outside the class. As it is a new and effective technique in educational areas, there are many online gamification tools developed for educational purposes such as Kahoot, Quizlet, Socrative, Schoolgy, etc. and board games that can be used in classes.

Significance of the Study

Vocabulary and learning vocabulary plays a significant role in language education due to the fact that it helps students to develop reading, listening, writing and speaking skills and to adapt to language learning environments (Nam, 2010). Moreover vocabulary knowledge shapes the communication ability and proficiency in a language (Gu, 2003; Schmitt, 2000). Students, who do not know enough vocabulary and have difficulty in remembering words, lose their confidence and motivation for learning a foreign language (Kikuchi, 2009).

Motivation is the key factor for learning a foreign language (Gardner, 1985), and the more extensive vocabulary students have, the more motivated they are to learn new words and communicate. Dörnyei and Cheng (2007) stated that motivation determines the success in foreign language and second language, and motivation strategies should not be ignored in studies about language learning. In accordance with this purpose, we can make some changes in our teaching context, and thus, we can improve students' motivation, thus their success. Most teachers agree that motivation has an important role in learning anything (Masgoret & Gardner, 2003). Therefore, it is essential to increase students' motivation both inside and outside of the learning environments which will contribute to their learning and help students have higher levels of motivation and develop positive attitudes towards language learning.

Gamification is one of the ways to sustain motivation in language learning. As a recently introduced concept, gamification increases learner motivation in learning a foreign language as it introduces the subjects in a fun environment and so, promotes learning. When the relevant literature on gamification is reviewed, it is seen that there is a gap in vocabulary

through gamification in higher education in terms of motivation and success, and different types of games as most of the studies examine gamification unilaterally, which merits further study. In this study, both card games and computer-based games are used during the gamification process; thus, it will be possible to compare these two game types according to students' viewpoints. Therefore, this study is thought to contribute to the field in terms of vocabulary teaching in EFL classes in higher education aiming to examine the effects of gamification on students' success and motivation and the differentiation between technology-based games and board games in the Turkish context.

Purpose of the Study

This research presents gamification as a method to increase students' motivation by making vocabulary learning and vocabulary repetition more entertaining. As a new term, gamification has been studied in different areas such as advertising, marketing, and health. However, the number of studies in foreign language education is limited and they examine gamification from one dimension. Therefore, this study aims to adopt gamification involving four games, which is thought to offer a broader perspective on the term.

With gamification method, it is aimed to make lessons more long lasting by attracting students' attention to lessons and subjects covered in the lessons. Making vocabulary learning easier and more appealing and simplifying vocabulary retrieval make students gain autonomy in vocabulary learning. Thus, students will be supported to break down prejudices and to develop their own learning strategies.

Considering the problems and significance of vocabulary learning in English and the positive environment that gamification can bring to the process, this study is designed to examine the effects of gamification on vocabulary learning in higher education. This study is expected to contribute to the need to make English vocabulary lessons more interesting and effective and to the field of ELT in terms of gamified vocabulary lessons and its effects on students' achievement and motivation.

Research Questions

Gamification has been studied in fields such as marketing (Huotari & Hamari, 2011), health (King, Greaves, Exeter & Darzi, 2013), and library science (Prince, 2013). However, by the reason of the fact that there is a gap in the field of ELT in terms of gamification involving different kinds of games and their effects, research questions in the study are determined follows:

RQ 1: Is there a significant difference within and between control and experimental groups in terms of students' motivation towards English vocabulary before and after gamification?

RQ2: Is there a significant difference within and between control and experimental groups in terms of students' English vocabulary test scores before and after gamification?

RQ3: What are the advantages of gamification in English vocabulary classes?

RQ4: What are the disadvantages of gamification in English vocabulary classes?

RQ5: Which one is more effective in English vocabulary classes: Board games or technology-based games?

RQ6: Are students going to make a change in their vocabulary learning styles after gamification?

Assumptions

In this study, it was assumed that students attended the classes regularly as games were played during lessons so that they would have a chance to revise vocabulary and had an idea about the games. Students were expected to complete questionnaires and tests consciously and explain their ideas properly during the interviews to have the most accurate results from the data collection tools.

Another assumption in the study is about technological equipment such as a projector, computers, etc. It is assumed that equipment was available and the internet was connected on the campus.

Limitations

This study was conducted with the 3rd grade students from the Engineering Faculty of Erzincan Binali Yıldırım University. The number of the students in the study was 48 in experimental and control groups in total. The number of the students was not enough to generalize the results of the study and the results might change in different departments or universities.

Another limitation is about experimental and control groups. Although the students were the 3rd grade students enrolled in the Department of Mechanical Engineering, the experimental group was day-time class and control group was evening class. The time of the lessons may have also caused difference in motivation and success of the students.

Allocated time given to each game was also a bit limited. The study lasted for 8 weeks with 4 games and each game was played for two weeks during the experiment. Games could be played more times so that the students could have more detailed ideas about the games and compare them correspondingly. Such a process would help to see the long-term effects of gamification better.

The Definitions of Related Terms

Vocabulary Learning: Acquiring new words in a language. It is a very important part of knowing a language and Harmer (1994) explains its importance as following: “If we accept grammar as the skeleton of the language, we can accept vocabulary learning as the vital organs of that language” (p.153).

Game: A system that makes players deal with a challenge in the framework of rules, feedback, and interaction and generally ends up with an emotional result (Kapp, 2012).

Game-based teaching: Integration of teaching activities with the learning process by taking into consideration of game rules and features.

Gamification: Using game elements at different settings by creating a game environment (Deterding, Sicart, Nacke, O’Hara & Dixon, 2001)

Motivation: A state of arousal which activates desire, increases and evaluates cognitive and motor skills (Dörnyei, 2001).

Intrinsic Motivation: Doing something for inner satisfaction instead of different results (Ryan & Deci, 2000), and making an effort for an activity rather than an award (Brown, 2007).

Extrinsic Motivation: Making an effort for an award from outside (Brown, 2007).

CHAPTER TWO

Literature Review

This chapter starts with the presentation of the terms related to gamification. Games, game elements, game-based learning, gamification, theories behind gamification, vocabulary learning, and relationship between vocabulary learning and gamification and were analyzed in the following sub-titles. Then, the chapter presents studies on gamification conducted in the national and international arena.

Games

Throughout the history games have had an important place for humanity. They include the elements of goals, rules, feedback and volunteer participation (Kapp, 2012) and they give us rewards and inspiration that cannot be found in reality. Unlike reality, we come together and we are engaged in different ways by virtue of games (McGonigal, 2011). Games can be used to convert boring subjects to more enjoyable ones (Cowley, Charles, Black & Hickey, 2008). Prensky (2003) argues that people desire to learn and games are interesting not because of their subject or anything else but because they are instructive and Generation Z is aware of the fact that they learn best from games. Nevertheless, Pivec (2007) asserts that although new generation is digitally native and they are good at using technology, they do not know how to benefit from technology in learning environments. When analyzed superficially, games provide different roles and players get an idea of different subjects. However when analyzed in detail, games can foster collaboration, decision making, comprehension, and seeking for knowledge skills (Prensky, 2003).

Instructors dream that students are interested in lessons and they engage, compete, collaborate, solve problems and want to inquire during lectures. All these desired behaviors can be generated during games (Prensky, 2003). Games have three important features: (1) Games can foster cognitive skills as they provide real life situations. (2) They can emerge different emotional states. (3) They present different roles to players to act (Lee & Hammer, 2011). Games support different interests and skills by means of encouraging problem solving, exciting attentions of both newbies and experts, making challenges more manageable by separating them into smaller pieces, encouraging collaboration, personalizing the experience, rewarding thinking out of the box, and reducing fear of failure (Werbach & Hunter 2012).

Game elements.

Gamification is a way to encourage people to complete tasks. It is not designing a proper game; it only uses some elements of games and in this sense it is more flexible than games. These elements of games used for gamification are generally thought to be limited with rewards like points, badges and levels. Even if points, badges and leaderboards are commonly used in gamification, they may not be the right choice for all types of games (Werbach & Hunter, 2012).

In educational settings, game elements are useful as they make learning attractive (Garris, Ahlers, & Driskell, 2002). According to Sherry, Lucas, Greenberg and Lachlan (2006), game elements such as challenge, interaction, competition and fantasy attract people and induce them to play games. There has been various opinions on game elements. According to Zichermann and Cunningham's (2011) point of view, games consist of mechanics, dynamics and aesthetics as shown in Figure 1.

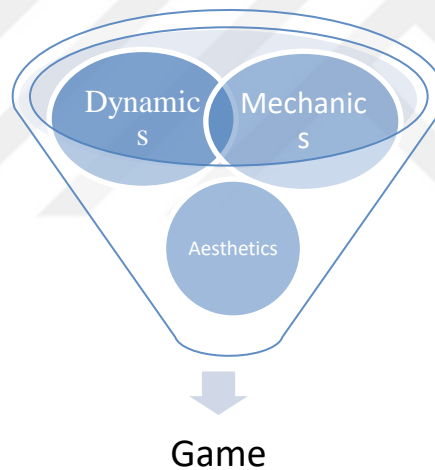


Figure 1. Gamification Framework of Zichermann and Cunningham (2001).

According to Werbach and Hunter (2012) games consist of mechanics, dynamics and components and they are listed in a hierarchical order as shown in Figure 2. Dynamics are located at the top the of the hierarchical order, and components are at the bottommost.

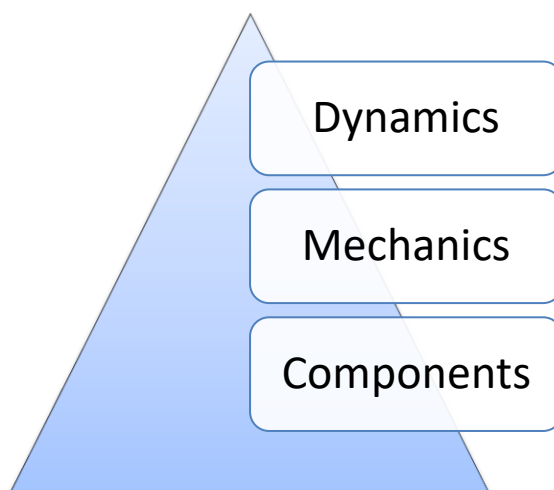


Figure 2. Gamification Framework of Werbach and Hunter (2012).

Schell (2014) defines gamification framework as story, technology, aesthetic and mechanism. Kim, Song, Lockee and Burton (2017) integrated all ideas in a single framework as shown in Figure 3. Their integrated framework includes story, dynamics, mechanic and technology from top to bottom. In the integrated pyramid, abstraction increases from bottom to top. The element at the top of the pyramid is the most abstract one while the element at the bottom is the most concrete.

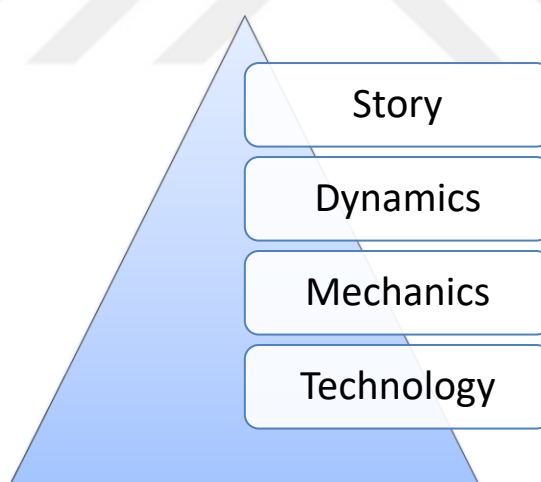


Figure 3. Integrative Gamification Framework (Kim, Song, Lockee, & Burton, 2017).

Each mechanic is connected to one or more dynamics and each component is connected to one or more elements above in the hierarchical order. It is important to use each element together in gamification process (Werbach & Hunter, 2012). Mechanics are the controlling factors that enable to implement games and define which behaviors are allowed or not allowed (Zichermann & Cunningham, 2011). Mechanics are more concrete when compared to dynamics and they help games to last. Challenges, chance, competition, cooperation, feedback, rewards, resource acquisition, turns, transaction, and win states are the

most common game mechanics. Each mechanic allows dynamics to be performed (Werbach & Hunter, 2012).

Dynamics are the least concrete elements in the hierarchy. Limitations, emotions, storytelling, progress and communication are the most common dynamics (Werbach & Hunter, 2012). Dynamics are the behaviors of player during the game (Zichermann & Cunningham, 2011).

Components are the most concrete and definite elements in the hierarchical order. Achievement, avatars, badges, boss fights, collections, combat, content unlocking, gifting, leaderboards, levels, points, quests, social graphs, teams, and virtual goods are the most common components (Werbach & Hunter, 2012).

Aesthetics are emotional states that players experience in the game and it can be a result of mechanics of dynamics (Zichermann & Cunningham, 2011).

Stories in games are similar to the stories in the literary text. However the former is shaped by decisions of players during a game while the latter is unchangeable. Via stories, players have intense feelings about activities in a game and they still keep being busy with the game while they are not actively playing as well (Kim et al., 2017).

Although technology is usually understood as information technologies, actually it can be everything used in game. As it can be computers, smart phones, it also can be paper, card, scissors etc. (Kim et al., 2017).

Rewards are very common aspect in gamification. In fact, gamification is more than rewards. Although rewards encourage people to perform desired behavior they may also cause failure and decrease in desired behavior if it is more than expected. So, game designers should be careful about rewards as they can be harmful if they are not used properly. In this regard, extrinsic motivators/rewards should not be used when players can be motivated intrinsically as it is more advisable to use extrinsic motivators for activities which people find boring without a reward (Werbach & Hunter, 2012; Lee & Hammer, 2011).

In the process of gamification, points are one of the most important and common elements. Points are values in number which lead to earn badges and level up. Pointing system indicates and gives feedback about how well a player does. If a player has higher scores, it means that he/she is better at the game (Werbach & Hunter, 2012). There are three types of points: experience points, karma points and redeemable points. Experience points are gained after completing a task, and badges and level are products of this type of point. Karma points are rewards of good behaviors as points. Redeemable points can be used as money in a

game and players can use them to buy properties like in the game of Monopoly (Kim et al., 2017).

As points are more abstract and limited, badges are used as visual presenters of points. A game can have a large number of badges for various achievements and they are not limited to any numbers or types depending on the imagination of designers. This diversity attracts more players than points (Werbach & Hunter, 2012).

In addition to points and badges, leaderboard is one the most functional and popular elements in any game. Leaderboard is an indication of players who get the highest scores in a game. It gets players to replay the game to place their name above in the list (Kapp, 2012). Using leaderboards in games has some pros and cons; as it shows where a player is in the list, it can motivate them to know they need a few more points to place his/her name in a higher row or to level up. However, it can also demotivate players if they are quite far from their goals (Werbach & Hunter, 2012).

Stages in games are called as level. Levels can be presented with numbers or words. They can be reached by fulfilling a duty. As players level up, duties get more difficult, so for higher levels, the player must fulfill more difficult duties (Kim et al., 2017). Leveling up does not mean ending a game, on the contrary, it is a part of the gaming process rather than a result. In this process, players get feedback and have an idea of their progress thanks to levels. Without levels, players get out of the game as they are not informed about their progress (Werbach & Hunter, 2012).

Rules and goals are the crucial elements of a game. They constitute games and differentiate games from play. Although it does not exist in a play, goal is a fundamental element in a game. Via goals, plays can be altered to games. In traditional educational settings, goals may not be clear but in games goals are certain, and seeing what one needs to reach a certain goal informs players about processes (Kapp, 2012).

Some other important factors in games are conflict, competition and cooperation. Conflict is a debate among players. To be successful in a game, players must beat the other/s. Competition is trying to do the best instead of trying to beat the other players. In a competition a player must be better than the other/s to win the game. Cooperation takes place when players collaborate to reach a goal. Players must act together to win a game for cooperation. Even though they can be used separately, the combination of conflict, competition and cooperation in game brings better results while designing games (Kapp, 2012).

Time is the measurement that gives information about the period used or left. To see time decreasing during a game can make players stressed and increases motivation. Also, being aware of the time gives chance to players to calculate how much time to spend for activities in the game (Kapp, 2012).

Feedback is informing people about what they have done. Feedback in game has the power to educate players and change their behaviors. But it does not educate directly, instead it gives clues and directs players to right behaviors (Kapp, 2012).

To sum up, there are different ideas on the elements of gamification frameworks. However, points, rewards, levels, feedback, competition, goals, challenge and the others presented above are considered the most important elements in gamification and each of them has different features to make people interested in playing games, and functions in a different way. Therefore, appropriate game elements can be chosen and combined for different functions to be able to reach certain goals.

Game-based learning.

Traditional teaching methods were altered with the modern ones which place learners in the center, so that students can learn by active participation (Garris, Ahlers, & Driskell, 2002). Making students attracted and active is useful for instructors, because if students have fun, instructors will have fun too (Auman, 2011). Ke (2008) states that games are a part of teaching environments, promoting physical and intellectual development instead of a destroyer in educational settings although there are educators who consider games as inappropriate for teaching environment. Games present the chance for making mistakes, making up for mistakes and making a new start (Hanus & Fox, 2015). It is more beneficial and fun for students to learn through games (Flippou, Cheong, & Cheong, 2018). In addition, games give simultaneous feedback to players about their mistakes and foster the education process (Kapp, Blair, & Mesch, 2014). Due to feedback, there is no uncertainty about winning or losing a game; players surely know if they win or lose (Kapp, 2012). Moreover by combining game elements and education, instructors may change students' perception of learning as gamification drives students to constant learning for their life (Lee & Hammer, 2011).

Games encourage not only children but also adults by raising their problem solving abilities, creativity and level of prosperity (Robinson, Smith, Segal, & Shubin, 2016). Games can be designed to attract attention to a topic as well as having fun. They can be key factors to make certain behaviors interesting for people. For example; a website called Fitocracy.com

that was found by Wang and Talens promotes people to do sports with the help of elements such as points, badges and levels (Werbach & Hunter, 2012).

Gamification makes learning process more attractive by adding game elements to teaching programs (Kulpa, 2017). In addition to attracting students' attention, it also improves the skills of problem solving, critical thinking, and learning. Students improve their knowledge in a language and have a chance to practice what they know. They interact with their peers via games (Muhanna, 2012). There are many reasons to use gamification in education and the first reason is to provide a setting in which students learn by doing instead of settings which are traditional and didactic (Garris, Ahlers, & Driskell, 2001). Gamification in teaching helps to maintain a positive attitude towards learning (Palmer & Rodgers, 1983), increases motivation (Huizenga, Admiraal, Akkerman, & Dam, 2009), and fosters students' success and perception of lessons (Yıldırım, 2017). Further, bringing real life situations to educational environments makes students more successful and enthusiastic to learn as new generation is surrounded by technology and competitions. So gamification is certainly something to take into consideration if we want to have efficiency in education (Alanne, 2016) as gamification makes boring activities such as jogging more entertaining and attractive via game techniques like competition and collaboration (Kapp, 2012).

Kulpa (2017) states that “gamified classrooms also seem, at least anecdotally, to increase student willingness to complete task they initially identify as challenging” (p.61). If gamification is applied appropriately, it is powerful enough to inform and teach (Kapp, 2012). To take advantage of the power of gamification it is necessary to organize lessons in the harmony of enjoyment and educational purposes (Charsky, 2010). Kulpa (2017) used gamification by giving students points for their assignments, and points got evolved to grades. At the end, the researcher found that there was an increase in the grades of students even though the same course material was used and it was after the application of gamification that one student got A+ for the first time.

Schools have game like elements, for instance; students get scores as points, grades as badges and passing as level up. But there is something missing at schools that they cannot attract students (Lee & Hammer, 2011). Changing teaching procedure may be one of the cures for this problem. Students generally stress out through the end of semesters due to exams. To make revising process more effective and to lessen students' stress level Kim (2014) implemented a case called “Star Question”. Kim wanted each student to write a question that can be asked in the exam. In this practice students gave from 1 to 5 stars to questions prepared by other students in the class. Then questions with most stars were selected by the lecturer. At

the end, students' opinions were gathered through interviews and they noted that they could revise lecture notes in detail and see what they need to study. In another research Hamari, Koivisto and Sarsa (2014) analyzed 24 studies on the efficiency of gamification. The researchers came up with the conclusion that most of these studies showed gamification has a positive effect on learning environments.

Instructors who are aware of the fact that games can trigger imagination and achievement of students are in favor of using gamification in classes. Moreover, it was also mentioned that failure rates reduced and students' grades got better after gamification in NMC Horizon report (NMC Horizon Report, 2014 as cited in Flores 2015, p.42). Studies and reports showed that gamification makes a great contribution to learning environments and enhance learning, which is hard with traditional methods for the new generations.

Gamification

When compared to previous generations, digital natives know to be engaged intensely and participate in any activity actively thanks to computer games and virtual worlds. They can get bored and frustrated easily if they don't have active participation or engagement (McGonigal, 2011). It is beneficial for everyone who is in field of education to have an idea about how to apply gamification in teaching environments by considering the fact that traditional methods will be very boring for the generation of digital natives who grow up by playing computer games (Kapp, 2012).

Games and gamification are different from each other. Gamification urges upon learning majorly while games urges upon fun and push learning into the background (Goehle, 2013). The term of gamification was firstly used by Nick Pelling in 2002, but it was 2010 that it gained popularity (Zichermann & Cunningham, 2011). Gamification uses some elements of games such as rewards, success, and competition in non-game context (Prince, 2013). Groh (2012) defines game as play with definite goals and rules. Kim et al. (2017) explain gamification as a setting in which players seek for solutions to definite problems. Gamification is the process of altering non-game activities to the games by using game design, game elements and game thinking (Werbach, 2014). Bunchball (2010) points that gamified environments can be designed by using game mechanics and dynamics in non-game contexts. Fitz-Walter, Tjondronegoro, and Wyeth (2011) describe gamification as an application which is used to motivate and help people to gain experience with the help of game elements.

Gamification supports desired behavior change and attracts attention of customers, players and users through rewards and other motivators (Prince, 2013). For example; Foursquare is a very popular gamification application and people try to get points and badges by checking in places such as restaurant, shops, etc. People who have the most check-ins in a definite place can be the “mayor” of that place and have some rewards (Prince, 2013). Brigham (2015, p.474) explains gamification as follows:

Gamification provides an innovative model for creators or librarians to enliven their content and instruction. Furthermore, learners, particularly millennials, desire team-based interaction and immediate feedback; gamification can provide the context needed to satisfy those requirements. If done correctly, gamification can also provide users and students with a sense of accomplishment and progress.

Via game elements and constructive feedback students get rid of diffidence and will be more eager to learn. Gamification supports different skills while learning a foreign language. The steps in learning will be seen as stages of a game to overcome by students in gamified classes. So L2 classes can be organized with the elements of games that can be used for educational purposes into consideration (Flores, 2015). Online gamification tools can be customized according to students’ needs and can support personalized learning with immediate feedback (Abram & Walsh, 2014).

Motivated students are very rare and lecturers want to motivate and engage students with different techniques, and gamification has a great potential in motivating the students and increasing success (De-Marcos, Domínguez, Saenz-de-Navarrete, & Pagés, 2014). With the help of gamification, schools and instructors can find solutions to issues about students’ motivation (Lee & Hammer, 2011).

Mekler, Brühlmann, Opwis, and Tuch (2013) studied with 172 participants to find out the effects of points and meaningful frame (considering the participants’ goals and interests), and discovered that points made the participants keep performing the task, and meaningful frame made them do their best to perform the task.

To see the effects of gamification, Cheong, Filippou and Cheong (2014) studied with university students to observe gamification process and gain information about students’ perception of gamification. At the end of the gamification process they found that students’ attitude towards gamification was quite positive. Students expressed that they thought classes were more enjoyable and easier to comprehend with the help of gamification.

In another study, Seixas, Gomes, and Filho (2016) studied with 61 elementary school students. In their experiment, they used online gamification tools, ClassBadges and ClassDojo, and students got badges from the teachers as it was aimed to make students

participate more. Results indicated that the more badges a student got, the more active the student got.

Hamari (2017) observed users on a website called Sharetribe for a year before gamification and for a year after the gamification. To make the users engage more on the website, badges were used as gamification. After the observations for two years, the researcher found out that the users were more active on the website after gamification which shows that badges motivated people to engage.

Considering the effects of gamification on students' motivation Kaufmann (2018) referred to his experience during PHD stage and stated that although he had time and tried his best, he did not have enough motivation to write his thesis. At last, he started to use applications called "swipes" and "habitica". In these applications he listed tasks to complete at certain dates and he could finish his thesis before the deadline he determined. Based on his experience during PHD, he states that using gamification in education increases motivation and attracts students for short-term goals.

Briefly, gamification contributes to active engagement and better results in different fields including education by making activities more fun and motivating people towards different goals. Moreover it decreases anxiety level of the students (Simoes, Redondo, & Vilas, 2013) Badges, points, goals and other elements of games serve to make people fulfill tasks given and help to motivate them.

Theories behind Gamification

There are different theories behind gamification. Motivation, Self-determination Theory, Csikszentmihalyi's Flow Theory, ARCS Model and Fogg's Behavior Model are touched upon in the following parts.

Motivation.

According to Dörnyei and Ota (1998), motivation is the stimuli that starts and shapes the cognitive and motor skills and Ryan and Deci (2000) assert that "to be motivated means to be moved to do something" (p.54). So, it has an important place in learning as Brophy (2004) states that motivation is the essential part in learning as it encourages students to be interested and to make an effort to complete a task. Jovanovic and Matejevic (2014) also relate success to motivation as they state that gamification has an impact on motivation of people, and so maintains success in learning.

Gamification combines and fosters both intrinsic and extrinsic motivation (Muntean, 2011); elements of gamification such as cooperation, competition, sense of belonging, etc. foster intrinsic motivation, and elements such as points, levels, badges, and etc. foster extrinsic motivation (Viola, 2011, as paraphrased in Muntean, 2011).

Gamification fosters intrinsic motivation, which makes the learning environment more fertile (Ryan & Deci, 2000), as Lepper (1988) outlines 4 key factors that trigger intrinsic motivation: (1) control: Learners are responsible and they can control their own learning process. (2) challenge: Different tasks and goals are presented to challenge students consistently. (3) curiosity: Activities that arouse curiosity are presented based on students' areas of interest. (4) contextualization: Task is presented in a natural and useful context, and all of them are generated during games. Moreover, Malone (1981) asserts that three elements of games motivate people: (1) challenge: If result is not certain for the player, it is more attractive and motivational from the perspective of the learners. (2) fantasy: Usage of fantasy aids learning procedure as it provides "mental images" to players and makes retaining easier. (3) curiosity: Feedback should be given in uncertain situations and times. If players/learners do not know when and what kind of feedback they will get, they will be curious about learning process. If students feel that they can achieve something after they strive, they tend to have more motivation for achievement as it is in their hands to achieve their goals (Dörnyei & Ushioda, 2009) and games provide students to control their knowledge and achievement, which leads to intrinsically motivated students. Additionally gamification triggers desire for certain tasks and to desire to complete a task via gamification transfers extrinsic motivation to intrinsic motivation and so students do not need an external factor to boost them and gain control on their own learning processes (Bíró, 2014). In addition to game elements; gamification also takes advantages of fun aspect to increase motivation (Flores, 2015).

Self-determination theory.

Self-Determination Theory (SDT) is based on human motivation, psychology and wellness (Deci & Ryan, 2008). According to this theory, there are three types of motivation: intrinsic motivation (autonomous motivation), extrinsic motivation (controlled or autonomous motivation), and amotivation (Ryan & Deci, 2000; Gagné & Deci, 2005). Intrinsic motivation and extrinsic motivation contradict the amotivation (Gagné & Deci, 2005) as amotivation is the absence of intrinsic or extrinsic motivation (Dörnyei & Ushioda, 2011).

Intrinsic motivation is a type of motivation which arises inherently not from a source outside (Zicherman & Cunningham, 2011), and it arises when people enjoy an activity (Ryan & Deci, 2000; Gagné & Deci, 2005). Unlike intrinsic motivation, extrinsic motivation is a

type of motivation which is encouraged from a source outside (Zicherman & Cunningham 2011). In the extrinsic motivation, the result, not the activity is important (Ryan & Deci, 2000), and the activity is done to get a reward or to get rid of a punishment (Dörnyei & Ushioda, 2011). External motivation can decrease the intrinsic motivation or transform/be closer to intrinsic motivation according to the situations in which an activity is done. Extrinsic motivation may decrease intrinsic motivation as people may perform an activity only when they are under pressure of an outside source. On the contrary, according to SDT it may be close to intrinsic motivation when people are more self-determined and can relate the activities with their identities and personal goals (Gagné & Deci, 2005). Extrinsic motivation has four types (External Regulation, Introjected Regulation, Identified Regulation, and Integrated Regulation) which can be closer to amotivation (lack of self-determination) or intrinsic motivation (the most self-determination). In other words, extrinsic motivation can be more intrinsic or more extrinsic according to the degrees of external controls and self-determination (Dörnyei & Ushioda, 2011), and SDT lines up from amotivation (lack of self-determination) to intrinsic motivation (the most self-determination) in the self-determination continuum (See Figure 4).

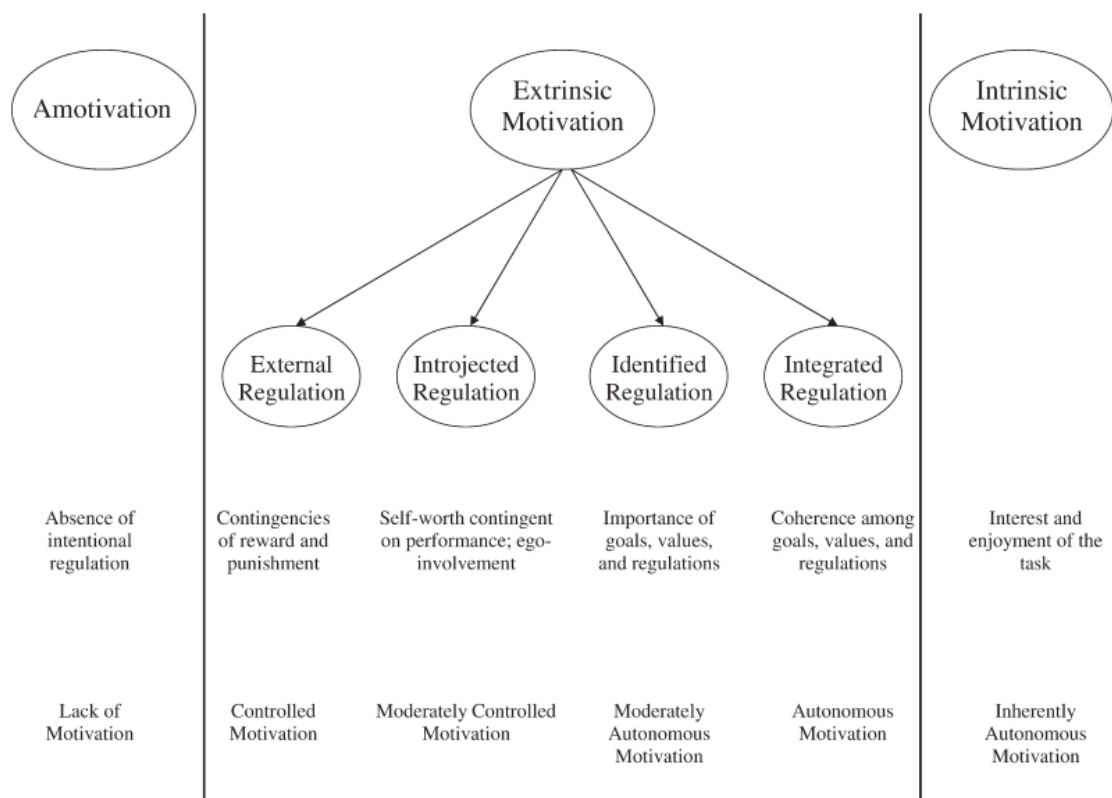


Figure 4. The self-determination continuum (Gagné & Deci, 2005).

Autonomy, competence, and relatedness (See Figure 5) are the focal factors to be motivated intrinsically according to SDT (Rigby & Ryan, 2011), and games attract people because they present autonomy, competence and relatedness to people (Ryan, Rigby, & Przybylski, 2006).

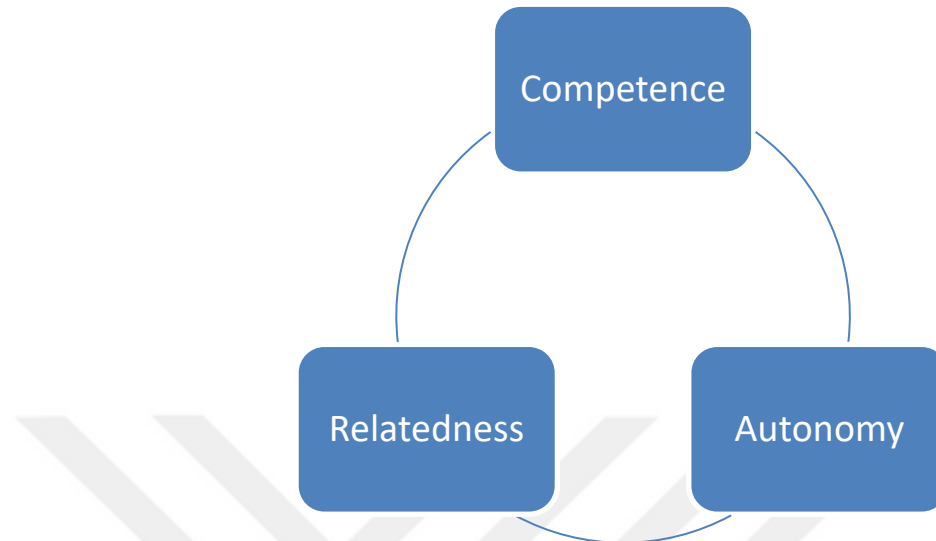


Figure 5. Factors in Self-Determination Theory.

Autonomy is the feeling that people can control their own behaviors and they have the right to make decisions. Hence, in educational environments it would be better to guide students instead of deducting them in decision making process (Kim et al., 2017).

Competence is defined as “a need for challenge and feeling of mastery” (Kapp, 2012 p. 64). People need to feel that they can achieve the tasks given to them. Therefore, in educational environments, instructors should scaffold students rather than presenting solutions to prevent students to lose their competence (Kim et al., 2017).

Relatedness is the feeling that people are related to other people (Kapp, 2012). It is a universal desire and it requires social interaction with family, friends or a certain group of people (Werbach & Hunter, 2012).

If at least one factor of SDT is available in any task, it will trigger intrinsic motivation (Werbach & Hunter, 2012) as feeling confident, free and independent is the situation that cultivates intrinsic motivation. So people will be more volunteer to complete an activity because there is an inner power that pushes them to do so (Ryan & Deci, 2000), and gamification gives people a chance to express themselves and to rival with others as it is much more than rewards. Because of the fact that each game dynamic supports people’s different needs, gamification does its duty as well as it satisfies emotional needs (Suh, Wagner & Liu, 2016). Namely, gamification helps to fulfill needs of people and so it

increases intrinsic motivation as people participate on a voluntary basis (Kankanhalli, Taher, Çavusoglu & Kim, 2012), which leads to more self-determination.

Csikszentmihalyi's flow theory.

Flow is the situation in which people become wholly absorbed in any activity and forget about external factors (Csikszentmihalyi, 2014). People enjoy an activity if its difficulty is appropriate to their levels. Namely, if the activity is too challenging for people they feel anxious, and if the activity is too easy, they feel bored and leave the activity (Csikszentmihalyi, 2004). Therefore, tasks should force students to use their maximum ability as “the effects of learning can be maximized when students engage in learning tasks that require highest level of their abilities.” (Kim et al., 2018 p.8).

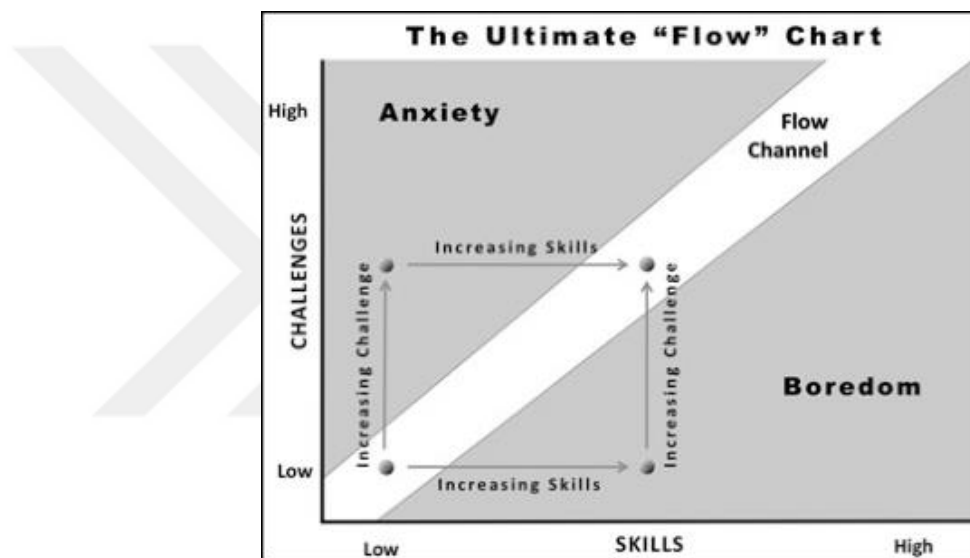


Figure 6. Csikszentmihalyi's flow theory (Cunha, 2012).

As shown in Figure 6, flow is the situation that one activity can be performed by using the highest skill one has. As the skill of a person increases, the difficulty of the challenge should be high in accordance with it to get rid of anxiety and boredom providing balance between skill and challenge.

To provide flow, activities should have the elements of flow which are explained by Csikszentmihalyi (1997) as follows:

Balance between task and skills: Task should not be too easy or difficult for people that challenges with achievable tasks provide flow.

Concentration in a limited field: While performing a task, actions and thought should be in a harmony that people should focus on the activity completely. While people focus on an activity they forget about other activities and surroundings.

Loss for self consciousness: It occurs when people forget about other activities such as eating while they are busy with the task.

Control over actions: People should have an idea about the results of the task.

Feedback: Feedback should be presented immediately to inform people about successes or failures.

Clear goals: Task should be clear enough so that people will not have questions about what to do.

Loss of sense of time: It occurs when people forget about time while they are busy with the task.

Effortless involvement: Concentration, feedback and ability should be at the same level to make people involve effortlessly.

Keller's ARCS model.

ARCS model has an aim to make students' motivation last during the whole teaching period (Keller, 1984). Many teachers think that motivation is something that cannot be provided outside; instead, it is something only students can control. In contrast, there are ways to arise or maintain students' motivation (Keller, 1984; 1987). To arise or maintain students' motivation Keller (1987) comes up with 4 subjects that should be included in education process: Attention, Relevance, Confidence, and Satisfaction.



Figure 7. Keller's ARCS model.

Attention: This is the most essential element. It is important not only in the beginning of learning period but also it is important to keep students interested for the whole learning period (Keller, 1984; Keller, 1987).

Relevance: If courses are designed to meet students' needs, they will have more relevance to classes and it will be more meaningful to be a part of educational process (Keller, 1984; Keller, 1987).

Confidence: Confidence is an important factor that affects success and teachers generally underestimate students' anxiety for failure or making mistakes. Due to this fact teachers should make an effort to make students believe in themselves (Keller, 1984; 1987).

Satisfaction: Satisfaction is taking pleasure from the work done. It usually comes from reinforcement which can be intrinsic or extrinsic (Keller, 1984; 1987).

Fogg's behavior model.

According to this model, three different elements are required for a behavior to occur: motivation, ability and triggers, and if there is no behavior, at least one of these three factors is missing (Fogg, 2009).

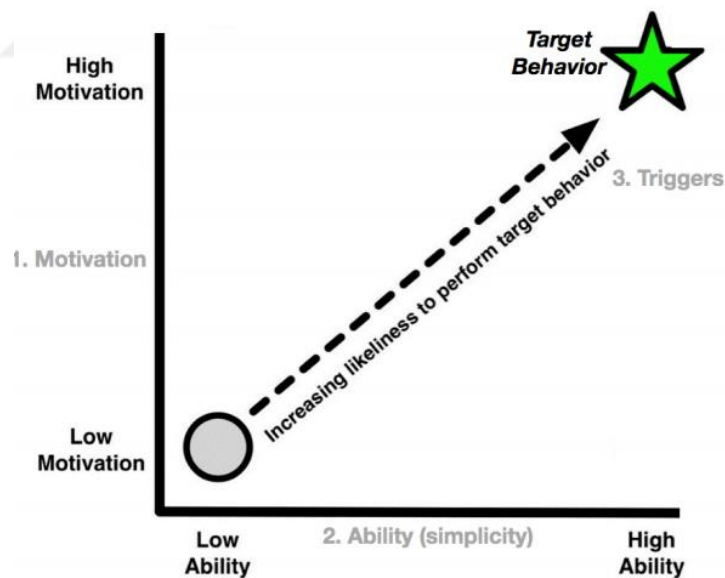


Figure 8. Fogg's behavior model.

To be able to generate target behavior; motivation, ability and triggers are the core factors and all of them should be available at the same time (See Figure 8). If people do not have the ability, motivation per se, may not be enough to incur target behavior. Although high motivation makes people to search for ways to increase their ability, high motivation and ability do not mean the target behavior will arise if one does not get triggers at the right time.

If triggers exist, and one has enough ability and motivation, it is more possible for him/her to incur target behavior.

To reach the target behavior it is essential to redress the balance between motivation and ability. If the balance is set in a correct way, triggers will emerge. In gamification process triggers can be the awareness of players that they can get a new reward (O'Donovan, Gain & Marais, 2013). The time and success of triggers are also the determinants for the target behavior and Fogg (2009, p.3) explains successful triggers as “whatever the form, successful triggers have three characteristics: First, we notice the trigger. Second, we associate the trigger with a target behavior. Third, the trigger happens when we are both motivated and able to perform the behavior.”

Goal-setting theory.

Goal-Setting Theory dates back to 1960s (Landers, Bauer, Callan & Armstrong, 2015). The theory supposes that all creatures are goal-oriented and their goals shape their actions. To be successful people need to have goals and act in accordance with their goals as goals of a person determine how successful he/she can be (Locke & Latham, 1990).

There are 4 important factors in goal setting theory as Locke and Latham (2006) addresses that “the key moderators of goal setting are feedback, which people need in order to track their progress; commitment to the goal, which is enhanced by self-efficacy and viewing the goal as important; task complexity, to the extent that task knowledge is harder to acquire on complex tasks; and situational constraints” (p. 265).

According to this theory, higher goals lead to higher performance if one has enough ability and commitment (Locke & Latham, 2002) because people put more effort into a task in parallel with the difficulty of the task (Locke & Latham, 1990; 2006) as it is shown in Figure 9. Harder goals require people to commit more, and commitment is the essential factor with higher goals (Landers et al., 2015).

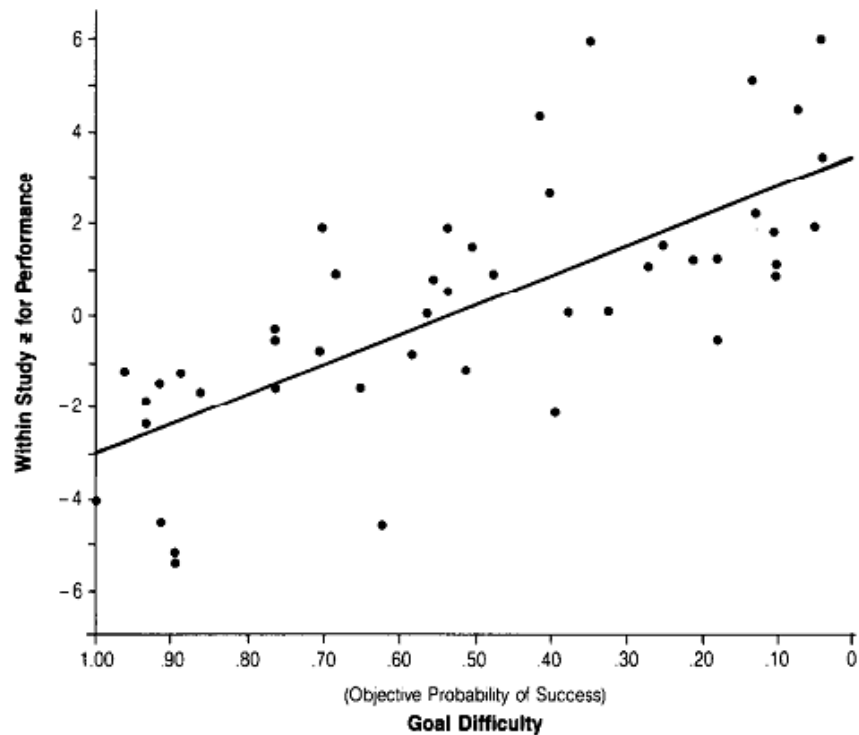


Figure 9. Relationship between goal difficulty and performance (Locke, 1968).

Having goals and learning are closely related to each other that multiple goals towards learning may extend motivation and learning. Goal-Setting Theory can be applicable via game mechanics such as badges, progress bars and levels as they are goals that should be achieved to reach a higher goal (Landers et al., 2015).

Gamification and Vocabulary Development

Learning vocabulary in a foreign language is a process that requires a lot of effort and most people try to find the best way to learn vocabulary for themselves (Kılıçkaya & Krajka, 2010; Ghanbaran & Ketabi, 2014). Reading, writing, speaking and listening skills are in a close relationship with vocabulary knowledge (Kayaoglu, Akbas & Ozturk, 2011). Vocabulary knowledge and using a language complete each other (Nation, 2001), and vocabulary knowledge and communication are integrated (Gough, 2001). Knowing more words ensures being more skillful in a language (Bakar & Nosratirad, 2013).

Akın and Seferoğlu (2004) state that students are not aware of vocabulary learning techniques, so they face with great challenges in this regard. Although students can memorize the meanings of words, they always have problems in using them. If students are exposed to real life context in their learning environments, they become familiar with the usage of words (O'keeffe, McCarthy & Carter, 2007). Interesting and exciting learning settings which also

meet students' needs and expectations can be built for fruitful vocabulary teaching through gamification (Jung & Graf, 2008).

Gamifying vocabulary promotes learning process as it socializes students (Wells & Norken, 2011) and makes students to be more keen on learning in a cheerful atmosphere (Kingsley & Hagen, 2018). Thanks to videogames students learn/practice words with visual aid (Squire, Giovanetto, Devane, & Durga, 2005). Guichon and McLornan (2008) express that presenting vocabulary in different contexts makes comprehension easier and increases vocabulary knowledge. Yip and Kwan (2006) report that online gamification tools via which students revise vocabulary and experience vocabulary in different texts improves vocabulary knowledge.

Several studies were conducted around the World in different contexts to examine the effects of gamification on vocabulary learning in foreign language. When the related literature is considered, results show that gamification has a positive effect on both adults' and young learners' vocabulary knowledge.

Huyen and Nga (2003) mentioned that learning vocabulary was a difficult issue for Vietnamese students mostly because of their perception of vocabulary learning. They also mentioned that vocabulary lessons were usually boring for students and the students thought that memorizing the meanings of words was enough. That was why they faced with problems in using and pronouncing new words. Starting from these problems the researchers decided to apply gamification to see its effects on vocabulary learning, thus applied gamification in their classes for two weeks. After two weeks with several games for vocabulary teaching they found that students had not been bored during vocabulary lessons anymore and they were better at using words. Moreover they came up with the conclusion that gamification had changed students' perception of vocabulary learning as they were looking for new methods to learn new words at the end of gamification process.

Another study on the relationship between gamification and vocabulary learning was conducted by Alemi (2010). There were experimental and control groups in the study with 60 students. In the experimental group 5 different vocabulary games were played at the end of sessions and the results showed that students who had a chance to recover vocabulary via games were more successful than students who did not play word games, that is; gamified vocabulary expands students' knowledge of vocabulary.

Dolati and Mikaili (2011) carried out a study with 70 female students at the age of 12-13 in a primary school in Iran. The study lasted for 4 weeks with 35 students in control group and 35 students in experimental group. During the experiment "Find me game" and "The

Charade” were played in the experimental group. Pre-test and post-test revealed that games have a great impact on students’ vocabulary skills; they engage and motivate students.

Kalaycıoğlu (2011) investigated the role of games in vocabulary achievement of pre-school students. There were 33 students in control and experimental groups in total and the students in the experimental group played picture vocabulary games for about 4 weeks. At the end of the process with games, it was found that students in the experimental group achieved better than the students in the control group in terms of vocabulary.

Abrams and Walsh (2014) studied on vocabulary by using a website called www.vocabulary.com which empowers students to search for meanings of words, to listen to diction of the words, to create lists and to be exposed to words in authentic contexts. Their study showed that gamification of vocabulary affected the students’ knowledge of vocabulary in a good way as it increased their vocabulary knowledge.

Young and Wang (2014) studied on a system which has two online speaking activities. 52 students in Taiwan participated in experimental and control groups in the study. While the students in the experimental group practiced speaking with games, the students in the control group just had drill practice. The study revealed that students in the experimental group had less anxiety while speaking. On the other hand, students in the control group were better at remembering vocabulary.

Hasegawa, Koshino and Ban (2015) established an application for vocabulary learning as students can access to applications via their phones whenever they want. In the application, the repetition of words is the key factor to make students enjoy the learning process and show them their progress. The researchers implemented that the application reached their goal and impacted students motivation and success in a good way. Another online gamification tool was developed in the study of Boyinbode (2018) who states based on a survey with 71 students, that the system improved students’ vocabulary knowledge and attracted students to learn more.

Taghizadeh, Vaezi and Ravan (2017) applied gamification in their experiment in which 350 female pre-school students were observed. The researchers found out that using different kinds of tools such as songs, gamification, and flashcards had a positive effect on vocabulary knowledge of young learners.

Karaaslan, Kılıç, Yalçın and Güllü (2018) used gamification to make second year students in preparatory classes eager to learn intrinsically. As the students failed in their previous year, they were more reluctant and unmotivated when compared to their peers who

were in their first year in preparatory class. After the application of 8-week gamification process, students completed a questionnaire about vocabulary learning through gamification. The researchers concluded that students' perception of gamification was quite positive; students enjoyed to collaborate with others as they share responsibility and learn from each other; the participants uttered it was easier to recall target words/phrases as they had playful memories.

Kayseroğlu and Samur (2018) studied with primary school Turkish students in their German Language classes and used QuizGame to revise vocabulary. Their results showed that students' accomplishment in post-test was much higher than their pre-test results and students' attitude towards playful setting was pretty optimistic. They also noticed that students were not afraid of mistakes during games, which is one of the major problems in most language classes; with the help of gamification, students learned from their mistakes while enjoying the friendly competition with their friends to win a game.

Mert and Samur (2018) examined students' feelings towards gamification. In their study, the researchers found that 12 students from different grades had positive feelings towards game elements, and their achievement and motivation increased after the application of gamification method. Game elements such as points, badges, and leaderboards made students feel more successful and self-satisfied. By means of gamification they had the opportunity to see the results of their behavior and to change their behavior in accordance with the results they get.

In another study which is done by Taylor and Reynolds (2018), 41 students in a university in South Korea were separated to experimental and control groups. In the experimental group, Kahoot which is an online gamification tool was used. At the end of the study researchers stated that Kahoot improved students' memory in terms of vocabulary knowledge as it supported learning in a fun and meaningful way. Moreover Kahoot motivated students intrinsically, made students learn more and expanded retention time.

Glowacki, Kriukova and Avshenyuk (2018) searched the difference of achievement and motivation in language learning between the control and experimental groups. In the control group, there were 21 students and in the experimental group, there were 22 students. The students were in their second year in a university in Kiev, Ukraine. In the experimental group Kahoot was used in ESP class. The results showed that the experimental group performed better and had higher motivation compared to the control group.

Pitoyo (2018) studied with an instructor and two students, and investigated a web based assessment tool called Quizzizz which was used by the instructor for a year. After

interviewing with the instructor and the students, Pitoyo came up with a negative idea that using online gamification tools to evaluate students' knowledge may not reflect the reality about students' skills or achievements as the systems lack to prevent cheating. It can be concluded that the findings of this study contradicted with those of the above-mentioned ones in terms of the positive effects of gamification.

Overall, when the related literature is considered, it can be concluded that gamification of vocabulary has several advantages in EFL classes. It changes the students' perception of vocabulary learning in positive way, increases vocabulary knowledge by making retention easier and making students take lessons from their mistakes, motivates students, and contributes to their success in a fun and effective way.



CHAPTER THREE

Methodology

Introduction

This study is intended to examine the effects of gamification on EFL students' achievement and motivation for vocabulary learning in English. This chapter presents the research design, setting, participants, data collection tools, and data analysis of the study. The titles and subtitles in the chapter were determined by taking into consideration research questions as presented below:

RQ 1: Is there a significant difference within and between control and experimental groups in terms of students' motivation towards English vocabulary before and after gamification?

- RQ 1.1: Is there a significant difference between control and experimental groups in terms of students' motivation towards English vocabulary before gamification?
- RQ 1.2: Is there a significant difference between control and experimental groups in terms of students' motivation towards English vocabulary after gamification?
- RQ 1.3: Is there a significant difference within the control group in terms of students' motivation towards English vocabulary before and after gamification?
- RQ 1.4: Is there a significant difference within the experimental group in terms of students' motivation towards English vocabulary before and after gamification?

RQ2: Is there a significant difference within and between control and experimental groups in terms of students' English vocabulary test scores before and after gamification?

- RQ 2.1: Is there a significant difference between control and experimental groups in terms of students' English vocabulary test scores in pre-test?
- RQ 2.2: Is there a significant difference between control and experimental groups in terms of students' English vocabulary test scores in post-test?
- RQ 2.3: Is there a significant difference within the control group in terms of students' English vocabulary test scores in pre-test and post-test?
- RQ 2.4: Is there a significant difference within the experimental group in terms of students' English vocabulary test scores in pre-test and post-test?

RQ3: What are the advantages of gamification in English vocabulary classes?

RQ4: What are the disadvantages of gamification in English vocabulary classes?

RQ5: Which one is more effective in English vocabulary classes: Board games or technology-based games?

RQ6: Are students going to make a change in their vocabulary learning styles after gamification?

Research Design

The aim of the study is to examine the results of the gamification process which was applied for 8 weeks as an in-class activity to teach and revise English vocabulary. It was conducted in daytime and evening classes at Engineering Faculty of Erzincan Binali Yıldırım University (henceforth, EBYU), Turkey, in the spring term of the academic year 2017-2018.

Quantitative and Qualitative Methods of Data Collection and Types of Data			
Quantitative Research		Qualitative Research	
Methods of Data Collection	Data	Methods of Data Collection	Data
Instruments (e.g., questionnaire, closed-ended interview, closed-ended observation)	Numeric scores	Open-ended interviews	Text data from transcribed interviews
Documents (e.g., census, attendance records)	Numeric scores	Open-ended questions on questionnaires	Text data transcribed from questionnaires
		Open-ended observations	Fieldnotes (text) from researcher's notes
		Documents (e.g., private or public)	Text data optically scanned from diaries, journals, letters, or official documents
		Visual materials	Image data from pictures, photography, or audiotapes

Figure 10. Qualitative and quantitative research (Cresswell, 2002 p.549).

This study adopted a mixed method research design which combines quantitative and qualitative data (Dörnyei, 2007). As it is also seen in Figure 10, data is numeric scores collected through questionnaire, close-ended interview, etc. in quantitative research. In other respect, in qualitative research data is texts that are obtained from ethnographies, interviews, diaries/journals, case studies, observational techniques (Mackey & Gass, 2005). This study adopted the questionnaire and pre-test/post-test forming the quantitative, and semi-structured interview forming the qualitative side among instruments for data collection.



Figure 11. Quasi-experimental design with control and experimental group-(Cresswell, 2002 p.310).

In a quasi-experimental design, participants in the groups are definite and the researcher does not have a chance to constitute groups randomly. For example; it can be a compulsion for the researcher to study with an existing group such as 4th grade students in math class (Cresswell, 2002). As seen in Figure 11, the experimental group gets treatment while there is no treatment in the control group during the process between pre-test and post-test (Cresswell, 2002). Within this framework, the current study is a quasi-experimental type research as it examines the effects of gamification by comparing traditional lectures and gamified lectures in day-time and evening groups of EFL classes at the faculty of Engineering. Pre-test and post-test are used to inspect students' scores before and after treatment in control and experimental groups. Moreover, a 16-item questionnaire was implemented before and after gamifying the lectures to find out whether there is a difference in students' perception of vocabulary learning. In the end, semi-structured interviews were administered with students from the experimental group.

“Triangulation entails the use of multiple, independent methods of obtaining data in a single investigation in order to arrive at the same research findings” (Mackey & Gass, 2005, p. 181). Triangulation requires using different types of data collection instruments and combining both qualitative and quantitative research methods as Cresswell (2002) outlined that “quantitative provides the opportunity to gather data from a large number of people and generalize results, whereas qualitative permits an in-depth exploration of a few individuals”(p. 548). On that account, both qualitative and quantitative data collection instruments such as pre-test, post-test, questionnaires before and after gamification and semi-structured interviews were administered to triangulate the data and have a deep understanding of the effects of gamification on students' motivation and achievement in English vocabulary.

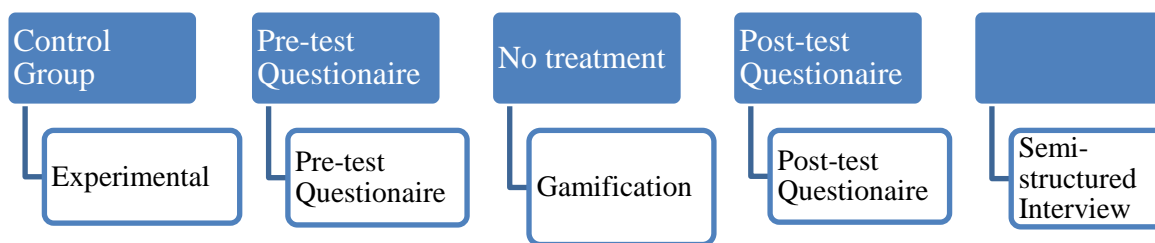


Figure 12. Research design of the study.

Participants and Settings

Participants of the study were the 3rd grade students in daytime and evening classes at the Faculty of Engineering in EBYU. The daytime class was the experimental group and evening class was the control group during the process. The number of students enrolled in the course was 38 for each class. However, some students were taking the class for the second time and they did not have to attend the lectures. Thus, the study was carried out with students for whom attendance was compulsory. The number of students who had to attend the classes was 22 in the experimental group and 26 in the control group namely, the study carried out with 48 students in total. Among these participants, the instructor had interviews with 9 voluntary students chosen randomly in the experimental group.

At the Faculty of Engineering in EBYU there is no preparatory class, but the Faculty provides intense English courses to be able to graduate students with a certain level of English. The students at the Engineering Faculty have English classes for 5 hours a week in their first and last years and four hours a week in their second and third years. The classes are not determined according to their levels. All students who are studying the 3rd grade are taking the same class. Without specified attention to their proficiency levels in English, they are assigned to A2 level in the first year, B1 level in the second year and B2 level in the third year. In their final year, they have vocational English courses.

The students in this study were supposed to be at B2 level as they are 3rd grade students. In terms of grammar, their levels were almost intermediate but their knowledge of vocabulary and other skills were not at the B2 level. Moreover, they were not eager enough to memorize vocabulary. So, the researcher who is also the instructor in these classes tried to change their attitudes and increase their motivation and achievement.

English lessons were implemented in the classrooms at the Faculty of Engineering and during this process, the same classrooms were used. Each class had a computer, projector and projection screen with remotes. However, desks in the classes were immovable as they were designed according to traditional teaching methods. The setting during the gamification

process for 8 weeks was convenient enough to carry out games especially the technology-based games.

Data Collection Instruments

Data collection instruments were determined on the basis of the research questions of this study. Instruments used in the study are pre-test, post-test, questionnaire, and semi-structured interview. The reason to choose a variety of data collection instruments is to strengthen the results through data triangulation and to look at the subject from a broader perspective.

Before starting gamification procedure, students' knowledge of target vocabulary was measured with a vocabulary test prepared by the instructor with 2-item, sentence completion and matching the definitions. In addition to the vocabulary test, a 16-item questionnaire was used to measure English vocabulary learning motivation of students. At the end of gamification procedure, a parallel post-test to pre-test and the same questionnaire were carried out. Apart from tests and questionnaires, semi-structured interviews were done with 9 volunteer students.

In the next parts, detailed information about the questionnaire, pre-test, post-test, and semi-structured interview are given.

Questionnaire.

In order to measure the effects of gamification on students' attitudes towards English vocabulary learning, a questionnaire was applied before and after the application of gamification process. The questionnaire was taken from Lin and Cortina's (2014) study called "Effects of Explicit English-Collocation Instruction and Vocabulary-Learning Motivation on L2 Collocation and Reading-Recall Performances".

The questionnaire included 16 items divided into 5 items of interest value, 5 items of utility value and 6 items of expectancy for success in English vocabulary learning (See Table 1). It was a 5 point Likert Scale from "strongly disagree" to "strongly agree".

Table 1. *Subscales and Number of Items in the Motivation Questionnaire*

Subscales	Number of Items
Interest	5
Utility	5
Expectancy for Success	6

Pre-test and post-test.

To administer pre-test and post-test can provide the researcher with more definite data. Applying pre-test and post-test makes comparison possible as pre-test presents data before the treatment and post-test presents data after the treatment (Cresswell, 2002). Hence, to see the effects of gamification on English vocabulary learning, pre-test and post-test were administered. A vocabulary test which was prepared by the instructor was implemented before gamification process. The test included 25 words with 3 parts. In the first and second parts, there were 9 sentence completion questions and there were 10 words to be used to fill in the blanks. The reason to choose 10 words was to eliminate the chance of answering questions without actually knowing. The third part included 7 words and in this part, students matched the words with their definitions. After the instructor prepared the test, lecturers from the field were consulted to check understandability and possible ambiguity. The test was done at the beginning of the gamification process and time given to students was 25 minutes.

Post-test was prepared in parallel with the pre-test. In other words, the same vocabulary items were used, but the sentences to be completed and definitions were different in the post-test. It was implemented after the gamification process to see the difference clearly. Field experts were consulted again for the clarity and understandability of the post-test. The post-test was also conducted in 25 minutes.

Semi-structured interview.

Among qualitative data collection instruments, interviews are separated to structured interviews and semi-structured interviews, the former is fixed and inflexible. Yet, the latter is flexible with a list of questions (Mackey and Gass, 2005). Thereof, to have more detailed information and broader insight, the researcher conducted semi-structured interviews with students in the experimental group as Mackey and Gass (2005) stated semi-structured interviews present a chance to researchers to collect more information about the research subject inherently.

Interviews were done after the gamification process and being a volunteer was the key factor for students to share their opinions via interview. Questions were prepared by the researcher/instructor and instructors from the field revised the questions in terms of their comprehensibility and consonance with the research questions.

The number of students in semi-structured interviews was 9. Interviews were carried out with students in groups of 2 or 3 and they lasted about 15-20 minutes. The reason for making small groups was to give every student enough chance to share his/her opinion about

gamification and make them feel relaxed and eager to participate as they have a peer/ peers to brainstorm. The interviews were done in the instructor's office and the time of the interviews was determined with students. The medium of interviews was Turkish to make students more relaxed and to be able to obtain more accurate and clear information from the students. The recorded interviews were transcribed and translated from Turkish to English by the researcher after the data collection process. Findings from the interview were presented with the pseudonyms of the participants as it would be better to avoid using their real names.

Interviews included 5 main questions:

1. What kind of methods did you use to learn vocabulary until now?
2. Does gamification have benefits in learning vocabulary?
If yes,
 - 2.a. What are the benefits?
 - 2.b. Are technology-based games and board games useful equally?
3. Did gamification increase your motivation to learn vocabulary?
4. Does gamification have any disadvantages? If yes, what are they?
5. Are you planning to make changes in your method to learn vocabulary?

The instructor gave chance to all students in the interview to share their opinions by asking them the questions one by one. After every student answered the question, the instructor asked the students if they wanted to add anything else so that they could explain their ideas more clearly and in detail.

Data Collection Process

To have a broader point of view, the study is based on both achievements and attitudes towards vocabulary learning in English. To measure the students' achievements and attitudes towards learning vocabulary in English as a foreign language before and after the application of gamification in English vocabulary learning, the pre-test and post-test, and the questionnaires in the beginning and at the end of the process were applied.

In the process which lasted for 8 weeks, 4 games in total were used. These games included 2 technology-based games and 2 board games. Kahoot and Quizlet were used as technology-based games and taboo and Pictionary were used as board games. Each game was played for 2 weeks to give chance to students who could not understand/achieve the game properly in the first time and thus, they could make up their mistakes next time. Questions in Quizlet and Kahoot and cards for taboo and Pictionary were prepared by the instructor in

advance to save time. Games were played at the end of each lecture in the experimental group while in the control group vocabulary was revised with traditional methods.

Students were familiar with games and rules in the games from the previous school term, still, the instructor reminded the rules in short before playing them each week. Students had time limits to achieve their goals and time was kept by the instructor while playing board games.

At the end of the gamification process, semi-structured interviews were held with the students from the experimental group. Almost all the students volunteered to participate in the interviews, so 9 students were chosen randomly by taking into consideration of their scores in post-test so that, it would be possible to gather information from students with low scores, medium scores, and high scores.

Games used in the study.

The games used in the study included two board games and two technology-based games. Each game was played for two week during the gamification process in the experimental group.

Pictionary.

Pictionary is a game played with two groups. One person from each group comes to the board by turns and chooses a random card prepared previously by the instructor. The student who chooses the card tries to explain the word written on the card just by drawing without using any word or gesture to his/her group in the given time. Allowed time for each word is 90 seconds and the time is kept by the instructor. If the word written on the card is drawn on the board and predicted by the group of the student correctly, they get points. The group having more points wins the game.

The Pictionary game was played at the end of 2-hour class in the first two weeks of the treatment as it was easier to play than other games and the allocated time given to the game was about 30 minutes. The aim to start gamification process with Pictionary was to create an environment that students would feel relaxed and it would be a smooth transition to other games which required more knowledge. During the games, some badges such as “Star of the day”, “Ask me”, “Champion” were added to make games more competitive and motivational for students. Students who contributed to their group most earned the badge “Star of the day”, students who could explain two or more words got the “Ask me” badge and the group who had the most scores got the “Champion” badge. Moreover, groups could earn one extra point if they found 3 words successively.

Taboo.

Taboo is also played with two groups. One person from each group comes to the board by turns and chooses a random card prepared previously by the instructor. A main word and five other banned words under the main words are written on each card. Students try to explain the main word without using the banned words to their group. Each student has limited time and if the group of the student on the board predicts the word correctly, they get points. The group having more points wins the game.



Figure 13. A sample of Taboo Card.

There is an example of a taboo card above. ‘Kangaroo’ is the main word on the card and the student on the board tries to explain the main word without using ‘pouch’, ‘hop’, ‘Australia’, ‘animal’ and ‘captain’. If his/her friends in the group use the forbidden words, the students on the board can also use.

Students participating in the study were not at the same level and some of them were very weak in terms of speaking and vocabulary knowledge. The taboo game was adapted considering the levels of the students and for some words; the number of the forbidden words was decreased to 3. The game Taboo was played at the last two weeks of the treatment as it is the most challenging game in the study, which required students to express themselves by speaking in English. The game was played at the end of 2-hour class and it took about 30 minutes. Rules were the same as the game Pictionary and students got the badges such as “Champion”, “Ask me”, “Star of the Day”.

Kahoot.

Kahoot was used firstly in 2013 and played by millions of people in many countries. Different question types can be used in Kahoot to prepare a quiz. Because of the popular game-based teaching culture, the tool enables instructors to quiz the students both inside and outside the school.

Students sign in the application with a nickname and they answer questions by their smartphones. They choose an answer on their phones for the questions seen on the board. They get different points according to both their choices and the time they spend in answering the questions. The game was played at the end of the class in the third and fourth weeks of the treatment as it was easier to answer the question when compared to Quizlet. The game did not require a lot of time to play, it took about 10 minutes or less.

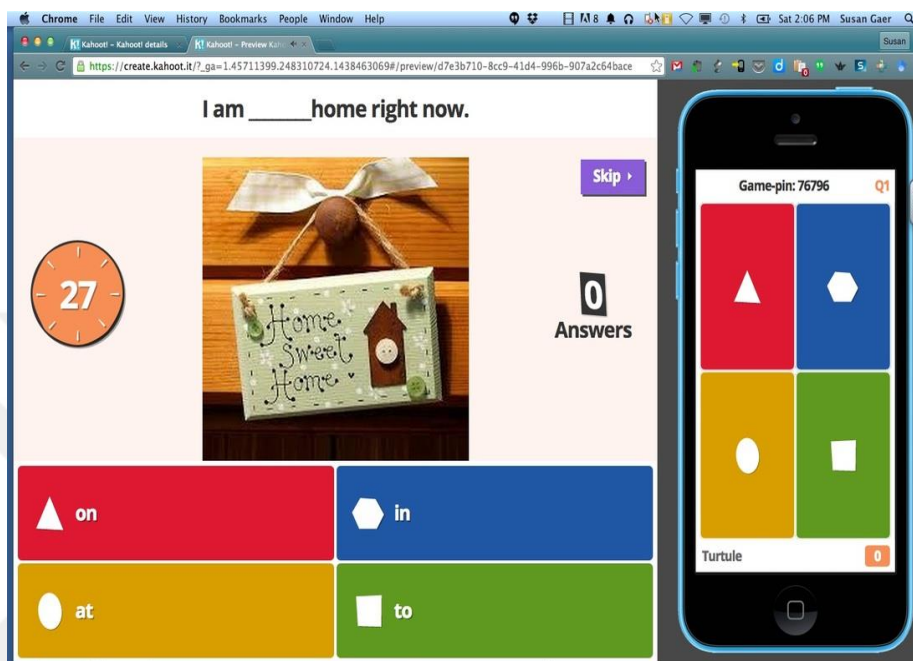


Figure 14. Screenshot of Kahoot in projector and mobile phone during a game.

Quizlet.

Andrew Sutherkand created Quizlet while studying French vocabulary exam in high school in 2005. Since then, it gained interest and became a popular online gamification tool in educational settings. Quizlet is played by groups of three or four. There are 12 different choices in the game. Students in the same group have different options on their smartphones. The student who has the correct answer should answer the question to get point. The group completing the 12 choices in the shortest time wins the game and game ends for all the groups. When the students make a mistake while answering the questions they go back to the beginning. In addition to its use as an in-class activity, Quizlet can be quite effective outside the class too as it is possible to prepare self-study vocabulary cards with different types of questions, which requires an account that is free.

The game was played in the fifth and sixth weeks of the treatment as it required more effort than Kahoot because the students had to start from the beginning when they had a mistake as a group. Like other games, it was also played at the end of the class and the time

depended on the groups as the game ends when a group answers all the questions correctly. The games lasted for 5-10 minutes approximately.

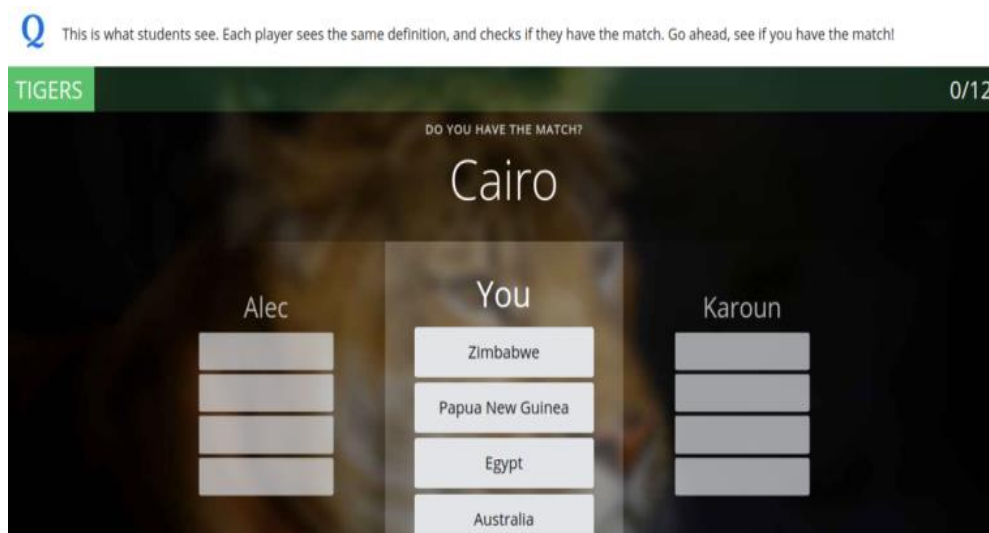


Figure 15. A screenshot of Quzilet during a game.

Data Analysis

Via pre-test, post-test, questionnaires and semi-structured interviews, both qualitative and quantitative data were collected to have detailed insight in the beginning and at the end of the gamification process.

Quantitative data analysis.

Quantitative data which were collected before and after the process of gamification via pre-test, post-test and questionnaires were analyzed with SPSS (Statistical Package for the Social Sciences). To analyze the distribution of the data, normality tests were conducted in SPSS and as the number of the participants in the study is less than 50, the result for the Kolmogorov-Smirnov test was taken into consideration. The results showed that the questionnaire was distributed normally ($p=,200$), but data of the post-test ($p=,000$) was not normally distributed. In consideration of normality test, the results of the questionnaires were analyzed via Independent Sample T-test and the results of the pre-test and post-test were analyzed via Mann-Whitney U test to see if there was a significant difference in motivation and success levels of students between control and experimental groups.

Paired Sample T-test was conducted to see if there was a significant difference in the motivation levels of students before and after the treatment within the experimental and control groups, and to see if there was a significant difference between the pre-test and post-

test within the experimental and control groups, The Wilcoxon Signed-Rank test, which is the non-parametric version, was conducted.

Qualitative data analysis.

Qualitative data was collected through semi-structured interviews after the 8-week gamification process and it was analyzed through content analysis. The first step was to transcribe the recorded interviews for the analysis by the researcher, which enables the researcher to have general information about the interviews. After transcribing and reading the data in general, the researcher read the data for detailed information to identify common codes in terms of research questions. Then, Identified codes were combined in categories and combining themes in categories by considering vocabulary through gamification was the last step of the qualitative data analysis.

To increase the trustworthiness of the data analysis, another expert from the field was guided to content the same data set and similar results were obtained.

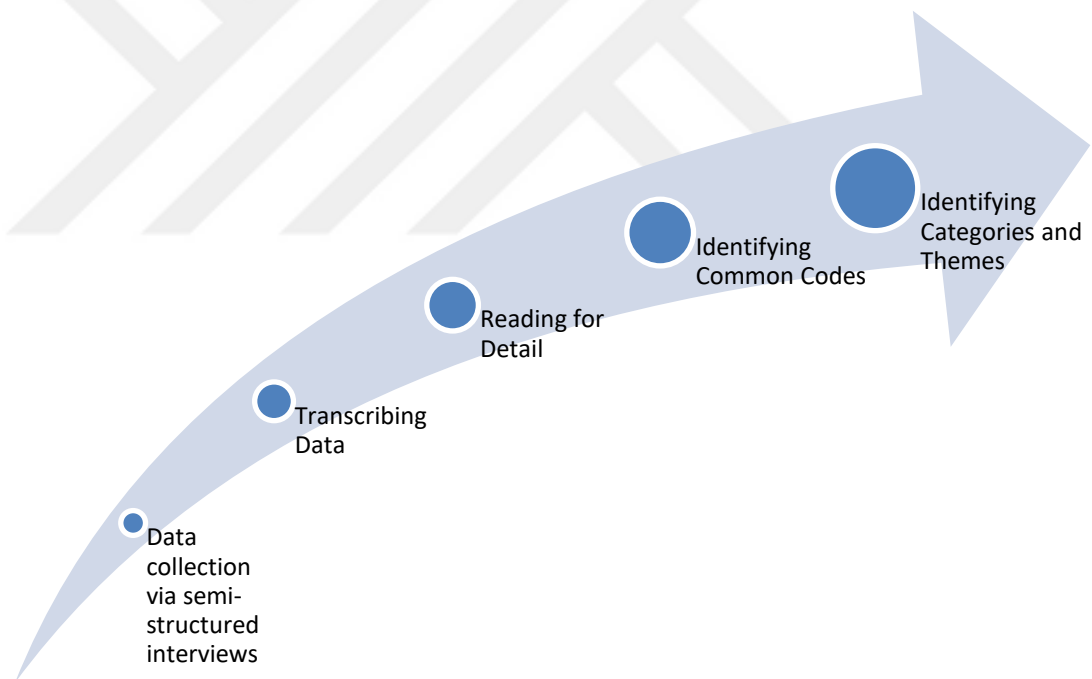


Figure 16. Process of qualitative data analysis.

Table 2. *Overview of Research Questions and Data Analysis*

<i>Research Questions</i>	<i>Data Collection Instruments</i>	<i>Data Analysis</i>
RQ1: Does gamification affect students' attitudes toward vocabulary learning?	Questionnaire	
· RQ 1.1: Is there a significant difference between control and experimental groups in terms of students' motivation towards English vocabulary before gamification?	Questionnaire	Independent Sample T-Test
· RQ 1.2: Is there a significant difference between control and experimental groups in terms of students' motivation towards English vocabulary after gamification?	Questionnaire	Independent Sample T-Test
· RQ 1.3: Is there a significant difference within the control group in terms of students' motivation towards English vocabulary before and after gamification?	Questionnaire	Paired Sample T-test
· RQ 1.4: Is there a significant difference within the experimental group in terms of students' motivation towards English vocabulary before and after gamification?	Questionnaire	Paired Sample T-test
RQ2: Is there a significant difference within and between control and experimental groups in terms of students' English vocabulary test scores before and after gamification?	- Pre-test and Post-test	
· RQ2.1: Is there a significant difference between control and experimental groups in terms of students' English vocabulary test scores in pre-test?	- Pre-test and Post-test	Mann Whitney U Test
· RQ2.2: Is there a significant difference between control and experimental groups in terms of students' English vocabulary test scores in post-test?	- Pre-test and Post-test	Mann Whitney U Test
· RQ2.3: Is there a significant difference within the control group in terms of students' English vocabulary test scores in pre-test and post-test?	- Pre-test and Post-test	The Wilcoxon signed-rank test
· RQ2.4: Is there a significant difference within the experimental group in terms of students' English vocabulary test scores in pre-test and post-test?	- Pre-test and Post-test	The Wilcoxon signed-rank test
RQ3: What are the advantages of gamification in English vocabulary classes?	- Semi-Structured Interview	- Content Analysis
RQ4: What are the disadvantages of gamification in English vocabulary classes?	- Semi-Structured Interview	- Content Analysis
RQ5: Which one is more effective in English vocabulary classes: Board games or technology-based games?	- Semi-Structured Interview	- Content Analysis
RQ6: Are students going to make a change in their vocabulary learning styles after gamification?	- Semi-Structured Interview	- Content Analysis

Role of the Researcher

In this study, the researcher aimed to find out if there was an increase in the achievement of the participants in English vocabulary and if there was any change in their

attitudes towards English vocabulary learning through gamification. The researcher had roles in:

- instructing the course
- preparing of pre-test and post-test
- preparing of the gamification procedure
- implementing gamification
- implementing pre-test, post-test, and questionnaire
- collecting of data
- analyzing of data

Reliability and Validity

Joppe (2000, as cited in Golafshani, 2003) defines validity as parallelism between the aims of research and data collected for the research. Namely, data collections tools and collected data should answer the research questions that the researcher wants to get answers. Hereof, after determining research questions, data collection tools were determined as they could answer the research questions clearly in this study. To triangulate data, pre-test, post-test, questionnaires and semi-structured interviews were applied.

As regards reliability, it is about the same results in different times (Joppe, 2000, as cited in Golafshani, 2003). To meet reliability, both qualitative and quantitative data were collected and different kinds of analysis methods were used.

Pre-tests and post-tests should be parallel in terms of difficulty. If one of them is more difficult or easier than the other one, the difference identified in the improvement may not reflect the improvement (Mackey & Gass, 2005). To eliminate the possibility of non-parallelism between pre-test and post-test, field experts were consulted before administering them. Moreover, the questions in the pre-test, post-test, and semi-structured interview were also inspected by instructors from the field to eliminate possible biases and ambiguity in the questions. By this means, questions were tested one by one in the pre-test, post-test, and the questionnaire, and the parallelism of the tests was tested by examining the difficulty of overall questions in the pre-test and post-test.

The reliability of questionnaire taken from a study called Effects of Explicit English-Collocation Instruction and Vocabulary-Learning Motivation on L2 Collocation and Reading-Recall Performances by Lin and Cortina (2014) was measured with Cronbach's alpha reliability test (0.80) and two raters (0.90) and the results showed that the questionnaire is quite reliable.

In conclusion, to fulfill validity and reliability, data triangulation and reliability test were used and field experts were consulted to attain the most accurate results according to the research questions of the study.

To sum up, the methodology of the study was examined and research design, participants, settings, data collection instruments, data collection procedures, games, data analysis were presented in detail in this section. Gamification process was applied as it was mentioned in the methodology part, and the results of the study were given in the next chapter considering the steps and procedures as stated above.



CHAPTER FOUR

Results

Introduction

This chapter presents the results of the qualitative and quantitative data gathered from the participants in order to investigate the effects of gamification on students' achievement and motivation in English Language classes in the Faculty of Engineering at EBYU. Firstly, comparisons between students' achievement and motivation in the control and experimental groups and the comparisons of students' achievement and motivation before and after gamification are covered via statistical analysis. Then, findings gathered from interviews about the students' perception of gamification in the experimental group are examined and presented in detail via content analysis. Findings about research questions of the study are covered in the following quantitative results and qualitative results sections.

Quantitative Results

Quantitative data results which were collected through questionnaires, pre-test and post-test were examined and analyzed in the following sub-titles of this section, and groups were compared in line with the results of quantitative data results.

Findings about the difference between control and experimental groups in terms of students' motivation towards English vocabulary before gamification.

Data collected via questionnaire before the gamification process were analyzed with independent sample t-test in SPSS program to find the difference between the control and experimental groups' motivation levels. As the questionnaire has values such as "Interest", "Utility", and "Expectancy", the data are presented according to these sub-titles.

Table 3. *Inter-Group Motivation Comparison Before Gamification*

	Groups	N	Mean	SD	Mean Difference	t	df	p
Interest	Control	26	19.4231	2.92811	-.65035	-.627	46	0.534
	Experimental	22	18.7727	4.23063				
Utility	Control	26	11.4231	3.37251	-1.78671	-1.883	46	0.66
	Experimental	22	9.6364	3.15543				
Expectancy	Control	26	19.7692	5.85360	-2.58741	-1.674	46	0.101
	Experimental	22	17.1818	4.64590				

An independent-samples t-test was conducted to compare the motivation levels of the participants' in the control and experimental groups before the gamification process. There was not a statistically significant difference in interest, utility, and expectancy values between the scores of control group students (M= 19.4231, SD= 2.92811; M= 11.4231, SD= 3.37251; M= 19.7692, SD= 5.85360) and experimental group students (M= 18.7727, SD= 4.23063; M= 9.6364, SD= 3.15543; M= 17.1818, SD= 4.64590) as presented in the parenthesis respectively. The difference was not statistically significant;

- with a mean difference of $-.65035$, $t_{(46)} = -.627$, $p > .05$ in interest value,
- with a mean difference of -1.78671 , $t_{(46)} = -1.883$, $p > .05$ in utility value,
- with a mean difference of -2.58741 , $t_{(46)} = -1.674$, $p > .05$ in expectancy value.

Results showed that motivation levels of the control and experimental groups were not statically different from each other before the application of gamification as it was expected by the researcher to be able to see the effects of gamification better after the application of gamification in the experimental group.

Findings about the difference between control and experimental groups in terms of students' motivation towards English vocabulary after gamification.

The questionnaire, which showed that there was not significant difference between the groups before gamification, was conducted again to see if there was a statistically significant difference between the motivation levels of the control and the experimental groups after the gamification process. To be able to analyze the difference, an independent sample t-test was applied.

Table 4. *Inter-group Comparison in Motivation Levels after Gamification*

	Groups	N	Mean	SD	Mean Diff	t	df	p																					
Interest	Control	26	18.9231	5.62795	.57692	.385	46	0.702																					
	Experimental	22	19.5000	4.56435					Utility	Control	26	9.9615	3.60534	-1.09790	-1.132	46	0.263	Experimental	22	8.8636	3.01260	Expectancy	Control	26	19.5385	4.23881	-3.94755	-2.422	46
Utility	Control	26	9.9615	3.60534	-1.09790	-1.132	46	0.263																					
	Experimental	22	8.8636	3.01260					Expectancy	Control	26	19.5385	4.23881	-3.94755	-2.422	46	0.02	Experimental	22	15.5909	6.91798								
Expectancy	Control	26	19.5385	4.23881	-3.94755	-2.422	46	0.02																					
	Experimental	22	15.5909	6.91798																									

An independent-samples t-test was conducted to compare the motivation levels of the participants' in the control and experimental groups after the gamification process. Although there was not a statistically significant difference in interest and utility values between the scores of control group students (M= 18.9231, SD= 5.62795; M= 9.9615, SD= 3.60534) and experimental group students (M= 19.5, SD= 4.56435; M= 8.8636, SD= 3.01260) respectively,

there was a statistically significant difference in expectancy values between the control (M= 19.5385, SD= 4.23881) and the experimental groups (M= 15.5909, SD=6.91798). The difference was significant with a mean difference of -3.94755, $t_{(46)} = -2.422$, $p < .05$ with a moderate effect size (Cohen's $d = .68$) (Cohen,1988).

Analysis of the data indicated that although the groups did not have an important difference in terms of interest and utility values, they differed in terms of expectancy value ($p = .02 < .05$) which presented negative statement in the questionnaire such as “Learning English vocabulary is a complicated task”, “I found English vocabulary learning difficult” etc. Mean scores of the control (M= 19.5385) and experimental (M= 15.5909) groups showed that the students in the experimental group did not have as negative thought as the students in the control group towards learning English vocabulary.

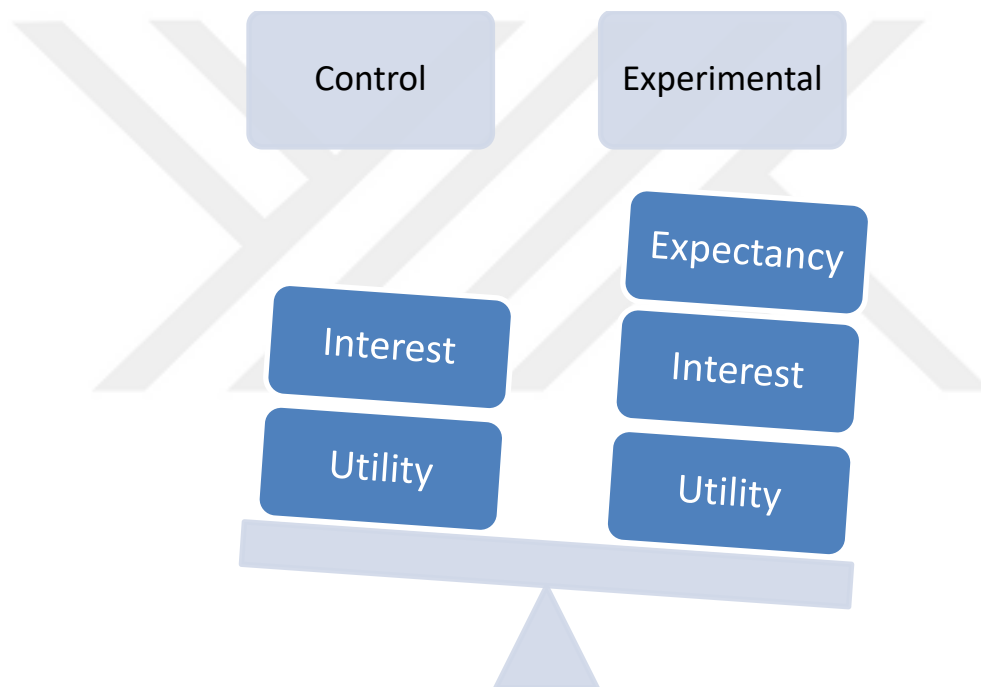


Figure 17. Expectancy effect of gamification.

Findings about the difference within the control group in terms of students' motivation towards English vocabulary before and after gamification

In order to see if there was a significant difference in the motivation of the students in the control group before and after the gamification, a paired sample t-test was applied. The data which were collected via motivation questionnaire within the control group were analyzed by taking into consideration of the research questions of the study.

Table 5. *Motivation Level Of The Control Group Before And After Gamification*

	Before Gamification			After Gamification			Mean Difference	t	df	p
	N	Mean	SD	N	Mean	SD				
Interest	26	19.4231	2.92811	26	18.9231	5.62795	-7.2727	.372	25	.713
Utility	26	11.423	3.37251	26	9.9615	3.60534	.77273	1,58	25	.127
Expenctancy	26	19.7692	5.8536	26	19.5385	6.91798	1.59091	.144	25	.887

A paired samples t-test was conducted to explore any possible differences in the students' motivation levels in the control group before and after gamification process. The analysis revealed no statistically significant difference in:

- Interest before (M= 19.4231, SD= 2.92811) and after (M= 18.9231, SD= 5.62795) gamification
- Utility before (M= 11.423, SD= 3.37251) and after (M= 9.9615, SD= 3.60534) gamification
- Expectancy before (M= 19.7692, SD= 5.8536) and after (M= 19.5385, SD= 6.91798) gamification

The difference between the attribution factors was not significant in terms of interest ($t_{(25)} = 0.372$, $p > .05$), utility ($t_{(25)} = 1.580$, $P > .05$), and expectancy value ($t_{(25)} = 0.14$, $p > .05$). It can be concluded that motivation levels of the students in the control group were the same before and after the 8-week process.

Findings about the difference within the experimental group in terms of students' motivation towards English vocabulary before and after gamification.

In addition to the control group, motivation levels of the students in the experimental group before and after treatment were also examined. Data collected through questionnaires were analyzed with paired sample t-test.

Table 6. *Motivation Level Of The Experimental Group Before And After Gamification*

	Before Gamification			After Gamification			Mean Difference	t	df	p
	N	Mean	SD	N	Mean	SD				
Interest	22	18.7727	4.23063	22	19.5	4.56435	-7.2727	-0.514	21	.613
Utility	22	9.6364	3.15543	22	8.8636	3.0126	.77273	.758	21	.457
Expenctancy	22	17.1818	4.6459	22	15.5909	4.23881	1.59091	1.729	21	.099

A paired samples t-test was conducted to explore any possible difference in the students' motivation levels in the control group before and after gamification process. The analysis revealed no statistically significant difference in:

- Interest value before (M= 18.7727, SD= 4.23063) and after (M= 19.5, SD= 4.56435) gamification
- utility value before (M= 9.6364, SD= 3.15543) and after (M= 8.8636, SD= 3.0126) gamification
- expectancy value before (M= 17.1818, SD= 4.6459) and after (M= 15.5909, SD= 4.23881) gamification

The difference between the attribution factors was not significant in terms of interest value ($t_{(21)} = -0.514$, $p > .05$), utility value ($t_{(21)} = .758$, $p > .05$), and expectancy value ($t_{(21)} = 1.729$, $p > .05$). Like the control group, motivation levels of the students were the same before and after the gamification process and it could be concluded that 8-week gamification did not change the students' attitudes in the experimental group towards English vocabulary learning.

Findings about the difference between control and experimental groups in terms of students' English vocabulary test scores in pre-test.

Besides motivation levels, achievements of the students were also examined via pre-test and post-test. First of all, comparison between the achievements of students in the control and experimental group before gamification was done via Mann-Whitney U test, and the results are presented in Table 7.

Table 7. *Inter-Group Comparison Of Pre-Test Results*

	N	Mean Rank	Sum of Ranks	Median	Mann-Whitney U test	Z	Sig.
Control	26	26.02	676.50	16	246.500	-825	.410
Experimental	22	22.70	499.50	14			
Total	48						

A Mann-Whitney U test did not show a statistically significant difference in pre-test scores of the students in the control group (Md: 16, N: 26) and the students in the experimental group (Md: 14, N: 22), U: 246.500, $z_{(48)} = -825$, $p = .410$. It means that students in both groups were at the same level in terms of target English vocabulary at the beginning of the study which gave the researcher an opportunity to be able differentiate the effects of gamification on achievement better. Moreover, students' readiness in each group was the same in terms of achievement as it was in motivation.

Findings about the difference between control and experimental groups in terms of students' English vocabulary test scores in post-test

Students' achievements were measured with post-tests which were conducted in both the control and the experimental groups after 8-week of gamification process to see if there was a significant difference in achievements of the groups, and to able to see the effects of gamification clearly. To compare the scores of the group a Mann-Whitney U was conducted as the result can be seen in the Table 8.

Table 8. *Inter-Group Comparison Of Post-Test Results*

	N	Mean Rank	Sum of Ranks	Median	Mann-Whitney U test	Z	Sig.
Control	26	19.96	519.00	24	168.000	-2.454	.014
Experimental	22	29.86	657.00	34			
Total	48						

Mann-Whitney U test showed a significant difference in post-test scores of the students in the control group (Md: 24, N: 26) and the students in the experimental group (Md: 34, N: 22), U: 168.000, $z_{(48)}$: -2.454, p : .014 with a medium effect size r : -0.35, reflecting a medium effort by the experimental group. The results showed that although the achievement of the control group increased significantly as it could be seen in the next section, the achievement of the experimental group was significantly higher than the achievement of control group. Therefore, it could be concluded that gamification affected the achievement of the students more than the traditional method.

Findings about the difference within the control group in terms of students' English vocabulary test scores in pre-test and post-test.

One of the aims of the researcher was to reveal if any differences occur in the control group's vocabulary achievement before and after traditional method. Data collected via pre-test and post-test were analyzed with Wilcoxon Signed Rank test and the results are presented in Table 9.

Table 9. *Pre-Test And Post-Test Comparison Of The Control Group*

Test	N	M	SD	Median	-R	+R	T	Z	p
Pre-test	26	19.54	15.973	16	1	21	4	-3.678	.000
Post-test	26	30.62	21.073	24					

Wilcoxon Signed Rank test revealed a statistically significant increase in the scores in pre-test and post-test. There was an increase in the test scores of the students from pre-test (Md= 16) to the post-test (Md= 24, $z_{(26)}$ = -3.678, p = .000) indicating a large effect size of r =

.51 (Cohen, 1988). It could be concluded that although the experimental group students achieved significantly better as it was clear in the previous section, the traditional method also made an important difference in the achievement of the students as it had a large effect size. Additionally, as it can be seen in -R, +R and T values in Table 4.7, one student achieved worse in the post-test than the pre-test, 4 students achieved the same in the post-test as pre-test, and the rest of the class, 21 students, achieved better in the post-test than the pre-test.

Findings about the difference within the experimental group in terms of students' English vocabulary test scores in pre-test and post-test.

As one of the main aims of the study was to examine the effect of gamification on students' achievement, pre-test and post-test scores of the students in the experimental group were compared via Wilcoxon Signed Rank test as in the control group. The result of the test is displayed in Table 10.

Table 10. *Pre-Test And Post-Test Comparison Of The Experimental Group*

Test	N	M	SD	Median	-R	+R	T	Z	p
Pre-test	22	15.64	12.094	14	0	21	1	-4.020	.000
Post-test	22	45.09	24.787	34					

Wilcoxon Signed Rank test revealed a statistically significant increase in the scores of the students in the experimental group in pre-test and post-test. There was an increase in the test scores from pre-test (Md= 14) to the post-test (Md= 34, $z_{(22)} = -4.020$, $p = .000$) indicating a large effect size of $r = .60$ (Cohen, 1988). Like traditional method, gamification also affected the vocabulary achievement of the students in a positive way. The number of the students who had higher scores in the post-test when compared to pre-test was (R+) 21 as it was in the control group. However, unlike traditional method, there was no student who did less in the post-test than in the pre-test, and the number of the students who had the same score in the post-test as in the pre-test was one as shown with -R and T values in Table 4.8.

Qualitative Data Results

Qualitative data results which are collected through interviews are examined and analyzed in the following sub-titles of this section via content analysis.

Findings about the students' opinions of the advantages of gamification during lectures.

When the participants were asked if gamification had any advantages in English vocabulary learning during classes, they showed a quite positive attitude and mentioned that gamification had advantages in terms of learning vocabulary and their desire to learn more

words. They supported their ideas with examples such as challenge, competition, visual aid and fun aspects of gamification.

To support their ideas that gamification has advantages while learning words in English language, most of them affirmed that visual aid availed them to learn new words. The below quotes can provide examples regarding the participants' views:

“I always believe that visuals are more effective in learning. People understand better when they see something rather than they read because visual memory is the most important factor in perception. We do not forget the things we see for example; in Pictionary game we draw something and create a visual. So it is effective in learning.” (Erdem)

“Visuals are effective. If we write the words with their Turkish meanings, we do not revise the words again. However it is easier to remember as we draw the words in Pictionary game.” (Mahir)

“I think learning is more permanent with visuals.” (Erdinç)

As it can be seen, students were aware of the importance of visuals while learning and they were of the opinion that visuals made learning permanent, which they needed when they were learning new words.

According to students' points of view, fun was also a very important factor in learning and during the gamification process their desire to learn was triggered via fun aspect of games as it is stated in the following comments:

“Games are very effective because in traditional classes students are inactive, but in games everybody participates in the activity and follows the lesson. Moreover, it is catchier as it is fun and we speak during the class. I learned most in this class.” (Hilmi)

“Normally, I am not very active during lessons and I cannot learn at school. I usually study by myself. Games attract my attention and I am more active during the games which increase my motivation.” (Mahir)

“As you start to learn easily and in a fun environment, your desire to learn increases as you see that you can learn new words. It is not difficult.” (Burak)

It can be concluded from students' sayings that playing games was fun in the class and due to fun they paid more attention to learning and had more desire for learning new words. Besides, the participants preferred fun to traditional classes for effective learning as they were more active during the lessons while playing games. So they had a chance to participate actively, which was not much feasible in traditional classes.

Another aspect of games provided by the students was challenge. They maintained that during games they had to do their best to win the game or achieve their goals. Excerpts

from the interview below indicate the effects of challenge on students' vocabulary learning in English:

"When a group member is trying to describe something to the group, we make an effort to find the word and we are obliged to learn different words. For example; someone is describing a word about prison, we have to know different words about prison to find the answer." (Hilmi)

"Taboo challenges us to use words from our vocabulary knowledge and to make sentences. As we make sentences, we gain self-confidence that we can do it. Thanks to games we can use the words that we have learned in advance...It is a kind of brain exercise" (Mehmet)

"We try hard to find different ways to describe words...Gamification encourages thinking from different perspectives." (Erdinç)

"When we try to describe a word, we sometimes have problems in explaining ourselves as we do not know the exact words. Then we try to learn different words." (Sarp)

It can be inferred from students' comments that challenge made them aware of their deficiencies and compensate them for the next times in the games. Unlike traditional methods they needed to think in a different way during games, which was attractive for them. Moreover, another advantage of challenge was that it encouraged the students to use the words they had already known.

The elements students mentioned while describing the advantages of gamification on English vocabulary learning also included competition and collaboration aspects of games. Students' ideas about competition and collaboration aspects of games and their advantages are shown in the following examples:

"In games, we are in a competition and so, we try harder." (Mehmet),

"As we were competing with each other, we tried our best to remember the words. So words we have learned were more permanent... I am not interested in vocabulary learning but to desire to achieve something makes vocabulary learning compulsory and you want to learn new words." (Eren)

"Normally, I always write the words by myself. As there is interaction with others, it is more interesting. Moreover, there are visuals, competition and fun...People feel they need to learn the words as you can win or lose in a game." (Hakan)

As students competed with each other and their goal was to beat the others, they did their best when they belonged to a group and they fought against the other group. It can be deduced from the examples that like challenge aspect of games, competition and collaboration also made students do their best to win a game and so, encouraged them to learn.

Students' explanations indicated that gamification affected their vocabulary knowledge in a good way as they were more motivated to learn due to games and aspects of

gamification make learning easier for them. The aspects of games such as visuals, fun, challenge, competition and collaboration led to better learning (See Figure 18) than traditional methods which were boring for the students. Moreover, it was surprising that when the students were asked about positive sides of gamification, they gave examples from the board games; taboo and Pictionary.

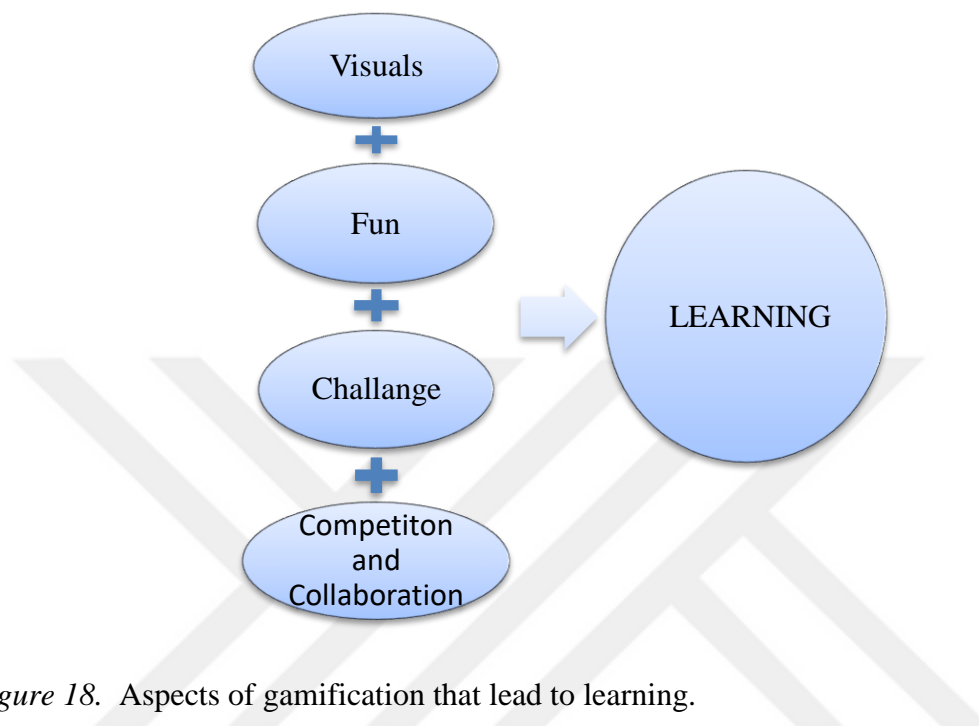


Figure 18. Aspects of gamification that lead to learning.

Findings about the students’ opinions of the disadvantages of gamification during lectures.

The participants were asked if gamification had any disadvantages and what are the possible disadvantages that can be observed in the classes to have an understanding of students’ perception of gamification from a different perspective. As to the disadvantages, some students stated that gamification had no disadvantages as it is clear in the following quotes:

“It does not have any disadvantages; classes are more useful.”
(Erdinç)

“I think it is not disadvantageous in the class...Conversely, it is advantageous.” (Sarp)

Although the rest of the students could not find any disadvantages at first, after brainstorming in pairs, they came up with self-confidence, cheating/random answering and time as the disadvantages of the process.

Students mentioned that self-confidence could be a problem from time to time especially for shy students as it is shown in the following examples:

“People who are good at English can express themselves with high self-esteem. However, people who are not very good at English can be embarrassed and bored in front of people.” (Mahir)

“In Taboo and Pictionary, we have to be in front of people which can cause stress. It is not the issue for computer based games as we are free and we are not criticized when we make a mistake. Although we did not observe in our class, people can be stressed because of pronunciation mistakes.” (Mehmet)

“Low self-confidence can be a disadvantage, but people get over it after some time. In the first week I did not want to be in front of people however, I was volunteer next week.” (Hakan)

Briefly, students may sometimes have problems about self-esteem when they play games in which they should be in front of people and they are the teller in the game. Students touched upon the point that problems about self-esteem may have occurred because of their level of English or fear of making mistakes. As also one student expressed above, they can get rid of problems about low self-esteem after practicing enough as the teller.

Random answers and cheating may be other disadvantages according students' point of view as they stated that participants may have answered the questions in Quizlet and Kahoot randomly or chosen the same answers as their friends had done as it is obvious in the excerpts below:

“During Kahoot and Quizlet, people can answer questions without thinking.” (Erdem)

“People can see the answers of other people and choose the same option as others in Kahoot...But, it is effective for me and I have learned a lot of words” (Mahir)

Time can also be disadvantageous when it comes to games compared to traditional methods as students mentioned that they had to spare more time to play games in the class, which was not the case in traditional classes. Students' ideas about time as a disadvantageous part of games are presented below:

“Time can be a disadvantage that one should spare more time in gamification when compared to traditional method.” (Mehmet)

“It takes a lot of time but we do not have problems in learning... as we enjoy playing games” (Eren)

To summarize, some students stated that gamification had no disadvantage; on the contrary, it was effective for learning. After brainstorming for a while, the rest of the students reported that games could be disadvantageous for students with low self-esteem and in terms of cheating/random answers and time (See Figure 19). It is noteworthy that the students, who mentioned the disadvantages such as low self-esteem, random answers and time consuming also mentioned that they benefited from the games.

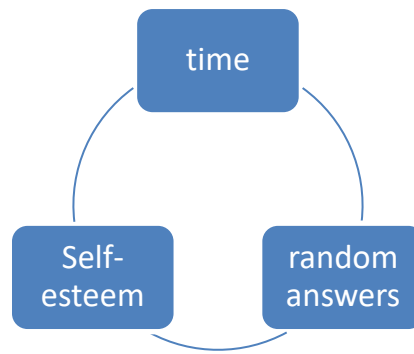


Figure 19. Possible disadvantages of gamification.

Findings about the comparison of effectiveness of board games and technology-based games from the participants' points of view.

Students were asked to differentiate board games and technology-based games in terms of vocabulary learning in English. They declared that board games were much more effective than technology-based games as it is indicated in the excerpts below:

“Definitely board games...Because they are played in teams. We support each other, but in technology-based games people can answer randomly.” (Hilmi)

“In my opinion, board games increase communication among people.” (Mahir)

“Board games especially Taboo is more effective. We have options in technology-based games and we can guess the answer” (Mehmet)

“For me, board games are certainly more effective. We are in competition in board games which is more effective...During board games, people are more active as teller or predictors” (Hakan)

“In technology-based games, it is possible to use translation programs. But in board games we compete and cannot get help.” (Eren)

“We can see the sentences in technology-based games. On the other hand, we have to concentrate during board games; we focus on words and a lot words pass through our minds.” (Burak)

“You mark an option in technology based games and go to the next question. However, you try to understand the word that your friends describe in front of the board and you use your imagination in board games. You need to learn different words to play board games.” (Hilmi)

As it is clear from the excerpts above, students highlighted that they benefited from board games more to increase their vocabulary in English. The projected reasons behind the students' ideas of effectiveness of board games were collaboration, competition, challenge, communication and fantasy in general as displayed in Figure 20.

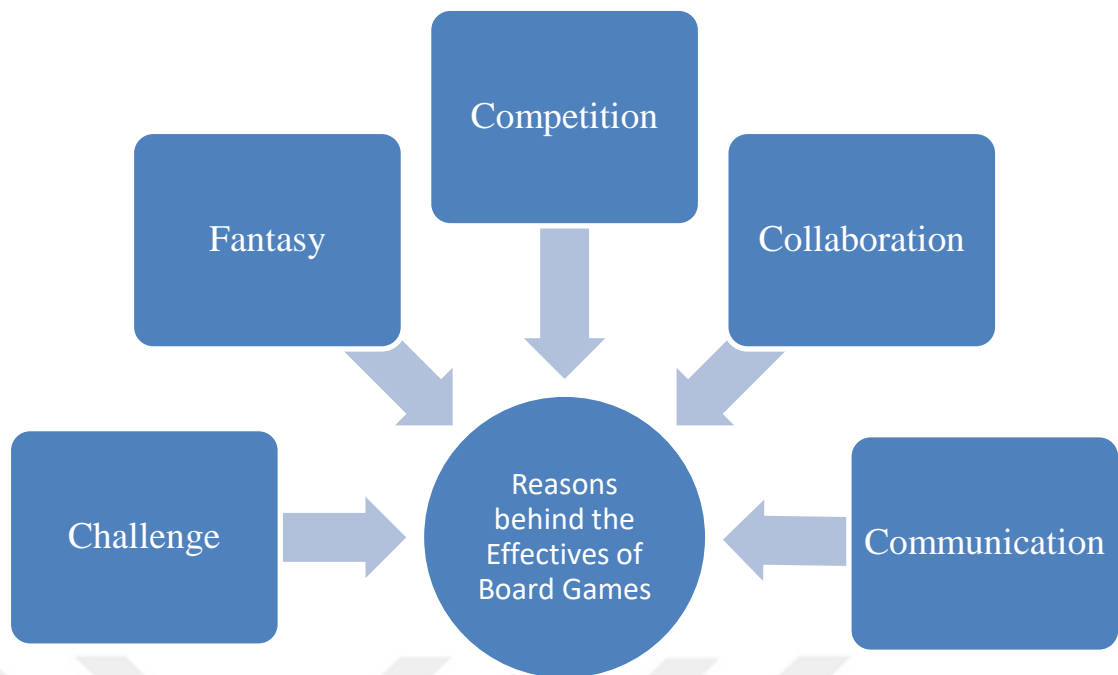


Figure 20. Reasons behind the effectiveness of board games.

Although the students expressed that they benefited from board games more, they also expressed they benefited from technology-based games too as it is shown below:

“I also benefited from technology-based games but not as much as board games.” (Hakan)

“You can see the sentence structure in technology-based games and see your mistakes if you made similar sentences in the past. Sentences that can be made by the students in the class are limited. So you have an opportunity to see different sentences in technology-based games.” (Mehmet)

“In Quizlet, you have to return to the beginning when you make a mistake. That is, you have to learn the words.” (Sarp)

The answers show that both board and technology-based games were beneficial for students. However, board games were more effective than the technology-based games when it came to vocabulary learning in English.

Findings about the participants’ desire to use different tools to learn vocabulary out of the classroom.

To find out if students were going to make any difference in their vocabulary learning methods, they were asked which methods they use to learn vocabulary. Answers are presented below:

“I look up the words that I see in computer games... I study before exams by writing the Turkish meanings of words.” (Mehmet)

“I study by writing words on small cards.” (Erdoğan)

“I do not use a specific method to learn vocabulary.” (Sarp)

“I do not make an effort to learn vocabulary.” (Burak)

“I write the word for 5-10 times.” (Mahir)

“I make a list of the words” (Erdem)

Results revealed that students used traditional methods to learn such as listing or writing words for several times or they did not use any method to learn. As students mentioned several advantageous aspects of gamification in previous questions and had positive feelings towards gamification, the question whether they were planning to change their vocabulary learning methods which were quite traditional emerged. Within this context, after collecting information about the methods students’ use to learn/revise vocabulary, they were asked if they were planning to use different tools for learning vocabulary. The following answers were given by the students:

“I have learned that competition and tests are useful for leaning. I have an application on my phone but I do not remember its name.” (Burak)

“In the class we played Quizlet and you said us that we could have accounts too. So I was registered to Quizlet and I launch in my spare time.” (Sarp)

“I can use if it is possible with my friends.” (Hakan)

“For me, the best way is to use in a sentence or to describe the words. Yesterday, we talked with friends that board games could be an activity for us too.” (Mehmet)

“I can study on Quizlet. However it is possible I keep playing Taboo with friends.” (Erdoğan)

“I will keep going with the traditional way...I ordered some books and I am planning to learn new words by seeing them in context over and over.” (Erdem)

“I am trying to play different games such as Scrabble. Sometimes I find the words and then look up the dictionary...I already knew the Turkish version, but I downloaded the English version after English classes.” (Hilmi)

“I need to write the words. Maybe I can write less for example; I write 3 times instead of 5 times.” (Mahir)

Based on the statements above, it can be concluded that the process of gamification encouraged most students to look for new ways such as Scrabble, Quizlet and Taboo to learn English vocabulary instead of their previous learning techniques like listing and writing the words for several times (See Figure 21). However, as it can also be concluded from the comments above, some students could not give up their traditional learning methods to learn vocabulary and one student resisted to answer this question.

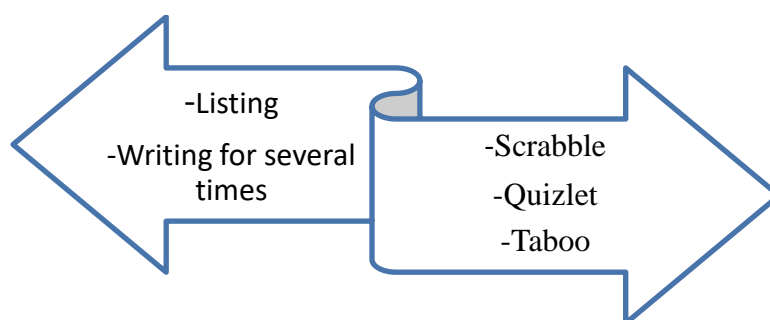


Figure 21. Some students' previous learning ways vs. new ways they are planning to apply.

To sum up, qualitative and quantitative data results of the study support each other as they present similar outcomes of gamification, that is, gamification resulted in positive effects in English vocabulary learning according to both qualitative and quantitative data. As it makes learning environment fun and more fertile according to the view of the students during interviews, it decreased their negative ideas accordingly towards vocabulary learning in English in the experimental group when compared to the control group as there was a significant difference in the expectancy values for the benefit of the experimental group. Moreover, due to gamification students pointed that they were more aware of their deficiencies, and they were more eager by the force of game elements such as competition, collaboration challenge, etc. So, it can be concluded that positive ideas and advantages of gamification that students proposed during the interviews lead to the significant increase in the post-test scores of the students in the experimental group.

CHAPTER FIVE

Discussion, Conclusion, and Recommendations

Discussion

This quasi-experimental study aimed to find the effects of gamification on students' English vocabulary learning achievements and motivation. To able to analyze the effects of gamification, before-treatment questionnaire, pre-tests, after-treatment questionnaire, and post-test were conducted in both the control and the experimental groups. In addition to these data collection tools, semi-structured interviews were held in the experimental group to have a chance to analyze the effects deeply. So, the results of the study will be discussed in detail in the light of the research questions of the study in the following two sections of this chapter.

Effects of gamification on achievement.

One main topic of the study was the effects of gamification on English vocabulary development of students in higher education. In the measurement of the achievement of the students in English vocabulary, the first step was pre-tests. The results of the pre-tests showed no significant difference between the control and the experimental groups before the application of gamification, which was considered a prerequisite by the researcher to be able to differentiate the effects of gamification in vocabulary learning. As the results of the pre-test scores did not differ significantly, it can be proposed that more reliable results for the post-tests could be obtained. Thus, any possible significant difference in the post-test scores of the students could give clearer and more generalizable ideas about the traditional method and gamification.

The comparison of pre-test and post-test results of the students in the control group showed a significant difference between the pre-test and the post-test with a large effect size. With regards to this result, it can be stated that the traditional method increased the students' English vocabulary knowledge exceptionally well and contributed to their achievement. It is necessary to acknowledge that traditional method can also contribute to students' vocabulary knowledge as it was found by Sağlık (2017) and Young and Wang (2014) that post-test scores of students in the control group were significantly higher than the students in the experimental group which was treated by gamification. In this case, application of gamification is the matter of fact, that is, it is necessary to integrate gamification and game elements into the

classes with great attention to be able to benefit from it with a great efficiency as most studies showed that gamification made greater effect on vocabulary achievement when compared to old school methods.

Although traditional method increased vocabulary achievement of the students in the control group, the experimental group students shared their ideas on traditional methods too, and they made negative statements about traditional method during the interviews. The result of the interviews indicated that students were bored, and they were not active and attracted enough with traditional method during the lessons, which cohered with the statements of McGonigal (2011), Lee and Hammer (2011), and Kapp (2012) about the insufficiency of the old methods. In the light of this finding, it can be better for the instructors to look for new methods to throw off the dullness of traditional methods, and gamification is one of the options that can be applied for this purpose.

Another research question of the study was about the difference between the pre-test and post-test scores of the students in the experimental group after gamification. The result about the related question showed that there had been a significant difference with a large effect size, that is, as it was in the control group, the students in the experimental group also increased their scores from the pre-test to post-test with an important degree. When the results of the current study are blended with the related literature, it can be seen that gamification affects English vocabulary achievements of students in a positive way (Abrams & Walsh, 2014; Huyen & Nga, 2003; Kayseroğlu & Samur, 2018; Mert & Samur, 2018). At that rate, it can be concluded that games are effective for a wide age range and attract people from different ages as it was suggested by Robinson *et al.* (2016) that games helped both young learners and adults to find solutions to problems and to be more creative. As the games encourage people to be creative and solve the problems, gamification can make significant contribution to their cognitive skills and achievement.

In addition to the significant difference within the experimental group after gamification, it was also found in accordance with the research questions that there had been a significant difference in the post-test scores of the students in the control and the experimental group on behalf of the experimental group with a medium effect size. As the previous results showed that traditional method increased students' knowledge of vocabulary to an important degree, it can be concluded that gamification was more effective and increased the achievement quite more than the traditional method. The result of the inter-group comparison supported the related literature as most of the studies found that gamification increased students' achievement in English vocabulary more than the traditional method (Aleml, 2010;

Dolati & Mikaili, 2011; Kalaycioğlu, 2011; Glowacki et al., 2018; Karaaslan et al., 2018; Taghizadeh et al., 2017; Taylor & Reynolds, 2018). On the contrary, the results contrast with the study of Young and Wang (2014) which came up with the conclusion that the students in the control group of their study were better at retention of the words than the students in the experimental group.

Most students in the interviews found visuals instrumental for better retention. Visuals could be helpful as they provide concrete images to people and remain in their minds for longer periods. This situation can be related to Gardner's (1983) Multiple Intelligence Theory, as according to this theory, learners with visual-spatial intelligence are good at perceiving and analyzing visuals such as pictures, graphs, tables, and they enjoy drawing, puzzles, visualized books, etc. Moreover, people with this kind of intelligence are prone to be artists, architects, or engineers, etc. With this regard, it is expectable for engineering students to prefer visuals and drawings for effective learning. During the treatment, games provided the students with visuals, for instance; they draw pictures or try to find the target word from their friends' drawings in Pictionary game. So, the students were exposed to visuals of the words to an important degree, and that is why students asserted visuals firstly as being efficient for remembering the words.

Another aspect of games that helped students learn better was fun. As mentioned before, students are quite bored of the traditional method, and they are accustomed to be active in different kinds of activities due to social media environments and video games. It is a must for instructors to reorganize or adjust their teaching strategies and methods to appeal to new generations. Maybe, fun is one of the focal factors to be considered while changing teaching strategies to make lessons more appealing for the students. On the ground of the related literature, fun changes the learning atmosphere in a positive way, equips students to achieve higher, and makes instructors pleased with the procedure and outcomes (Auman, 2011; Flores, 2015; Kingsley & Hagen, 2018). Hence, fun aspect of games can be one of the reasons that served the experimental group to implement the lectures better in a cheerful atmosphere and get higher scores.

Challenge was another advantage which shows that gamification can be effective in class as games make students mentally active. Games struggle students to think from different perspectives, to find solutions to problems, and to use their creativity in different kinds of games. It can be added to instructional settings because the challenge aspect of games motivates people intrinsically for better results (Lepper, 1988). However, instructors should be careful about the difficulty levels according to Flow Theory (Csikszentmihalyi, 2004), as

challenges should be in balance with the ability of people to avoid boredom or anxiety. When all the results concerning the challenge aspect of games are considered, it can be inferred that challenge factor of games during the 8-week process was in balance with most of the students' skill level, and so, it encouraged students to learn more and better to be successful in the games.

Competition and collaboration are also other matters of discussion in terms of students' ideas about the efficiency of gamification for learning. When students compete with each other, they are more eager to learn new words and do their best in order to defeat others and win the game. On the other side, when they belong to a team, they are more accountable to their teammates for getting scores on behalf of their team. Both competition and collaboration involve interaction element of games, and all of these game elements transform dull activities to more interesting ones (Kapp, 2012). Moreover, aspects such as cooperation, collaboration, sense of belonging trigger relatedness factor of SDT and so, intrinsic motivation like challenge aspect of games. By this means, students get closer to be motivated autonomously on the continuum of SDT as extrinsic motivation can be altered to intrinsic motivation with the help of game elements. In this case, students will be more keen on performing activities. Additionally, the competition encouraged the students to learn new words and to remember words to beat the others in this study. All this information can be one of the background reasons for benefiting from gamification because some of the games in the study were played in teams providing students to compete and collaborate with each other. The results of this study and the literature (Kapp, 2012; Keller, 1984; Ryan et al., 2006; Werbach & Hunter, 2012) conduce to the idea that people need to have an opportunity to communicate and be related with others in learning environments as people are social creatures. It is probable to come up with the idea that cooperation and collaboration elements in games supported the students to get higher scores in the experimental group, and the literature about gamification proposes that these elements keep people play games (Sherry et al., 2006).

Game elements promote participation and learning in educational fields, and there are studies on the effectiveness of different games on learning. However, each game has different dynamics in itself and they may not contribute to learning at the same degree. There are board games and technology-based games in the most general sense and studies in the field examine them separately. For example, there are studies on different board games such as "Find me game" and "The Charade" games (Dolati & Mikaili, 2011), picture vocabulary games (Kalaycıoğlu, 2011), and technology-based games such as Kahoot (Taylor & Reynolds,

2018), Quizzizz (Pitoyo, 2018), QuizGame (Kayseroğlu & Samur, 2018), but there is no distinction between them in terms of their usefulness in English vocabulary learning. To shed light on this deficiency, the participants in this study were required to compare these two types of games for effectiveness in English vocabulary learning as they played 2 board games and 2 technology-based games during 8-week of gamification process. Before making the comparison, it was surprising for the researcher that students generally gave examples from taboo and Pictionary games when they were asked about the advantages of gamification. So, after getting the examples of the advantages, the answers were as expected by the researcher. Students mentioned that they benefited from the board games more and they reasoned their ideas with some games elements like challenge, fantasy, competition, collaboration, and communication.

As it was mentioned before, challenge, competition, and collaboration aspects of games support learning environments, so it is possible to say that the students experienced these aspects of games more during the board games. In addition to these aspects, they had a chance to use their creativity and think from different perspectives, they were able to shape the games more as active participants, and they could become prominent in their groups by earning different kinds of badges. Moreover, they interacted with their peers more during the board games (Brigham, 2015; Malone, 1981; Sherry et al., 2006). Maybe, it would be better for educational environments to alter the passiveness of the students to activeness during the classes so that they can interact with their classmates more and play an active role in decision-making processes. In such a case, students feel more autonomous in their learning experiences and fulfill the need for autonomy which is a trigger for intrinsic motivation, and according to SDT intrinsic motivation increases self-determination of a person which leads to increased achievement.

Even though board games were more useful during the study according to the participants' point of view, they also noted that they had benefited from technology-based games too. Thanks to technology-based games the participants in the study saw the words in different contexts with different sentence structures and patterns as also reported in previous research conducted by Yip and Kwan, (2006), and Guichon and McLornan, (2008), which they may not see during the board games as they have limited knowledge of English and English vocabulary. Therefore, it is more beneficial to make use of both board games and technology-based games in educational environments to benefit from the various advantages they present.

Although games present advantages in learning environments, they may have some disadvantages too. One of the disadvantages of gamification is that it requires more time than the traditional method during the classes. This may not be a problem in preparatory classes because they have a lot more hours of English in a week. However, in classes with 4-hour of English a week, the time spent on the games may be too much accordingly.

Another disadvantage of gamification is cheating. Especially in technology-based gamification tools, students may see the answers of their friends and may choose an option without thinking which match up with the results of Pitoyo (2018) who came up with a similar result about possibility of cheating during gamification. In spite of these disadvantages in terms of time and cheating, it is obvious that games are very advantageous for English vocabulary learning; it promotes learning and retention time of vocabulary which makes gamification more preferable as it increases student achievement significantly more than the traditional method.

As most of the studies including the current study show, games are effective in educational environments and make students learn better. Therefore, there should be some hallmarks of games that affect and attract people and make learning easier for them, thus it is important to know the factors behind the effectiveness of gamification to be able to apply gamification properly. With the aim of finding the reasons behind the attractiveness of games, Flippou, Cheong and Cheong (2018) made a survey by asking why students play games. The most popular answers were “playing with others”, “boredom” and mental challenge” and the majority of the students had positive feelings about using games in learning settings. The findings of the researchers overlap with the answers of students in the interviews in this study. The results of the current study indicated that students were of the opinion that games were advantageous for better learning. According to their point of view, visuals, fun, challenge, competition, and collaboration were the main elements that attracted them and made games effective in learning environments.

Effects of gamification on motivation.

This study had two dimensions in general terms; achievement and motivation. The related literature suggests that motivation is a crucial factor for achievement, namely, the more motivated a student is, the more successful he/she is. Therefore, the study also focused on the examination of the effects of gamification on English vocabulary learning motivation. The results of the questionnaire on motivation will be discussed in this section.

The motivation questionnaire had 3 sub-value items; interest, utility, and expectancy. In the interest section, there were statements about the feelings towards English vocabulary such as “I like learning English vocabulary”, and “I am interested in learning English vocabulary”. The results of the interest value section of the questionnaire showed that there was no significant difference within the control and the experimental groups and inter-groups before or after gamification, although the students mentioned during the interviews that while playing games they realized their deficiencies and were in need of learning more words to be able to succeed in the game. In contrary to students’ sayings during the interview, gamification did not trigger the desire for learning English vocabulary according to the results of the questionnaire. Therefore, it can be concluded from both qualitative and quantitative results that 8-week gamification presented the students with extrinsic motivators like winning a game, but could not motivate the students intrinsically. That is, the students were in favor of learning more words just for the game not because they were very eager to learn more words. The reason behind this result can be the students’ accustomedness to the traditional language education system in which they were mostly exposed to the stimulus-response-reinforcement process, which generally developed their extrinsic motivation, or their desire to get points, badges, or rewards which also serve for extrinsic motivation (Lepper, Greene, & Nisbett, 1973; Deci, Koestner, & Ryan, 1999). Since the gamification system is new to the participants, they needed some time to get used to the system and learn how to benefit from it in terms of developing their vocabulary. Still, the achievement comparison of the students in the control and the experimental groups indicates that the students in the experimental group were motivated in any case, intrinsically or extrinsically, when compared to the students in the control group despite the results in motivation questionnaire.

Another value in the questionnaire was utility, and it included statements like I use “English vocabulary in my everyday life”, “I will have no application for English vocabulary in my profession”. Like interest value, there was no significant difference in the comparison of within-groups and inter-groups in the utility value according to the results of the questionnaire. Yet, more time was needed to change students’ ideas on utility value because the statements in the utility value are related to extrinsic factors as they are more about their social life and jobs, which students cannot control. So, it was not unusual not to experience any differences in the utility value. It can also be point in question that students may not be aware enough of the real significance of English; they just consider it as a class to pass, or they haven’t yet reached the awareness level as regards the propelling/advancing effects of knowing English in their professional lives.

The last value of the questionnaire was expectancy which included negative ideas about English vocabulary; “Learning English vocabulary is a complicated task”, “I will make a lot of mistakes in choosing appropriate English words” etc. The results of the expectancy value of the questionnaire differ from the other sections in terms of inter-group comparison. Although there was no significant difference within group comparisons and inter-group comparison before gamification, there was a statistically significant difference after gamification between the control (M= 19.5) and the experimental groups (15.5). As the statements presented negative ideas about English vocabulary, the mean values of the result were in favor of the experimental group. Moreover, the qualitative results of the study also support the result of the quantitative data as students in the experimental group made the point that they could remember the words easier and they were more attracted during the games, which was not the case in the traditional method. Thence, it can be deduced from the blended results of the study that gamification decreased negative opinions towards English vocabulary learning as it presented learning in a fun environment with more permanent results. The decrease in the negative ideas has the power to remove barriers in front of learning for the reason that being more motivated leads to better learning as it is also reported in the literature (De-Marcos, 2014; Brigham, 2015).

During the gamification process students in the experimental group enjoyed the classes thanks to the joy games convey, and they were satisfied with the progress they achieved in English vocabulary according to the statements in the interviews. Moreover, the classes were more meaningful for them as they were responsible for the words presented in the classes and they would face them in the games in which they had an aim to win. Also, as the results of the expectancy value of the questionnaire indicated students in the experimental group had more positive opinions towards English vocabulary learning and were more confident about themselves. In this regard, it can be assumed that gamification fostered the students’ motivation evaluated according to the necessary factors for motivation of ARCS model (Keller, 1984).

When it comes to goal-setting theory (Locke & Latham, 1990), it suggests that goals guide people for better results, and lead to more commitment towards a task which results in increased achievement. It was obvious that students had certain goals during the gamification process and were more attracted and committed to the lectures. Hence, the goals students determined during the gamification process can be one of the reasons behind being more motivated and successful.

Ultimately, gamification fostered both the achievement and motivation of the students in the experimental group. Under favor of gamification, students remembered the words better and for a longer time, and had the advantage of the environment games brought to the class (Garris, Ahlers, & Driskell, 2002; McGonigal, 2011). Moreover, it can be put forward that students were more motivated in the experimental group as it is discussed according to various theories and models. Although the results of all values in the questionnaire did not change between the groups, change in the expectancy value in the questionnaire, interview results, the increased achievement of the experimental group indicate that gamification created a difference in the environment of English vocabulary learning.

Beyond all the results, it is necessary to note that although gamification was fun and effective for the students during the process, students may get bored of gamification when gamification becomes ordinary for the class, and this issue merit further research.

Conclusions and Recommendations

The results of the study showed that if it is applied carefully, gamification can foster students' learning and change the atmosphere of educational settings in a positive way. As the core aim of educational settings is to increase achievement of students and to be able to educate them in the aim of the curriculum, effects of gamification on the achievement of the students should be considered while designing the lectures.

According to the results, students in the experimental group achieved significantly higher than the students in the control group who also came a long way between pre-test and post-test, and had significantly higher scores in the post-test than the pre-test. So, the comparison of pre-test and post-test within groups and inter-groups showed that students increased their knowledge of English vocabulary during 8-week of process, and traditional method also resulted in a positive effect on achievement. However, it is obvious that gamification affected the achievement of the students quite more than the traditional method as the post-test comparison of the groups indicated that experimental group was more successful than the control group.

In addition to the achievement, motivation was also examined in this study via both qualitative and quantitative data. According to the quantitative data results, utility value of the questionnaire changed in a positive way among students in the experimental group although other values in the questionnaire did not show change. Change in the utility value indicates that students in the experimental group had more positive feelings towards learning English vocabulary.

Moreover, the qualitative results of the study also showed that students were more motivated to attend and participate in the classes in the experimental group when compared to traditional classes in the previous semesters. The interviews revealed that students benefited from game elements such as challenge, competition, collaboration, and so, and they became more aware of their own vocabulary knowledge and their deficiencies in terms of vocabulary, which led them to learn more words. Besides, thanks to the positive atmosphere games brought to the classes, students got rid of the negative feelings that obstruct learning, and at the end of the treatment some of them were planning to look for new methods to learn new vocabulary.

This study was conducted with 48 students in the control and experimental groups in total. So, the first suggestion is to apply the treatment with larger groups of students to be able to reach more generalizable results. Another suggestion can be about the groups as one of the aims of the study was to differentiate board games and technology-based games, the treatment could be done with board games in one group and with technology-based games in the other group. By this means, identification of these two game types can be clearer. The last suggestion for further research is to apply gamification for a longer period of time.

REFERENCES

- Abrams, S. S., & Walsh, S. (2014). Gamified vocabulary. *Journal of Adolescent & Adult Literacy*, 58(1), 49-58. Doi: 10.1002/jaal.315.
- Akın, A., & Seferoğlu, G. (2004). Improving learners' vocabulary through strategy . *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 27, 1-10.
- Alanne, K. (2016). An overview of game-based learning in building services engineering education. *European Journal of Engineering Education*, 41(2), 204-219. Doi: 10.1080/03043797.2015.1056097
- Alemi, M. (2010). Educational games as a vehicle to teaching vocabulary. *The Modern Journal of Applied Linguistics*, 2(6), 425-438.
- Auman, C. (2011). Using simulation games to increase student and instructor engagement. *College Teaching*, 59(4), 154-161. Doi: 10.1080/87567555.2011.602134
- Bakar, N. A., & Nosratirad, E. (2013). Sustaining vocabulary acquisition through computer game: A case study. *Asian Social Science*, 9(5), 235. Doi: 10.5539/ass.v9n5p235
- Bíró, G. I. (2014). Didactics 2.0: A pedagogical analysis of gamification theory from a comparative perspective with a special view to the components of learning. *Procedia-Social and Behavioral Sciences*, 141, 148-151.
- Boyinbode, O. (2018). Development of a gamification based English vocabulary mobile learning system. *International Journal of Computer Science and Mobile Computing*, 7(8), 183-191.
- Brigham, T. J. (2015). An introduction to gamification: Adding game elements for engagement. *Medical Reference Services Quarterly*, 34(4), 471-480. Doi: 10.1080/02763869.2015.1082385
- Bropy, J. E. (2004). *Motivating students to learn*. Newyork: Routledge.
- Brown, H. D. (2007). *Principles of language learning and teaching*. New Jersey: Pearson Longman.
- Bunchball. (2010). *Gamification 101: An introduction to the use of game dynamics*. Whitepaper.
- Charsky, D. (2010). From edutainment to serious games: A change in the use of game characteristics. *Games and Culture* 5(2), 177-198. Doi: 10.1177/1555412009354727
- Cheong, C., Filippou, J., & Cheong, F. (2014). Towards the gamification of learning: Investigating student perceptions of game elements. *Journal of Information Systems Education*, 25(3), 233-244.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale: Lawrence Erlbaum Associates.
- Consortium, N. M. (2014). *Horizon report on technology and higher education*. retrieved from <http://www.nmc.org/publication/nmc-horizon-report-2014-highereducation-edition/>.
- Cowley, B., Charles, D., Black, M., & Hickey, R. (2008). Toward an understanding of flow in video games. *Computers in Entertainment (CIE)*, 6(2), 20. Doi: 10.1145/1371216.1371223
- Cresswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston: Pearson Education Limited.

- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York: Basic Books.
- Csikszentmihalyi, M. (2004). *Good business: Leadership, flow, and the making of meaning*. New York: Penguin.
- Csikszentmihalyi, M. (2014). *Play and intrinsic rewards*. Dordrecht: Springer.
- Cunha, J. C., & Carvalho, S. (2012). Experienced emotions through the Orff-Schulwerk approach in music education-A case study based on flow theory. *Proceedings of 12th ICMPC/8th CESCO*, (pp. 234-241).
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, 49(3), 182.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125(6), 627-668.
- De-Marcos, D., Domínguez, A., Saenz-de-Navarrete, J., & Pagés, C. (2014). An empirical study comparing gamification and social networking on e-learning. *Computers & Education*, 75, 82-91.
- Deterding, S., Sicart, M., Nacke, L., O'Hara, K., & Dixon, D. (2011). Gamification. using game-design elements in non-gaming contexts. *CHI '11 Extended Abstracts on Human Factors in Computing Systems*, (pp. 2425-2428).
- Dolati, R. I., & Mikaili, P. (2011). Effects of instructional games on facilitating of students' vocabulary learning. *Australian Journal of Basic and Applied Sciences*, 5(11), 1218-1224.
- Dörnyei, Z. (2007). *Research methods in applied linguistics*. Oxford: Oxford University Press.
- Dörnyei, Z., & Otto, I. (1998). Motivation in action: A process model of L2 Motivation. *Working Papers in Applied Linguistics*, 4, 43-69.
- Dörnyei, Z., & Ushioda, E. (2009). *Motivation, language identity and the L2 self*. Bristol: Multilingual Matters.
- Filippou, J., Cheong, C., & Cheong, F. (2018). A model to investigate preference for use of gamification in a learning activity. *Australasian Journal of Information Systems*, 22, 1-23
- Fitz-Walter, Z., Tjondronegoro, D., & Wyeth, P. (2011, November). Orientation passport: Using gamification to engage university students. *In Proceedings of the 23rd Australian Computer-Human Interaction Conference*, (pp. 122-125). Canberra: ACM. Doi:1145/2071536.2071554
- Flores, J. F. (2015). Using gamification to enhance second language learning. *Digital Education Review*, 27, 32-54.
- Fogg, B. J. (2009). A behavior model for persuasive design. *Proceedings of the 4th International Conference on Persuasive Technology*. New York: ACM.
- Gagne, M., & Deci, E. L. (2015). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331-362.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. London: Arnold.
- Garris, R., & Ahlers, R. (2001, September). A game based training model: Development, application and evaluation. *Interservice/Industry Training, Simulation & Education Conference*. Orlando.
- Garris, R., Ahlers, R., & Driskell, J. E. (2002). Games, motivation and learning. *Simulation & Gaming: An Interdisciplinary Journal of Theory, Practice and Research*, 33(4), 441-467.
- Garris, R., Ahlers, R., & Driskell, J. E. (2002). Games, motivation, and learning: A research and practice model. *Simulation & Gaming*, 33(4), 441-467.
- Ghanbaran, S., & Ketabi, S. (2014). Multimedia games and vocabulary learning. *Theory & Practice in Language Studies*, 4(3), 489-496. Doi: 10.4304/tpls.4.3.489-496
- Głowacki, J., Kriukova, Y., & Avshenyuk, N. (2018). Gamification in higher education: Experience of Poland and Ukraine. *Advanced Education*, 5(10), 105-110. Doi: 10.20535/2410-8286.151143
- Goehle, G. (2013). Gamification and web-based homework. *Primus*, 23(3), 234-246. Doi: 10.1080/10511970.2012.736451
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597-606.
- Gough, C. (2001). *English vocabulary organiser*. London: Language teaching publications.
- Groh, F. (2012). Gamification: State of the art definition and utilization. *Research Trends in Media Informatics*, (pp. 39-45). Ulm: Institute of Media Informatics.
- Gu, P. Y. (2003). Vocabulary learning in a second language: Person, task, context and strategies. *TESL-EJ*, 7(2), 1-25.
- Guichon, N., & McLornan, S. (2008). The effects of multimodality on L2 learners: Implications for CALL resource design. *System*, 36(1), 85-93. d-Doi:10.1016/j.system.2007.11.005
- Hamari, J. (2017). Do badges increase user activity? A field experiment on the effects of gamification. *Computers in human behavior*, 71, 469-478. Doi:10.1016/j.chb.2015.03.036
- Hamari, J., Koivisto, J., & Sarsa, H. (2014, January). Does gamification work?--a literature review of empirical studies on gamification. In *2014 47th Hawaii international conference on system sciences (HICSS)* (pp. 3025-3034). Hawaii: IEEE.
- Hanus, M. D., & Fox, J. (2015). Assessing the effects of gamification in the classroom: a longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers and Education*, 80, 152-161.
- Harmer, J. (1994). *The practice of English language teaching*. London: Longman.
- Hasegawa, T., Koshino, M., & Ban, H. (2015). An English vocabulary learning support system for the learner's sustainable motivation. *SpringerPlus*, 4(1), 1-9. Doi: 10.1186/s40064-015-0792-2
- Huizenga, J., Admiraal, W., Akkerman, S., & Dam, G. T. (2009). Mobile game-based learning in secondary education: Engagement, motivation and learning in a mobile city game. *Journal of Computer Assisted Learning*, 25(4), , 332-344. Doi: 10.1111/j.1365-2729.2009.00316.x

- Huotari, K., & Hamari, J. (2011, May). *Gamification” from the perspective of service marketing*. Proc. CHI 2011 Workshop Gamification.
- Huyen, N. T., & Nga, K. T. (2003). Learning vocabulary through games. *Asian EFL Journal*, 5(4), 90-105.
- Jovanovic, D., & Matejevic, M. (2014). Relationship between rewards and intrinsic motivation for learning-Researchers Review. *Procedia-Social and Behavioral Sciences*, 149, 456-460.
- Jung, J., & Graf, S. (2008). An approach for personalized web-based vocabulary learning through word association games. *In Applications and the Internet*, (pp. 325-328). International Symposium on IEEE. Doi: 10.1109/SAINT.2008.63
- Kalaycıoğlu, H. E. (2011). The effect of picture vocabulary games and gender on four year-old children’s English vocabulary performance: An experimental investigation. (*Unpublished master thesis*). Ankara: Turkey.
- Kankanhalli, A., Taher, M., Cavusoglu, H., & Kim, S. H. (2012, December). Gamification: A new paradigm for online user engagement. *Thirty Third International Conference on Information Systems*. Orlando.
- Kapp, K. M. (2012). *The gamification of learning and instruction: game-based methods and strategies for training and education*. San Francisco: John Wiley & Sons.
- Kapp, K. M., Blair, L., & Mesch, R. (2014). *Gamification of learning and instructional field book ideas into practice*. San Francisco: Wiley.
- Karaaslan, H., Kilic, N., Guven-Yalcin, G., & Gullu, A. (2018). Students' reflections on vocabulary learning through synchronous and asynchronous games and activities. *Turkish Online Journal of Distance Education*, 19(3), 53-70.
- Kaufmann, D. A. (2018). Reflection: Benefits of gamification in online higher education. *Journal of Instructional Research*, 7, 125-132.
- Kayseroglu, M. A., & Samur, Y. (2018). Vocabulary learning through a gamified question and answer application. *Journal of Learning and Teaching in Digital Age (JOLTIDA)*, 3(2), 27-41.
- Ke, F. (2008). *A qualitative meta-analysis of computer games as learning tools*. New York: IGI Global.
- Keller, J. M. (1984). The use of the ARCS model of motivation in teacher training. *Aspects of Educational Technology*, 17, 140-145.
- Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10(3), 2-10.
- Kikuchi, K. (2009). Listening to our learners' voices: what demotivates Japanese high school students? *Language Teaching Research*, 13(4), 453-471. Doi: 10.1177/1362168809341520
- Kılıçkaya, F., & Krajka, J. (2010). Comparative usefulness of online and traditional vocabulary. *TOJET: The Turkish Online Journal of Educational Technology*, 9(2), 55-63.
- Kim, S. (2014). Star question: Gamification of a reviewing process using self-setting question and game mechanism in undergraduate education. *The Social Sciences*, 9(6), 437-441.
- Kim, S., Song, K., Lockee, B., & Burton, J. (2017). *Gamification in learning and education: Enjoy learning like gaming*. Cham: Springer.

- King, D., Greaves, F., Exeter, C., & Darzi, A. (2013). 'Gamification': Influencing health behaviours with games. *Journal of the Royal Society of Medicine*, 106, 76-78. Doi: 10.1177/0141076813480996
- Kingsley, T. L., & Grabner-Hagen, M. M. (2018). Vocabulary by gamification. *The Reading Teacher*, 71(5), 545-555. Doi: 10.1002/trtr.1645
- Kulpa, A. (2017). Applied gamification: Reframing evaluation in post-secondary classrooms. *College Teaching*, 65(2), 58-68.
- Landers, R. N., Bauer, K. N., Callan, R. C., & Armstrong, M. B. (2015). *Psychological theory and the gamification of learning*. In *Gamification in education and business*, (pp. 165-186). Springer, Cham.
- Lee, J. J., & Hammer, J. (2011). Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, 15(2), 146.
- Lepper, M. R. (1998). Motivational considerations in the study of instruction. *Cognition and Instruction*, 5(4), 289-309, Doi: 10.1207/s1532690xci0504_3
- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28(1), 129-137.
- Lin, M. C., & Cortina, K. S. (2014). Effects of explicit english-collocation instruction and vocabulary-learning motivation on L2 collocation and reading-recall performances. *英語教學期刊*, 38(1), 91-128.
- Locke, E. A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance*, 3(2), 157-189.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. New Jersey: Prentice-Hall, Inc.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705.
- Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science*, 15(5), 265-268.
- Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design*. New Jersey: Routledge.
- Malone, T. W. (1981). Toward a theory of intrinsically motivating instruction. *Cognitive Science*, 5(4), 333-369.
- Masgoret, A. M., & Gardner, R. C. (2003). Attitudes, motivation, and second language learning: A meta-analysis of studies conducted by Gardner and associates. *Language Learning*, 53(S1), 123-163.
- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York: Penguin.
- Mekler, E. D., Brühlmann, F., Opwis, K., & Tuch, A. N. (2013, April). Disassembling gamification: the effects of points and meaning on user motivation and performance. *CHI'13 extended abstracts on human factors in computing systems*, (pp. 1137-1142). Paris: ACM.
- Mert, Y., & Samur, Y. (2018). Students' opinions toward game elements used in gamification application. *Turkish Online Journal of Qualitative Inquiry*, 9(2), 70-101. Doi: 10.17569/tojq.364130

- Muhanna, W. (2012). Using online games for teaching English vocabulary for Jordanian students learning English as a foreign language. *Journal of College Teaching & Learning (Online)*, 9(3), 235.
- Muntean, C. I. (2011, October). Raising engagement in e-learning through gamification . *6th International Conference on Virtual Learning*, Bucharest (pp. 323-329).
- Nam, J. (2010). Linking research and practice: effective strategies for teaching vocabulary in the ESL classroom. *TESL Canada Journal*, 28(1), 127-135.
- Nation, I. S. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- O'Donovan, S., Gain, J., & Marais, P. (2013, October). A case study in the gamification of a university-level games development course. In *Proceedings of the South African Institute for Computer Scientists and Information Technologists Conference*, East London (pp. 242-251). Doi: 10.1145/2513456.2513469. ACM.
- O'keeffe, A., McCarthy, M., & Carter, R. (2007). *From corpus to classroom: Language use and language teaching*. Cambridge : Cambridge University Press.
- Palmer, A., & Rodgers, T. S. (1983). Games in language teaching. *Language Teaching*, 16(1), 2-21.
- Pitoyo, M. D. (2018). Web-based gamification: Problems in EFL classroom of higher education due to online assessment employment. *The International Summit on Science Technology and Humanity*, (pp. 110-116).
- Pivec, M. (2007). Play and learn: potentials of game-based learning. *British Journal of Educational Technology*, 38(3), 387-393.
- Prensky, M. (2003). Digital Game-Based Learning. *ACM Computers in Entertainment*, 1, 21-21.
- Prince, J. D. (2013). Gamification. *Journal of Electronic Resources in Medical Libraries*, 10(3), 162-169.
- Rigby, S., & Ryan, R. M. (2011). *Glued to games: How video games draw us in and hold us spellbound*. Santa Barbara: AbC-CLLo.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67. Doi: 10.1006/ceps.1999.1020
- Ryan, R. M., & Deci, E. L. (2001). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Ryan, R. M., Rigby, C. S., & Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. *Motivation and Emotion*, 30(4), 344-360. Doi:10.1007/s11031-006-9051-8
- Sağlık, E. (2017). The impact of gamified game-based vocabulary teaching on success and motivation. Bahçeşehir University. (Unpublished *Master's Thesis*). İstanbul: Turkey.
- Schell, J. (2014). *The art of game design: A book of lenses*. Burlington: CRC Press.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: University Press.
- Seixas, L. d., Gomes, A. S., & Filho, I. J. (2016). Effectiveness of gamification in the engagement of students. *Computers in Human Behavior*, 58, 48-63. Doi:10.1016/j.chb.2015.11.021

- Sherry, J. L., Lucas, K., Greenberg, B. S., & Lachlan, K. (2006). Video game uses and gratifications as predictors of use and game preference. *Playing video games: Motives, responses, and consequences. International Journal of Sports Marketing and Sponsorship*, 24(1), 213-224.
- Simões, J., Redondo, R. D., & Vilas, A. F. (2013). A social gamification framework for a K-6 learning platform. *Computers in Human Behavior*, 29(2), 345-353.
- Squire, K., Giovanetto, L., Devane, B., & Durga, S. (2005). From users to designers: Building a self-organizing game-based learning environment. *TechTrends*, 49(5), 34-42.
- Suh, A., Wagner, C., & Liu, L. (2018). Enhancing user engagement through gamification. *Journal of Computer Information Systems*, 58(3), 204-213. Doi: 10.1080/08874417.2016.1229143
- Taghizadeh, M., Vaezi, S., & Ravan, M. (2015). Digital games, songs and flashcards and their effects on vocabulary knowledge of Iranian preschoolers. *Studies*, 5(4), 156-171.
- Taylor, B., & Reynolds, E. (2018, September). Building vocabulary skills and classroom engagement with Kahoot! *The 26th Korea TESOL International Conference*, (pp. 89-92). Seoul: Korea TESOL.
- Wells, J. C., & Narkon, D. E. (2011). Motivate students to engage in word study using vocabulary games. *Intervention in School and Clinic*, 47(1), 45-49. Doi: 10.1177/1053451211407493
- Werbach, K. (2014, May). (Re)Defining Gamification: A process approach. *International conference on persuasive technology*, (pp. 266-272). Springer, Cham.
- Werbach, K., & Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Philadelphia: Wharton Digital Press.
- Yıldırım, I. (2017). The effects of gamification-based teaching practices on student achievement and students' attitudes toward lessons. *Internet and Higher Education*, 33, 86 –92.
- Yip, F. W., & Kwan, A. C. (2006). Online vocabulary games as a tool for teaching and learning English vocabulary. *Educational Media International*, 43(3), 233-249. Doi:10.1080/09523980600641445
- Young, S. S., & Wang, Y. H. (2014). The game embedded CALL system to facilitate English vocabulary acquisition and pronunciation. *Journal of Educational Technology & Society*, 17(3), 239-251.
- Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. Sebastopol: O'Reilly.

APPENDICES

APPENDIX-1. Vocabulary-Learning Motivation Questionnaire

Dear Participant,

This questionnaire is administered in order to find out your motivation towards learning vocabulary. There are no right or wrong answers in this list of statements. It is simply a matter of what is true for you. Your answers will have a valuable contribution to the study. Please also make sure that the answers you give in this survey will be confidential. Please read every statement carefully and choose the best option that explains your opinion.

Thank you very much for your participation.

Gülşah UYAR

Interest-Value (5 items):

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I like learning English vocabulary.					
2. Knowing many English words makes me happier.					
3. I enjoy taking English vocabulary courses.					
4. I am interested in learning information on English vocabulary learning.					
5. I am interested in learning English vocabulary.					

Utility-Value (5 items):

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Learning English vocabulary is worthless.					
2. Learning English vocabulary is not useful to the typical professional.					
3. I use English vocabulary in my everyday life.					
4. I will have no application for English vocabulary in my profession.					
5. Learning English vocabulary is irrelevant to my life.					

Expectancy for Success in English-Vocabulary Learning (6 items):

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I will have trouble understanding English vocabulary because of the way I think.					
2. Usage of English words is easy to understand.					
3. Learning English vocabulary is a complicated task.					

4. I have no idea of what's going on in the English-vocabulary learning course.					
5. I will make a lot of mistakes in choosing appropriate English words.					
6. I found English vocabulary learning difficult.					



APPENDIX-2. VOCABULARY PRE-TEST

Name-Surname:

A. Complete the sentences with the correct form of the words in the box. (9 x 4 = 36 Pts.)

Laughter	firmly	gesture	awkward	take part in
Interrupting	receive	custom	fearful	released

1. He seemed a little _____ when I first met him - a little shy perhaps.
2. I was trying to work but the children were _____ me. So I couldn't focus.
3. Many women are _____ of travelling alone.
4. I heard the sound of _____ in the room next door.
5. He _____ the remaining political prisoners.
6. It would be a nice _____ to invite her to dinner.
7. Nat held his daughter's hand _____ when they crossed the road.
8. Henna night is an important _____ in Turkey.
9. She doesn't usually _____ any of the class activities.

B. Complete the sentences with the words in the box. (9 x 4 = 36 Pts.)

Generations	manner	survey	sunscreen	concerned
Beating	at first sight	impression	accused	strangers

1. Holidays in the UK are becoming more popular, according to a recent _____.
2. Don't talk to _____.
3. Sally has a very positive, she always talks in a friendly _____.
4. People are becoming more _____ about what they eat.
5. He was falsely _____ of murder. Finally, they noticed he didn't kill the victim.
6. By the time the doctor arrived, his heart had stopped _____.
7. This is the story of three _____ of women.
8. They apply _____ to protect their skin from UV radiation.
9. It was love _____.

C. Match the words in the table to their definitions. (7 x 4 = 28 Pts.)

Attorney	at lightning speed	variety	drought	cyclone	commit	imprison
----------	--------------------	---------	---------	---------	--------	----------

1. _____: a violent storm with very strong winds
2. _____: to put someone in prison or keep them as a prisoner
3. _____: lawyer
4. _____: to do something that is considered wrong, or that is illegal
5. _____: a different type of something
6. _____: a long period when there is no rain and people do not have enough water
7. _____: very quickly



APPENDIX-3. VOCABULARY POST-TEST

Name-Surname:

A. Complete the sentences with the words in the box. There is one extra word. (9 x 4 = 36 Pts.)

Laughter	sunscreen	at lightning speed	varieties	take part in
Interrupted	receive	accusing	imprisoned	cyclone

1. She is going to _____ theatre club of the school.
2. He was _____ in 1965 because of murder.
3. Don't forget _____ and a hat next time you go out in the sun.
4. She _____ my speech rudely.
5. 150.000 people died during a _____ in Bangladesh.
6. Our supermarket stocks apples in several different _____.
7. He is a very fast boxer. He kicked his rival _____.
8. She seemed very sad yesterday but today she must be happy, because I heard her _____.
9. I didn't take his money but he is _____ me.

B. Complete the sentences with the words in the box. There is one extra word. (9 x 4 = 36 Pts.)

Generation	attorneys	drought	commit	fearful
firmly	beating	impression	customs	released

1. This year farmers couldn't grow enough vegetables and fruits because of the _____.
2. When Bob was a little boy, he was _____ of spiders and darkness.
3. A judge was elected, _____ were appointed, and witnesses were interviewed.
4. He shakes other people's hand very _____.
5. All I could hear was the loud rapid _____ of my heart.

6. The young _____ is very good at digital.
7. He was _____ from prison after serving two years.
8. Although he murdered a man, he claimed that he didn't _____ crime.
9. Their traditions and _____ have not been widely spread nor preserved.

C. Match the words in the table to their definitions. (7 x 4 = 28 Pts.)

Concerned	manner	survey	gesture	stranger	at first sight	awkward
-----------	--------	--------	---------	----------	----------------	---------

1. _____: On first seeing or meeting someone
2. _____: Research by questioning a group of people.
3. _____: A person whom one does not know
4. _____: Causing or feeling uneasy embarrassment or inconvenience
5. _____: usual way in which you behave towards other people
6. _____: worried/interested
7. _____: A movement of head or the head to express an idea

APPENDIX-4. INTERVIEW QUESTIONS (Turkish)

1. Şimdiye kadar kelime öğreniminde ne tür yöntemler kullandınız?
2. Oyunlaştırmanın kelime bilgisinize faydası oldu mu? Varsa nelerdir?
 - Teknoloji temelli oyunlar ve kart oyunları aynı derecede mi katkı sağladı?
3. Oyunlaştırma kelime öğrenme istekliliğini arttırdı mı?
4. Oyunlaştırmanın olumsuz yönleri var mı? Varsa nelerdir?
5. Bundan sonrasında kelime öğrenme yönteminizde farklılık yapmayı düşünüyor musunuz?



APPENDIX-5. INTERVIEW QUESTIONS (English)

1. What methods did you use to learn vocabulary until now?
2. Was gamification beneficial for your vocabulary knowledge? If yes, what are the benefits?
 - Did technology-based games and board games contribute to your vocabulary knowledge equally?
3. Did gamification increase your desire to learn vocabulary?
4. Does gamification have any disadvantages? If yes, what are the disadvantages?
5. Are you planning to make any change in your vocabulary learning methods?

CURRICULUM VITAE

PERSONAL DETAILS

Name Surname : Gülşah UYAR
Nationality : Turkish
Date /Place of Birth : 01.09.1989 / Yerköy
Marital Status : Single
E-mail : gulsahuyr@gmail.com

EDUCATIONAL BACKGROUND

2014 – 2019: MA, Atatürk University, Faculty of Education, English Language Teaching

2007 – 2011: BA, Middle East Technical University, Faculty of Education, English Language Teaching

WORK EXPERIENCE

2011-.... : Erzincan Binali Yıldırım University (Instructor)