REPUBLIC OF TÜRKİYE

ÇANAKKALE ONSEKİZ MART UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF FOREIGN LANGUAGE EDUCATION

ENGLISH LANGUAGE TEACHING PROGRAM

EXPLORING THE EFFECTS OF GAMIFICATION WITH WEB 2.0 TOOLS ON EFL LEARNERS' ACADEMIC ACHIEVEMENT, MOTIVATION AND LEARNING SELF-EFFICACY IN ONLINE LEARNING ENVIRONMENTS

DOCTORAL THESIS

TUBA TEMEL

Supervisor

ASSOC.PROF. DR. KÜRŞAT CESUR

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The study titled "**Exploring the Effects of Gamification with Web 2.0 Tools on EFL Learners' Academic Achievement, Motivation and Learning Self-Efficacy in Online Learning Environments**" prepared by Tuba TEMEL under the direction of Assoc. Prof. Dr. Kürşat CESUR and presented in front of the following committee on 26/08/2022 was unanimously accepted as a thesis for the degree of DOCTOR OF PHILOSOPHY in English Language Teaching Program of Department of Foreign Language Education in Çanakkale Onsekiz Mart University, School of Graduate Studies.

Committee Members	**Signature**
Assoc. Prof. Dr. Kürşat CESUR (Supervisor)	……
Prof. Dr. Dinçay KÖKSAL	……
Assoc. Prof. Dr. Serkan İZMİRLİ	…….
Assist. Prof. Dr. Eda DURUK	…….
Assist. Prof. Dr. Pınar KARAHAN	…….

Thesis Number : 10488755
Date of Thesis Defence : 26/08/2022

……
Assoc. Prof. Yener PAZARCIK
Director
School of Graduate Studies
../../20..

ETHICAL STATEMENT

In this thesis study, which I prepared in accordance with the Thesis Writing Rules of Çanakkale Onsekiz Mart University School of Graduate Studies; I declare that I have obtained the data, information, and documents I have presented in the thesis within the framework of academic and ethical rules, that I have presented all information, documents, evaluations, and results in accordance with scientific ethical and moral rules, that I have cited all the works I have used in the thesis by making appropriate references, that I have not made any changes in the data used, that the work I have presented in this thesis is original, otherwise I undertake and declare that I accept all the loss of rights that may arise against me.

ETİK BEYAN

Çanakkale Onsekiz Mart Üniversitesi Lisansüstü Eğitim Enstitüsü Tez Yazım Kuralları'na uygun olarak hazırladığım bu tez çalışmasında; tez içinde sunduğum verileri, bilgileri ve dokümanları akademik ve etik kurallar çerçevesinde elde ettiğimi, tüm bilgi, belge, değerlendirme ve sonuçları bilimsel etik ve ahlak kurallarına uygun olarak sunduğumu, tez çalışmasında yararlandığım eserlerin tümüne uygun atıfta bulunarak kaynak gösterdiğimi, kullanılan verilerde herhangi bir değişiklik yapmadığımı, bu tezde sunduğum çalışmanın özgün olduğunu, bildirir, aksi bir durumda aleyhime doğabilecek tüm hak kayıplarını kabullendiğimi taahhüt ve beyan ederim.

…….

Tuba TEMEL

26/08/2022

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Tuba TEMEL

Çanakkale, August 2022

ABSTRACT

EXPLORING THE EFFECTS OF GAMIFICATION WITH WEB 2.0 TOOLS ON EFL LEARNERS' ACADEMIC ACHIEVEMENT, MOTIVATION, AND LEARNING SELF-EFFICACY IN ONLINE LEARNING ENVIRONMENTS

Tuba TEMEL
Çanakkale Onsekiz Mart University
School of Graduate Studies
English Language Teaching Program
Department of Foreign Language Education
Doctoral Thesis
Supervisor: Assoc. Prof. Dr. Kürşat CESUR
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With the sudden outbreak of the coronavirus (Covid-19) pandemic, teaching and learning processes around the world have witnessed an emergent evolution from traditional face-to-face processes to online platforms, and different methods came to the fore. Gamification is acknowledged as one of them. Therefore, this study aimed to examine the effects of gamification with Web 2.0 tools on EFL learners' motivation, learning self-efficacy, and academic achievement in online learning environments.

The present quasi-experimental study was based on a mixed-method sequential explanatory research design and the participants included 60 freshmen learners as experimental and control groups. The experimental group was instructed through gamification activities with *Kahoot!, Socrative, Quizizz,* and *Mentimeter* on the Microsoft Teams platform, and the control group was instructed through PowerPoint presentations on the same platform.

The quantitative data were collected through two scales and an Achievement Test, and the qualitative data were obtained via a semi-structured interview. The scales and the achievement test were run as pre-tests and post-tests. The statistical analyses of the scales and the achievement test were conducted through statistical measures and the qualitative

data were analyzed through content analysis. The findings revealed that the treatment has a statistically significant difference in the experimental group regarding motivation and online learning self-efficacy. Although the findings indicated no significant difference in the Achievement Test, it was revealed that the experimental group had higher scores on the post-test when compared to their pre-test scores. Therefore, it could be indicated that the treatment is beneficial to learners' motivation, learning self-efficacy, and academic achievement levels in online learning environments. The data were also analyzed for variables including gender and participants' previous experiences with Web 2.0 tools resulting in not a statistically significant difference on behalf of the experimental group.

Keywords: Online Learning, Gamification, Web 2.0 Tools, Motivation, Online Learning Self-Efficacy, Academic Achievement

ÖZET

WEB 2.0 ARAÇLARI ARACILIĞIYLA OYUNLAŞTIRMANIN ÇEVRİMİÇİ ÖĞRENME ORTAMLARINDA YABANCI DİL OLARAK İNGİLİZCE ÖĞRENENLERİN AKADEMİK BAŞARI, MOTİVASYON VE ÖĞRENME ÖZ-YETERLİLİKLERİNE ETKİLERİNİN İNCELENMESİ

Tuba TEMEL
Çanakkale Onsekiz Mart Üniversitesi
Lisansüstü Eğitim Enstitüsü
Yabancı Diller Eğitimi Anabilim Dalı
İngiliz Dili Eğitimi Doktora Programı
Doktora Tezi
Danışman: Doç. Dr. Kürşat CESUR
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Koronavirüs (Covid-19) pandemisinin aniden ortaya çıkışıyla birlikte, dünya genelinde öğretme ve öğrenme süreçleri geleneksel yüz yüze uygulamalardan çevrimiçi platformlara hızlı bir geçişe tanık oldu ve farklı yöntemler ön plana çıktı. Oyunlaştırma bunlardan biri olarak kabul edilmektedir. Bu nedenle bu çalışma, Web 2.0 araçlarıyla oyunlaştırmanın çevrimiçi öğrenme ortamlarında İngilizce' yi Yabancı Dil olarak öğrenenlerin motivasyonu, öğrenme öz-yeterliği ve akademik başarısı üzerindeki etkisini incelemeyi amaçlamıştır.

Bu yarı deneysel çalışma, karma yöntemli sıralı açıklayıcı bir araştırma ile tasarlanmıştır ve katılımcılar, deney ve kontrol grubu olarak 60 üniversite birinci sınıf öğrencisinden oluşmaktadır. Deney grubu katılımcılarına *Kahoot!, Socrative, Quizizz* ve *Mentimeter* araçlarıyla Microsoft Teams platformu üzerinde oyunlaştırma etkinlikleri ile eğitim verilirken, kontrol grubu katılımcıları da aynı platformda PowerPoint sunumlarıyla eğitimlerine devam etmişlerdir.

Nicel veriler iki ölçek ve bir Başarı Testi ile, nitel veriler ise yarı yapılandırılmış görüşme yoluyla elde edilmiştir. Ölçekler ve başarı testi hem ön-test hem son-test olarak

uygulanmıştır. Ölçeklerin ve başarı testinin analizleri istatistiksel ölçümlerle yapılmış, nitel veriler içerik analizi ile analiz edilmiştir. Elde edilen bulgulara dayalı olarak, uygulamanın deney grubunda motivasyon ve çevrimiçi öğrenme özyeterliği açısından istatistiksel olarak anlamlı bir farklılığa sahip olduğu görülmüştür. Bulgular, Başarı Testi puanları üzerinde anlamlı bir farklılık göstermemesine rağmen, deney grubunun son-test puanlarının ön-test puanlarından yüksek olduğu ortaya çıkmıştır. Dolayısıyla, uygulamanın çevrimiçi öğrenme ortamlarında öğrencilerin motivasyon düzeyleri, çevrimiçi öğrenme öz-yeterlilik ve akademik başarıları üzerinde faydalı olduğu görülmüştür. Veriler ayrıca cinsiyet ve katılımcıların Web 2.0 araçlarıyla daha önceki deneyimlerini içeren değişkenler açısından da analiz edilmiştir ve deney grubu lehine istatistiksel olarak anlamlı bir fark ortaya çıkmamıştır.

Anahtar Kelimeler: Çevrimiçi Öğrenme, Oyunlaştırma, Web 2.0 Araçları, Motivasyon, Çevrimiçi Öğrenme Öz-Yeterliliği, Akademik Başarı

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CHAPTER FIVE

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THE LIST OF ABBREVIATIONS

EFL	English as a Foreign Language
CIS	Course Interest Survey
OLSES	Online Learning Self-Efficacy Scale
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
CoHE	Council of Higher Education
PRS	Personal Response System
ARS	Audience Response System
SRS	Student Response System
GSRS	Gamified Student Response System
TAP	Test Analysis Program
ICT	Information and Communication Technology
ESP	English for Specific Purposes

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CHAPTER ONE
INTRODUCTION

The main objective of this chapter is to reveal an introduction for the present study entitled *Exploring the Effects of Gamification with Web 2.0 tools on EFL Learners' Academic Achievement, Motivation, and Learning Self-Efficacy in Online Learning Environments.* It starts with the background of the study and is followed by thesis subject, purpose of the study, significance of the study, objectives and hypotheses and research questions. Furthermore, the assumptions and limitations of the study will be explicated accordingly.

1.1. Background of the Study

With the sudden appearance of the coronavirus (Covid-19) which was firstly appeared in Wuhan, China in December 2019 and announced by the World Health Organization (WHO) as a global pandemic, it has rapidly spread all over the world and many countries have decided to integrate various methods and learning practices for online learning environments (Toquero, 2020). Due to its serious effects and death rate, several measures including the closure of educational institutions have been taken all over the world. Therefore, distance education and online learning have been given much more importance and different digital teaching and learning programs, practices, platforms, and applications have come into the prominence with reference to online learning environments.

In line with the process regarding digital transformation, online learning has started to be used as an educational platform for students including higher education learners (Adedoyin and Soykan, 2020) as it is regarded to be a priority in the 21st century and a natural process for any stakeholders that aim to be head of changes and have the power to compete with their counterparts in their fields (Benavides et al., 2020) and due to the fact that the students in the 21st century are regarded to be life-long learners and grow up in the midst of technology age, they are widely engaged with multimedia, interactivity and social network as part of their daily life experiences (Wood and Shirazi, 2020).

Despite of the fact that the number of students on online learning platforms is increasing day by day, there are some challenges in terms of their motive to learn online that lead to high rates of dropout (Park and Choi, 2009) since maintaining the process of learner engagement in an online class setting is even more complicated (Zainuddin et al., 2021). Within this perspective, motivation is regarded to be vital for online learning (Hashemian and Soureshjani, 2011; Akhasbi et al., 2021) as it is suggested that due to the lack of opportunity to communicate and compete with other students as in classrooms, learners feel themselves lonely in distance education or online learning platforms which results in a decrease in their motivation levels (Balaban-Sali, 2008). However, the more motivated students are towards learning, it is expected that the less likely they are to drop out of classes in online learning environments (Kim and Frick, 2011).

With reference to motivation in the learning process, self-efficacy is an essential factor as well (Zimmerman and Kulikowich, 2016) and within this regard, learners' learning self-efficacy is of importance regarding online learning environments as it is regarded to be a key element to be successful for online learning (Shen et al., 2013). Since self-efficacy beliefs are context-specific and are affected by changes such as from face-to-face instruction to online platforms, particular consideration needs to be given (Hodges, 2008). Furthermore, it is indicated that although most of the learners are capable of benefiting from basic computer skills in their daily lives, many of them need more competencies for success in terms of online learning platforms (Taipjutorus, 2014).

It is seen that both self-efficacy and motivation are crucial factors for students' learning procedure in terms of efforts, choices and determination that altogether promote their academic achievement (Fulgencio et al., 2021). However, taking into account the considerations regarding motivation and learning self-efficacy along with academic achievement, it is seen that there are limited number of studies in terms of the effects of gamification with the help of instructional Web 2.0 tools in online learning environments which addresses the need for studies in the field accordingly.

1.2. Thesis Subject

The subject of this thesis is to analyze the effects of gamification with Web 2.0 tools including *Kahoot!, Quizizz, Socrative,* and *Mentimeter* on undergraduate EFL learners' motivation, academic achievement and learning self-efficacy in online learning environments. For this purpose, a quasi-experimental research design was conducted, and the experimental group participants were instructed through activities using Web 2.0 tools on the *Microsoft Teams* platform. The participants of the study are EFL learners who are studying at Balıkesir University, Faculty of Science and Letters.

In order to collect quantitative data, two instruments titled as "*Course Interest Survey* (CIS)" (Appendix 5) by Keller (2006) and "*Online Learning Self-Efficacy Scale*" (Appendix 4) developed by Zimmerman and Kulikowich (2016) along with a *Demographic Information Form* (Appendix 3) and an *Achievement Test* (Appendix 2) which were developed by the researcher were used in the study. To ensure the reliability of the Achievement Test, various steps were carried out including Kuder-Richardson-20 (KR-20) reliability coefficient which is utilized to measure the internal consistency regarding an achievement test in which one-dimensional trait is calculated and is scored dichotomously as right or wrong (Tan, 2009). Due to the fact that the correct options are coded as *1* and the wrong answers as *0*, Kuder-Richardson-20 reliability coefficient results are indicated. Additionally, opinions by the field experts were taken to ensure the validity of the test.

The surveys and the test were delivered to the learners with another Web 2.0 tool, *Google Forms*. While the experimental group was instructed through activities via Web 2.0 tools, the instruction was delivered through PowerPoint for the control group on online learning platform, *Microsoft Teams,* as well.

1.3. Purpose of the Study

Following the measures in Covid-19 pandemic, the Council of Higher Education (CoHE) in Türkiye published the "*New Normalization Guide in Global Pandemic*" indicating that based on the regional and local conditions of the pandemic, the Turkish universities could decide on different practices in 2020-2021 academic year (CoHE, 2020).

In line with this decision, universities in Türkiye announced that in the 2020-2021 academic year fall term, learners of most of the programs (apart from several applied sciences) would be instructed through online learning platforms.

Within this aspect, the primary aim of this study is to investigate the effects of gamification with Web 2.0 tools on motivation, academic achievement, and learning self-efficacy of EFL learners who are instructed on the *Microsoft Teams* platform in a synchronous way. As opposed to asynchronous education which does not involve *real-time* situations that are insensitive both in geographical and timely issues, the course instructions are delivered synchronously that allows the instructor and learners *real-time* interaction which is timely sensitive but geographically insensitive (King et al., 2001). Synchronous interaction is important in that it provides the opportunity both for students and instructors to exchange their ideas and have a discussion on course subjects simultaneously with the help of a virtual discussion environment and asynchronous interaction allows the participants to have active input and helps to have learner-centered environments as well (Miltiadou and Yu, 2000).

While it is acknowledged that motivation is a key aspect of teaching and learning process, the contemporary studies that explore its impact on online learning environments are limited which addresses the need for reconsidering the motivational factors on those platforms (Hartnett, 2016). Therefore, this present study is considered to shed light on the literature and reveal some online practices for other stakeholders to use in those online learning environments.

1.4. Significance of the Study

With the introduction of computers into educational settings within the framework of computer-assisted language learning (CALL), they have become a crucial part of increasing learners' motivation and interest along with their properties as being more practical and enjoyable (Ghalami and Ahangari, 2012). Following the developments in technology and advances in educational practices, the ways of both delivering and receiving knowledge in online or traditional classroom settings have evolved and will further continue to improve over time (Kentnor, 2015) as educational practices have changed drastically in

years from chalk and board to digital technologies (Yunus et al., 2021). Therefore, distance education, which is acknowledged as physical separation of instructor and learner (Keegan, 2013), is not a new concept since it dates back to the 18th century and with the help of innovations in the field of communications technology, it continues to gain popularity (Kentnor, 2015). As the interpersonal face-to-face way of communication is replaced by an impersonal communication style (Keegan, 2013) via communications technology (Moore and Kearsley, 2011), it has turned out to be a mainstream for educational practices as well (Saykılı, 2018).

The popularity and importance of online learning have considerably increased with the sudden outbreak of a global pandemic in 2019 called Covid-19 (Sars-Cov 2) all over the world and the challenges faced by the pandemic have triggered new types of knowledge and competencies regarding the use of online audience response systems and gamified teaching practices through gamification tools that will also be beneficial to use in post-pandemic process and will continue to reshape the way of both teaching and learning practices at universities (Pichardo et al., 2021) since it is indicated that the applications, methods and techniques used in the pandemic period and the widely use of digital technologies may lead the live online teaching and learning evolve into the new normal in the following period (Tang et al., 2021).

In line with this, Turkish universities announced that the instruction for most of the programs will be delivered through online learning platforms based on the decision by the CoHE (n.d.) entitled "*Procedures and Principles Regarding Distance Education in Higher Education Institution*" as in the following:

> Higher education institutions can teach the courses specified in Article 5-i of the Higher Education Law No.2547 by distance education and they can get it from other higher education institutions where this education is provided. (Different; Council of Higher Education General Assembly dated 19.06.2014)
>
> Application of Distance Education
> Article 7: (…) Lectures are delivered by the instructor through interacting between students and between students and instructors via synchronous and/or asynchronous tools (Different; Council of Higher Education Executive Assembly dated 15.04.2015) (Different; Council of Higher Education General Assembly dated 24.09.2020)

Following the improvements in the field of educational technology, online learning has turned out to be a trend for both K-12 level learners and higher education settings. Although the fact that distance education is not a new way of teaching and learning, there have been debates over the effectiveness of online learning platforms compared to face-to-face classroom instruction which has mostly resulted in the latter as claimed to be the standard from the traditional aspect (Kline et al., n.d.). However, as cited above, the Council of Higher Education in Türkiye announced that the compulsory courses including Foreign Language acknowledged within Article 5-i courses could be conducted through online learning environments which require the need for research studies searching for the implementation of several multiple technologies for those who will be instructed not in classroom settings but on online platforms. Despite the fact that the number of students in online learning environments are increasing and has greatly expanded with the sudden outbreak of the global pandemic, there are some challenges mostly resulting from motivational issues that lead to high course drop-outs. Moreover, with reference to language learning it is indicated by many students that the main difficulty of study of English by distance learning is the lack of interaction and communication (Kamal et al., 2021) and the claim is also supported by Zhang and Cui (2010) who concluded that most of the participants addressed the limited communication with their instructors and friends as the main difficulty in distance learning settings. Therefore, if learners feel more motivated then less ratio of course drop-outs in online courses are likely to occur and this makes it more important how to design online courses to promote and facilitate learner motivation and course interest to learn in online learning environments (Kim and Frick, 2011).

Within this regard, this study aims to analyze the effects of gamification with four Web 2.0 tools including *Kahoot!, Quizizz, Socrative* and *Mentimeter* on EFL learners' motivation, learning self-efficacy and academic achievement in online learning environments. Both the experimental group and the control group participants were instructed via online learning platforms which addresses the importance of the present study when compared to the previous ones which are mostly based on the comparison of online learning environments and traditional face-to-face classroom instruction. Within this regard, this study is considered to contribute to the field in terms of the effects of gamification with selected Web 2.0 tools on EFL learners' motivation, academic achievement, and learning self-efficacy in online learning environments.

With reference to the previous studies regarding online learning, Berge and Mrozowski (2001) who aimed to examine the literature in the 1990s by utilizing four distance education journals of English-language based on abstracts and articles, found that three-fourth of them which indicated a rate of 74.83% conducted a descriptive methodology while just 6% of them used an experimental method. In another study, Zawacki-Richter et al. (2009) reviewed the articles that were printed between the years of 2000 and 2008 in five prominent journals in the field of distance education and revealed that 38.1% of the articles were descriptive and 12.9% of them used a mixed-method research design.

Regarding the previous studies which are mostly descriptive in nature, the present study that was conducted through a quasi-experimental research design is considered to give insights in terms of the effects of gamification with Web 2.0 tools on EFL learners' motivation, academic achievement, and learning self-efficacy in online learning environments.

Analyzing the literature, it is seen that previous studies have mostly based on the role of self-efficacy as a mediating factor between various learning environments and finally, learning outcomes, but only few studies addressed to its mediating role in terms of online learning environments (Han et al., 2021) and it is believed that additional research studies need to be conducted to reveal in what ways self-efficacy manifests itself in online learning environments and more empirical research studies are needed to be employed accordingly (Shen et al., 2013). Furthermore, although technology is utilized in every area nowadays, there is lack of empirical evidence regarding its effects on students' academic learning specifically within EFL contexts (Cárdenas-Moncada, 2020) and similarly, Bilgin (2022) emphasizes that although it has a great potential and importance, benefiting from Web 2.0 technologies in both foreign and second language learning settings appear to be an uninvestigated field of study. Moreover, based on a systematic literature review on gamification, Antonaci et al. (2019) indicate that the application of gamification in terms of online learning is still a young area of research and there is a scant scope of empirical experiments and Lin et al. (2018) suggest that gamification is a new approach for tertiary-level/higher education in this technologically advanced and surrounded age.

1.5. Objectives and Hypotheses

The primary objective of the present study is to investigate the effects of gamification on online learning self-efficacy, motivation, and academic achievements of EFL learners who are studying at Balıkesir University, Faculty of Science and Letters. Additionally, the study aims to analyze whether various variables including gender and previous experience with Web 2.0 tools has an impact on their online learning self-efficacy, motivation, and academic achievement in online learning environments. Since it is acknowledged historically that gender differences affect how and in what ways students learn and advance in the classroom and when it comes to online learning, it is somewhat contradictory with reference to gender-specific discussion which makes it essential to search for a clearer explanation of whether or how learners' perceptions vary across gender in online learning environments (Harvey et al., 2017). Furthermore, Ashong and Commander (2012) suggest that gender is a crucial characteristic which influences learners' perceptions of learning in online settings along with results indicating more approving perceptions in favor of the males. Similarly, Sullivan (2001) indicates that college female and male learners practice online learning environments in a different way. Therefore, gender was considered to be a valuable variable to investigate whether it has an impact on participants' perceptions of gamification with Web 2.0 tools on their academic achievement, motivation and learning self-efficacy in online learning environments.

Learners' prior experiences with technology and Web 2.0 tools for educational purposes pose another discussion topic in online learning environments (Kumar, 2009). Although several case studies address learners' limited experiences of technology, based on a research evidence, Bennett et al. (2012) reveal that despite of lack of familiarity with such tools, most of the learners were able to develop the required skills in a short time and they valued those skills of use of technology. Thus, participants' previous experiences with Web 2.0 tools were aimed to be investigated in the present study as well. In line with those perspectives, firstly, the hypotheses and then the research questions of the study are indicated as follows:

Research Hypotheses:

$H0_1$: There will be no statistically significant difference between experimental and control group participants' overall pre-test and post-test scores in terms of their motivation levels.
$H1_1$: There will be a statistically significant difference between experimental and control group participants' overall pre-test and post-test scores in terms of their motivation levels
$H0_2$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their motivation levels.
$H1_2$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their motivation levels.
$H0_3$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their motivation levels.
$H1_3$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their motivation levels.
$H0_4$: There will be no statistically significant difference between experimental and control group participants' pre-test and post-tests in terms of their online learning self-efficacy.
$H1_4$: There will be a statistically significant difference between experimental and control group participants' pre-test and post-tests in terms of their online learning self-efficacy.
$H0_5$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their online learning self-efficacy.
$H1_5$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their online learning self-efficacy.
$H0_6$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their online learning self-efficacy.
$H1_6$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their online learning self-efficacy.
$H0_7$: There will be no statistically significant difference between experimental and control group participants' pre-test and post-test scores in terms of their academic achievement.
$H1_7$: There will be a statistically significant difference between experimental and control group participants' pre-test and post-test scores in terms of their academic achievement.
$H0_8$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their academic achievement.

$H1_8$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their academic achievement.

$H0_9$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their academic achievement.

$H1_9$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their academic achievement.

$H0_{10}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{10}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{11}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{11}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{12}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{12}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools

$H0_{13}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{13}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

1.6. Research Questions

With reference to the hypotheses, the research questions of the present study are as the following:

1. What is the effect of gamification using Web 2.0 tools on EFL learners' motivation levels in online learning environments?
   1.1. What are EFL learners' views of gamification using Web 2.0 tools on their motivation levels in online learning environments?
   1.2. Do EFL learners' perceptions of motivation change according to their gender?
   1.3. Do EFL learners' perceptions of motivation change according to their previous experiences with Web 2.0 tools before?

2. What is the effect of gamification using Web 2.0 tools on EFL learners' learning self-efficacy in online learning environments?
   2.1. What are EFL learners' views of gamification using Web 2.0 tools on their learning self-efficacy in online learning environments?
   2.2. Do EFL learners' perceptions of learning self-efficacy change according to their gender?
   2.3. Do EFL learners' perceptions of learning self-efficacy change according to their previous experiences with Web 2.0 tools before?

3. What is the effect of gamification using Web 2.0 tools on EFL learners' academic achievement in online learning environments?
   3.1. What are EFL learners' views of gamification using Web 2.0 tools on their academic achievement in online learning environments?
   3.2. Do EFL learners' perceptions of academic achievement change according to their gender?
   3.3. Do EFL learners' perceptions of academic achievement change according to their previous experiences with Web 2.0 tools before?

1.7. Assumptions of the Study

This present study has several assumptions. First and foremost, it was assumed that the participants of the current study have positive attitudes towards learning English as a Foreign Language. Moreover, it was assumed that all the participants in the experimental and control group were influenced regarding the uncontrolled variables in an equal way.

Therefore, the variables were investigated in that both experimental and control group participants share similar backgrounds.

To ensure data triangulation, both quantitative and qualitative data were used in the study. Therefore, it was assumed that using different types of data would contribute to the validity and reliability of the research findings. Another assumption of the study included that the participants would answer both survey and semi-structured interview questions sincerely and honestly.

Moreover, it was assumed that the research participants who are EFL learners and taking English as a compulsory foreign language course served in universities under Article 5-i by CoHE and the research setting would be convenient to the research objectives. Furthermore, it was assumed that the results of the present study would reflect the perceptions of a larger population of EFL learners taking English as a compulsory course acknowledged within 5-i courses at higher education institutions.

Consequently, it was assumed and highly hoped that the findings of the current study would benefit and shed light on the literature on the use of Web 2.0 tools in terms of facilitating and promoting EFL learners' self-efficacy, motivation, and academic achievement levels in online learning environments.

1.8. Limitations of the Study

The present study has several limitations regarding target participants because the findings are limited to the data collected from 60 freshmen students including 30 for the experimental and 30 participants for the control group who are studying at Balıkesir University, Faculty of Science and Letters and taking Foreign Language Compulsory Course. Therefore, the findings of the present study may not be generalizable to students studying at different universities, faculties, and departments. Since the present study is held at higher education level, other research studies could be conducted with other levels of education as well.

The data are collected through selected Web 2.0 tools including *Kahoot!, Quizizz, Socrative,* and *Mentimeter.* Therefore, other Web 2.0 tools could be conducted in other research studies in different settings with different participants.

Since the study was based on quantitative-dominant mixed method sequential explanatory research design, other types of research methods/designs could be used in other research studies.

As technology evolves day by day and the study was based on the effects of gamification along with selected Web 2.0 tools in online learning environments and was held at a certain time of global pandemic, differentiating findings could also be revealed at other times or in different geographies. Therefore, further studies could be conducted accordingly.

Lastly, since the study investigated several variables including gender and previous experience with Web 2.0 tools, other variables and their possible effects could be explored in other studies.

1.9. Chapter Summary

In this chapter, a background to the study along with problem statement, the subject of the study, purpose, and importance of the study with reference to online learning environments, research hypotheses/questions and assumptions of the study and some limitations were explained accordingly.

CHAPTER TWO
LITERATURE REVIEW

In this chapter, literature review including context and terms to be used regarding gamification, distance education, online learning, self-efficacy, academic achievement, motivation, and online learning environments will be held in detail. Furthermore, game elements, characteristics of games acknowledged within gamification, benefits of gamification, gamification dynamics, mechanics and components, the relationship between gamification and motivation, approaches to gamification, learning self-efficacy, and major processes of self-efficacy will be revealed in detail as well. Moreover, response systems including audience response systems, student response systems, gamified response systems will be indicated. Since the study explores the effects of gamification with Web 2.0 tools on EFL learners' academic achievement, motivation and learning self-efficacy in online learning environments, historical background of Web 1.0 and Web 2.0 tools, Web 2.0 tools and language learning and previous research studies in terms of gamified Web 2.0 tools will be revealed as well.

2.1. Context and Terms

Considering the scope of the study which aims to reveal the effects of gamification with Web 2.0 tools on EFL learners' motivation, learning self-efficacy, and academic achievement in online learning environments, several concepts, and terms need to be discussed accordingly. Among those are online learning means a way of learning with the help of sources supported by computer (Carliner, 2004) and it is suggested that distance education and online learning are correlated with each other (Moore et al., 2011). Therefore, e-learning, online learning and distance education address learning process via information or internet technology and the "e" of e-Learning refers to experiential learning, electronic learning, extended learning, efficient learning, exploratory learning, expanded/extended/enhanced learning, and easy-to-use learning accordingly and it has spread to North America, Europe and then Asia after it first appeared in the USA (Zhou et al., 2020).

Another term that will be addressed in the present study is distance education which refers to the physical separation of teacher and learner in terms of the teaching and learning process (Rumble, 2019). It dates back to 18th century, however, its scope has extended rapidly in recent years and has become an essential part of educational contexts and an academic discipline as well (Holmberg, 2005).

With regard to online learning environments concepts including motivation and self-efficacy are of key importance. Motivation, as a word, derives from Latin "movere" that refers to move and is termed as an inner force which activates behavior and determines its direction (Singh, 2011) and with reference to online learning platforms, it is indicated that learners need to be highly motivated in order to learn and improve self-practice in online learning platforms (Belaja et al., 2012).

Among the concepts to be discussed within the scope of the study is gamification which refers to the use of game mechanisms within non-gaming environments to improve emerging processes and participants' experiences (Caponetto et al., 2014). It is indicated that since learners in online learning environments feel themselves lonely and separated from others and learning sources, motivational issues come into the prominence as one of the basic drawbacks and to be able to overcome this challenge and encourage learners to be more motivated, gamification is a new way of meeting this need (Şahin et al., 2017).

Serious games and gamification need to be differentiated from each other as the former addresses to the games with the aim of serious intentions on which the design is based as well; however, the latter is associated with some game elements to be used and from another perspective, it needs to be indicated that while serious games utilize resources with a bigger quantity, graphics and knowledge for game design procedures, gamification does not employ such resources or a distinctive game design process (Muntean, 2011). With reference to the differences between the two, it is possible to indicate that although game design is utilized in the structure of serious games, gameful design is used in gamification process along with an integrative structure (Yıldırım and Şen, 2021).

2.2. Defining Gamification

Nowadays, a huge part of human life is shaped by technological advances and social networks from childhood to the elderly ages and within this respect, children of all ages utilize technology in several aspects directly or indirectly and with the introduction of Web 2.0 technology, a great range of new applications, networks and practices have developed and still continue to evolve (Kayımbaşıoğlu et al., 2016). In line with this framework, learners are also called as *digital natives* since they are born in a world surrounded by digital technologies and grow up with them (Kiryakova et al., 2014) and it is indicated by Prensky and Berry (2001) that their brains seem to be physically different from their parents due to the digital input they get while growing up.

A concept that could be adapted to today's digital natives and also digital immigrants who are learning a second or foreign language which is regarded to be a major competence in the 21st century is gamification that is addressed by instructors to motivate their language learners for the pursuit of gaining fluency (Flores, 2015) as it is suggested that learning with the help of digital games is a good way of interacting with Digital Natives of this age in their '*native language*' as well (Prensky and Berry, 2001).

Since the introduction of computers into educational contexts, instructors have searched for different teaching and learning approaches, models, and practices. Therefore, new techniques with reference to Information and Communication Technologies have been included in the language teaching and learning process (Barrera, 2020) as ICTs are regarded to be great tools for educational purposes in that they provide learners with efficient communication, extensive productivity and digital-age literacy for which it is suggested that while ICT integration is crucial in education in general, its implementation in teaching and learning English in particular is essential (Pratiwi and Ubaedillah, 2021). In line with this perspective, as in other fields, teaching strategies in foreign language teaching should be selected accurately to achieve the purpose of a successful language learning process and within this perspective, creating a relaxed atmosphere is of importance for learners to feel comfortable (Brown, 2000).

Following the period of digital transformation, clickers that are utilized as Personal Response Systems (PRSs) have been acknowledged to be a common tool to use in educational settings along with several advantages of getting instant feedback, increasing learners' interest, and assessing their performance even with large groups on their own paces regarding content comprehension and acquisition and in recent years several applications have been used to be as clickers such as *Kahoot!, Quizizz, Socrative* and *Quizlet* (Faya Cerqueiro and Martín-Macho Harrison, 2019).

Although the fact that the principles discussed within gamification existed before, the term gamification started to be widely used around 2010 when the quality of digital games was acknowledged to stimulate a remarkable innovation regarding learning mechanisms (Veljković Michos, 2017). With reference to gamification, it needs to be highlighted that it is not a way of changing routine course activities into a kind of game, but redesigning the learning processes along with several game mechanisms to have fun and entertaining experience (Wood and Reiners, 2015) as learners are engaged to the process often without having any reward but just for the pursuit of joy and the eagerness to win which addresses to the motivational power that games have (Dicheva et al., 2015). With reference to game contexts as indicated above with the help of game elements, it is possible to trigger motivation on the learner's side and an effective engagement process along with feelings in order to win and learn as well (Veljković Michos, 2017). Additionally, gamification gives learners the opportunity of engaging in the learning process with motivational skills and helps to maintain a relaxed atmosphere (Flores, 2015).

2.3. Characteristics of Games within Gamification

Games that are acknowledged in the concept of gamification share some similar features: all types of games are participated voluntarily along with several set of rules and time limits (some is participant bounded and could be shut off by the user) which generate excitement and promote learners to engage (Veljković Michos, 2017).

Several distinctive characteristics of games that have a key role in terms of gamification suggested by Kiryakova et al. (2014) are indicated as follows:

- **users** that are acknowledged to be participants which include staff members for companies and learners for educational purposes
- **challenges/tasks** that are performed by users in line with the defined objectives
- **points** which are obtained by users as a result of performing tasks
- **levels** that are set for users to pass based on the points they get
- **badges** that are utilized as rewards on the condition one completes the tasks
- **ranking** which is used to indicate users' achievements

2.4. Benefits of Gamification

Several advantages of benefiting from gamification are indicated as follows (Veljković Michos, 2017):

- ◆ Changes the mood in the class atmosphere
- ◆ Expands learners' sense of happiness
- ◆ Provides learners the opportunity of time breaks for their fatigueness
- ◆ Promotes learner motivation and enhances attention
- ◆ Raises learners' engagement for classroom tasks and activities
- ◆ Triggers a targeted activity
- ◆ Promotes an enjoyable learning process

A figure that represents the key elements in gamification by Wood and Reiners (2015, p: 3041) could also be indicated as follows:

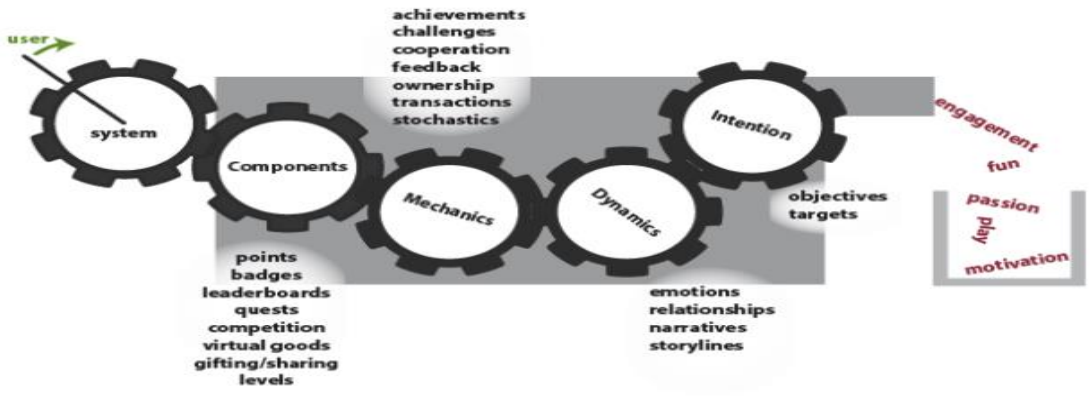

Figure 1. Key elements acknowledged within gamification.

2.5. Game Elements

One of the primary targets of utilizing gamification is to promote learner engagement and motivation with the help of game elements including badges, leaderboards, points, and other features suggested by Flores (2015) which are shown in *Table 1* as in the following:

Table 1

Game elements acknowledged within gamification

Points	Numerical unit obtained as a result of certain activities
Badges	Visual displays of achievement and progress
Leaderboards	A board showing the ranks of the players
Progress bars/ Progression	A bar showing the status of the players
Performance graph	Represents the performance of the player
Quests	Several tasks that players need to carry out in a game
Levels	A kind of position or part in a game
Avatars	Visual display of a player
Social elements	Relationships occurring with other players in a game
Rewards/reward system	A created system for players who achieve particular tasks

Among the game elements that are used within gamification, a leaderboard can have a function of showing the participants where they are located in the process in a ranking order based on their performance (Deterding et al., 2011). For instance, a learner can type a nickname for privacy, and he/she is able to see his/her rank on a leaderboard based on the scores or efforts along with the badges illustrated next to their selected nicknames. It is indicated that the ranking system performs as a kind of motivator because the participants are able to see their performance publicly and immediately (Domínguez et al., 2013). Even if some learners get a position near the bottom, the list can be an important feedback for their course performance. Several types of achievement indicators that are presented with course badges could perform as advantages such as bonus points, candies, or just rights for boast (Kennette and Beechler, 2019). The leaderboard function of the Kahoot! platform is illustrated in *Figure 2* as follows:

Figure 2. A figure from Kahoot! leaderboard.

2.6. Gamification Dynamics, Mechanics, and Components

To design a gamified process along with a positive effect on educational aims, it needs to be combined with required game components, mechanics, and dynamics as through all these three elements, it is possible to promote a needs-oriented learning procedure (Bicen and Kocakoyun, 2018). The hierarchy acknowledged within game elements are indicated by Costa et al. (2010, p: 6) as follows:

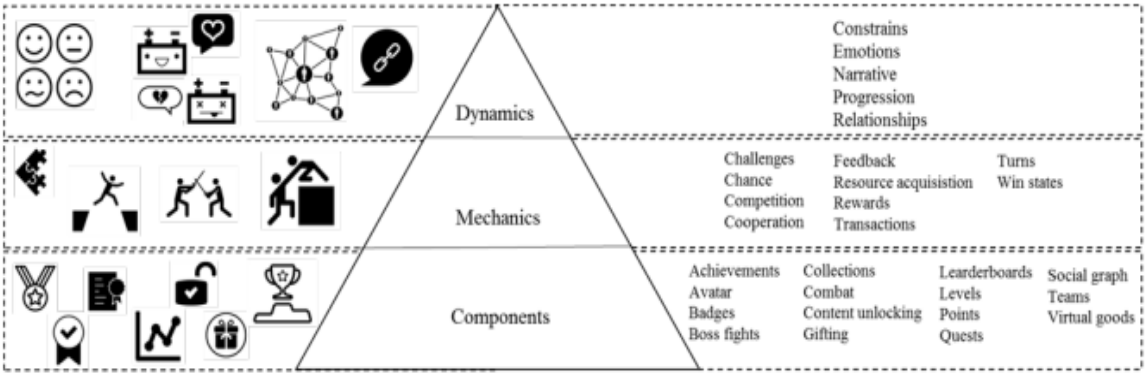

Figure 3. The hierarchy of game elements.

Game elements are the essential part of a gamified practice since positive feedback and the game elements used in gamification provide learners the possibility of moving from

an introverted feeling of shyness to a more motivated sense (Flores, 2015). The aforementioned hierarchy of game elements will be explicated separately in the following part:

2.6.1. Gamification Dynamics

Game dynamics relate to the big-picture feature within the gamified system (Werbach and Hunter, 2012) and includes a set of behaviors and emotions that could be illustrated by competition via a leaderboard, collaboration through carrying out the team missions, collection as a result of getting particular badges and along with game mechanics are used in order to increase engagement and motivation (Gamification, 2022). Mostly suggested game dynamics (Werbach and Hunter, 2012) are as follows:

Table 2
Game dynamics acknowledged within gamification

Constraints	Limitations to control
Emotions	Feelings such as eagerness, enjoyment, competitiveness, and frustration
Narrative	A storyline or a depiction of a series of acts/events
Progression	Status of a player's growth in a game
Relationships	Social interplays that produce feelings of friendship, status, and altruism

2.6.2. Gamification Mechanics

Game mechanics form the foundational features of the gamification experience regarding rules and awards as they determine who the key stakeholders are, how they collaborate, and where and when the gamification process takes part (Robson et al., 2015) and they evoke certain feelings in the participants such as competition, curiosity, annoyance, and contentment (Bicen and Kocakoyun, 2018). The game mechanics indicated by Werbach and Hunter (2012) are as follows:

Table 3

Game mechanics within gamification

Challenges	Tasks requiring endeavor
Chance	Matters of luck
Competition	A situation in which one succeeds and the other one fails
Cooperation	Participants' working together to attain a common goal
Feedback	Knowledge on the player's performance
Resource Acquisition	Gaining beneficial items
Rewards	Benefits obtained based on achievement
Transactions	Exchanging between participants, directly or done via intermediaries
Turns	Subsequent move of alternating game players
Win States	Objectives regarding draw, winner and loss states are relevant notions

2.6.3. Gamification Components

Gamified components refer to specific operations to be used within the interface of a game and form the most concrete step of the game elements pyramid (Kuutti, 2013) which are shown as follows (Werbach and Hunter, 2012):

Table 4

Overall gamification components

Achievements	Defined targets
Avatars	Visual displays of a player in a game
Badges	Visual displays of accomplishments
Boss Fights	Difficult challenges at the climax of a level
Collections	Items or badge sets to collect

Combat	Typically, a short-term struggle
Content Unlocking	Features available only if players reach goals
Gifting	Favorable circumstances to share sources with other ones
Leaderboards	Visual representation of player success in a ranking order
Levels	Arranged stages for player progress in a game
Points	Numerical images of one's game progress
Quests	Preset challenges along with goals and awards
Social Graphs	Display of social networks
Teams	Groups of players making effort to attain a shared goal
Virtual Goods	Digital non-physical objects or money used in online games

2.7. The Relationship between Gamification and Motivation

To get a better understanding of the relationship between gamification and motivation, it is important to define what it means to be motivated for something. It is indicated that when one is acknowledged to be motivated to do something, then he/she is moved to do it. Therefore, an individual who has no impulse or enthusiasm to move is called as unmotivated and a person who has energy and inspiration to perform is characterized as motivated. Hence, motivation addresses an individual's preference to participate in an activity and making effort or showing persistence in it (Dichev and Dicheva, 2017). Accordingly, those who play or work with other people are mostly concerned with the issue of motivation and face the question of to what extend they are motivated for a task and the practitioners face the recurring task of promoting more motivation in those people around them (Ryan and Deci, 2000).

Gamification is indicated by many researchers to be associated much with motivation as it is gaining more attention day by day, specifically for its potential for motivating learners (Dichev and Dicheva, 2017). For instance, while participating in gaming tasks or activities sometimes for hours, learners are motivated in order to outperform other users or themselves

(Kennette and Beechler, 2019). It is suggested that gamification promotes the combination of two types of motivation including intrinsic and extrinsic motivation in terms of raising learner motivation and engagement (Muntean, 2011). While the former refers to taking an action or doing an activity for inherent purposes rather than separate issues, the latter addresses to the idea of performing an activity for obtaining several separate outcomes (Ryan and Deci, 2000). Within this regard, game elements could be adjusted greatly into the L2 teaching and learning process in that while an intrinsically motivated one performs an activity for joy and challenge which could be illustrated by the issues including achievement, sense of belonging and cooperation; an extrinsically motivated person acts based on some external purposes such as points, rewards, badges, and levels (Flores, 2015).

Gamification is suggested to be used in L2 teaching and learning process for the improvement of language skills including reading, writing, and speaking and also for enhancement of a collaborative and interactive atmosphere and with the help of gamification, the instructors are able to provide learners to have meaningful experiences that make a shift from just a game thinking understanding to a techno-constructivist sense of mind as well (Flores, 2015). In a research study, Beamish and McLeod (2014) aimed to investigate the ways through which technology supported by Web 2.0 tools could be utilized to increase learners' literacy and 21st century skills along with 1193 students studying at Sahmyook University in Seoul, South Korea in terms of constructivist group-based project and as a result of the findings, it was concluded that the project improved their English language skills and promoted the development of ICT (Information and communication technology) skills as well.

2.8. Approaches to Gamification

Two types of approaches could be addressed within gamification: Forming a course entirely based on a game or including several smaller game elements. From the first perspective, organizing an entire course around a game could be daunting, however, benefiting from gamifying for activities for a part of the course could be utilized as an option, for instance, there could be a competition with a small group of students for the purpose of best participation regarding that week's course session or the highest score for homework (Kennette and Beechler, 2019).

Gamification and game elements could also be used as a formative assessment tool in that Zainuddin et al. (2021) aimed to investigate the effects of a modified flipped classroom setting, where the instruction is held synchronously, on learners' formative quizzes accompanied by gamification elements and they concluded positive outcomes on learner engagement despite of the challenges faced by learners even in the tough times of pandemic lockdown.

2.9. Self-Efficacy

Among the other concepts that will be discussed within the study is the term *self-efficacy* which refers to an indicator of confidence with which a person needs to perform a specific task, exercise, or challenge (Alqurashi, 2016). It is suggested that one's perceived self-efficacy determines the way they feel, think, and behave accordingly and how to motivate themselves as well (Bandura, 1994). Self-efficacy is also associated with self-regulation, and it is indicated that learners in online learning environments need to have self-efficacy beliefs in order to reach their achievement goals and regulate the process of their own learning (Ergul, 2004). It is suggested that when one feels himself/herself less self-confident in terms of using information technology, then s/he also feels less positive towards technology as well (Liaw, 2008). Although the fact that most of the research studies on online self-efficacy are based on the computer, it is suggested that self-efficacy is a key element of a successful online learning procedure (Shen et al., 2013).

2.10. Major Processes of Self-Efficacy

Bandura (1994) suggests that there are four major processes of self-efficacy regarding cognitive, affective, motivational, and selection processes that are indicated as follows:

Cognitive Processes: The effects regarding self-efficacy beliefs are observed in a range of forms on cognitive processes. One's perceived self-efficacy is associated with his/her own goal setting. In that, if one has a strong perceived self-efficacy, s/he sets higher levels of goal challenges to achieve.

Motivational Processes: It is acknowledged that self-efficacy has a crucial role in one's self-regulation of motivation and is believed that most of the human motivation is generated through cognitive ways. They form ways anticipatorily based on beliefs regarding what to do for prospective situations to motivate themselves and plan their actions accordingly. In this respect, they set their own goals and take action to realize them.

Affective Processes: People's beliefs on coping with challenging situations are related to the level of stress or depression they experience in those circumstances and their motivation levels.

Similarly, it is indicated that one's self-efficacy is affected by personal elements and in turn, the concluding efficacy beliefs have an impact on one's decision whether to continue the lesson which is important for learner success administrators (Puzziferro, 2008).

2.11. Self-Efficacy, Motivation and Academic Achievement

Self-efficacy has been among the major concerns of educational research with various types. Individuals who consider that they have the essential capabilities to carry out a task successfully are regarded to have high self-efficacy beliefs and those that do not believe to have the related traits are thought to have low self-efficacy levels to do that task (Walker et al., 2006) and it is widely believed by self-efficacy theorists that having low self-efficacy leads to motivational problems and if learners assume that they will not be successful at certain tasks (low self-efficacy), they try to carry out these tasks superficially, and give up or avoid doing them as a result (Margolis and McCabe, 2006). Therefore, the more motivated they feel themselves, the more they are integrated into the learning process and the more involved they will be to fulfill their tasks (Hammad et al., 2022). Similarly, Puzziferro (2008) indicates that one's self-efficacy beliefs perform as motivational influence and have an impact on his/her individual behavior, in other words, perceived self-efficacy acts as a mediating factor on action. Therefore, it is emphasized that motivated learners also have positive levels of learning self-efficacy which in turn, promote their participation in learning activities (Alemayehu and Chen, 2021).

Self-efficacy and academic achievement are also associated with each other in that having low levels of self-efficacy beliefs hinder academic achievement and can cause self-fulfilling prophecies on lack of success and learned helplessness which ultimately can ruin one's psychological well-being as well (Margolis and McCabe, 2006). With reference to online learning, it is widely known that it is not a new trend and since the number of online students are increasing day by day, it becomes more important to determine and explore learning strategies or practices that they need to attain academic success in online learning environments (Peechapol et al., 2018). Similarly, Bradley et al. (2017) indicate that high level of self-efficacy beliefs and positive self-regulatory traits are predictors of academic achievement in online learning settings as well.

2.12. Online Learning Environments

Three delivery models are discussed within the concept of online learning environments (Berge et al., 2000) that are indicated as follows:

1) Utilizing the web as a supplementary tool to face-to-face instruction: The web is used as a supplement that the instructor can utilize to upload documents regarding classroom activities, lecture notes, exam/test feedbacks or reviews and for asynchronous conferences to hold with learners at different sites and at convenient times.

2) Utilizing the web as a mixed mode for online and face-to-face instruction: It refers to the way of instruction both face-to-face and online.

3) Utilizing web-based mode of instruction rather than face-to-face instruction: It consists of web-based lectures along with instructional areas which are open to anyone to use at any time.

As seen, there are three different modes of delivery in online learning environments. However, although online learning is not a new trend and communication technologies are developing day by day based on the continuous evolution in technology in each level of education including higher education institutions, in consequence of the confinement caused by the sudden outbreak of the global pandemic, the full use of online courses was adapted

and the use of online practices have been accelerated (Torres Martín et al., 2021). Since the global pandemic has led to a tremendous change as a result of the shutdown of educational institutions including all levels throughout the world, it has required both instructors and institutions to adapt online pedagogical strategies in a sudden way (Nieto-Escamez and Roldán-Tapia, 2021).

Typically, instruction in an online learning environment is delivered through several forms including synchronous and asynchronous ways and various teaching and learning activities are utilized to enable learners to have more dynamic learning process (Choy and Quek, 2016; Roberts and Dyer, 2005). Furthermore, with the help of technological equipment in online learning environments, an instructor can create learning activities to meet learners' needs and characteristics (Roberts and Dyer, 2005) and one way of fulfilling this aim is to benefiting from gamification through which instructors can decrease both psychological and physical constraints faced during the time of quarantine caused by global pandemic (Nieto-Escamez and Roldán-Tapia, 2021).

It is acknowledged that planning a qualified educational activity firstly starts with having the knowledge of learners it is designed for but it makes it difficult to accomplish the related information in online learning environments where teachers and learners are separated from each other which leads instructors to get limited knowledge and create activities in advance but the practices can be individualized to meet their learners' needs (Roberts and Dyer, 2005).

2.13. Response Systems

Today many more teachers all over the world are utilizing response system technology for various levels of education to enable their learners to perform well, increase their participation in courses and get feedback on how they are doing (Penuel et al., 2007) and the response systems which have witnessed changes over time could be indicated in the following sections.

2.13.1. Audience Response Systems (ARSs)

Educational practices have changed rapidly through the developments in Information and Communication Technologies and as a result, various applications including virtual classrooms, smart classes and Web 2.0 tools have started to be widely used both as stand-alone and blended versions which have led to the use of computer-based audience response systems for increasing learner participation and investigating the degree of their understanding (Konstantinidis et al., 2009) as the key benefit of utilizing audience response systems is the opportunity of getting feedback both by the students and the instructors on how well the topics presented are understood by the whole class and as a result, the instructor may make several modifications on the course of instruction or learners can study harder on their misconceptions (Kay and LeSage, 2009).

Through audience response systems, students can answer multiple-choice questions that are presented by the instructor at any time during the course working in pairs, individually, or as a part of a group using a remote-control device (Wood and Shirazi, 2020). All of the responses are usually collected in charts/graphs and are displayed by the instructor on the screen instantly to be reviewed and discussed with the students (Kay and LeSage, 2009). Although it is possible to utilize audience response systems through low-tech devices, the increasing developments in the digital age have provided better opportunities and mobile devices such as laptops, tablets, and mobile phones have been used as high-tech audience response systems as well (Wood and Shirazi, 2020).

2.13.2. Student Response Systems (SRSs)

A student response system (SRS) provides a wireless system which helps instructors to have the means in order to increase their students' engagement into the classes in that the instructors can integrate various pedagogical units into their classes and can provide a more engaging atmosphere for their students through posing questions and the students respond the questions via a personal unit or a clicker (Kaleta and Joosten, 2007). Therefore, SRSs are regarded to be effective tools in order to transform classroom dynamics (Tan and Saucerman, 2017) to get feedback on revealing weaknesses, to determine what topics to

teach, to apply polls and surveys to discover students' attitudes (Wang, 2015) and also to provide interactive classrooms to utilize in higher education as well (Hung, 2017).

Several research studies have been conducted in search of the effects of SRSs in many fields and the findings reveal that they provide ways of improving student attendance, engagement, teaching and learning performance both for students and lecturers and increase interaction between them, and also enable students with anonymous participation as well (Wang et al., 2016). Furthermore, it needs to be indicated that as technology evolves over time, SRSs have also improved drastically from just handheld tools to a system to be used in a mobile application form (Cha, 2018) or any computing devices along with internet connection to implement the clicking function to participate in the activities (Hung, 2017).

2.13.3. Gamified Response Systems (GSRSs)

Among the well-known active-learning student response systems are *gamified response systems* (GSRSs) that include game-like elements (Adkins-Jablonsky et al., 2021) and it is indicated that rather than a SRS, a GSRS functions as more motivative and encouraging on the learners' side (Wang et al., 2016; Wang, 2015) along with attractive interfaces and audio systems and makes the whole student response process more gamified accordingly. However, it needs to be highlighted that both systems improve student engagement and learning performance (Wang et al., 2016).

With the increasing use of game elements in online educational platforms, gamified Web 2.0 tools including *Kahoot!, Quizizz* and *Socrative* have turned out to be popular in teaching and learning processes in recent years (Sercanoğlu et al., 2021), and *Kahoot!* is indicated to be a new generation of SRSs benefiting from gamification (Wang et al., 2016). Therefore, it is regarded to be one of the most attractive GSRSs that utilizes multiple-choice questions via clickers and is advantageous both for students and instructors as it is free and easy to use (Adkins-Jablonsky et al., 2021).

2.14. Historical Background of Web 1.0 and Web 2.0

Since its appearance, Web which was introduced by Tim Burners-Lee in 1989 has been one of the fundamental sources of information and news for people (Zhao et al., 2015) all over the world and it has witnessed various drastic changes over time. Web 1.0 addresses the first generation with reference to the World Wide Web (WWW) between the years 1989 and 2005 in which web pages were formed by a very few writers for a great number of readers, that's why the period was acknowledged to be a read-only web as the main aim was to create a common information area and to exchange communication among the users via sharing information (Hiremath and Kenchakkanavar, 2016). Therefore, it is possible to indicate that the early period of the web enabled users to search the web for getting information and read it without much interaction or user content contribution (Shivalingaiah and Naik, 2008). Therefore, the role attributed to the web in the first generation was very inactive in nature (Choudhury, 2014). However, with the advances in social networks, Web 2.0 which refers to the second generation and was coined by Tim O'Reilly between late 2003-early 2004 (Cormode and Krishnamurthy, 2008) has been termed as an area where people are allowed to post and contribute to the content unlike in the previous period in which the information could only be provided by Web content managers (Zhao et al., 2015). Thus, Web 2.0 refers to the period in which the users have more interaction and less control compared to the Web 1.0 era (Choudhury, 2014). Web 2.0 is a term that encompasses various concepts including (Cormode and Krishnamurthy, 2008):

Web sites grounded on specific technologies like AJAX
Web sites along with social constituent regarding user-profiles and companion links
Web sites that promote user-generated content in various forms as video, text, and photo sharing with tags and comments
Websites that have been the subject of heated speculations on IPO prospects.

The figure which represents the difference between Web 1.0 and Web 2.0 is illustrated as follows (Zhao et al., 2015, p: 161):

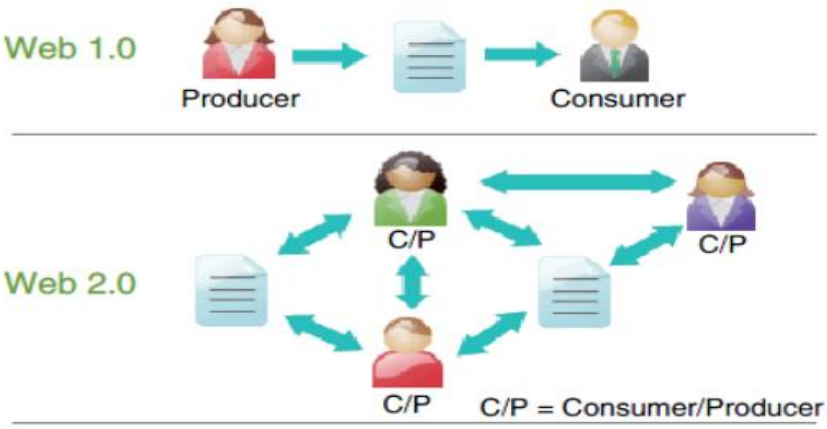

Figure 4. The comparison of Web 1.0 and Web 2.0.

Web 2.0 serves as a new version for the first generation and enables users the opportunity of flexibility for web design, creativity for reuse, making updates, creating content collaboratively, and making modifications (Choudhury, 2014). As aforementioned above, to overcome the limitations of Web 1.0 regarding the position of the users as inactive consumers of content and to enable more interaction and collaboration among them, several ways of utilizing blogs, podcasts, wikis and social networks, named Web 2.0 tools, have been investigated to use in education and are indicated in detail as follows (Usluel and Mazman, 2009):

Blog: A blog refers to an online journal along with entries with dates and authored by just one or more content contributors and the content may consist of hyperlinks, audio, and video sharings, text, and images (Luo, 2010). Blogs are widely used in different fields including education for the purpose of facilitating the teaching and learning process as they are easy and flexible to use (Usluel and Mazman, 2009; Luo, 2010).

Wiki: Wikis are indicated to be a collaboration tool that leverages input from many people to create a single product (Meyer, 2010). Therefore, a wiki is differentiated from blogging which refers to a personal page regarding the author's kind of use and supports two vital traits including open editing for anyone to be able to edit the content easily and edit preservation to keep all edits (Gokcearslan and Ozcan, 2011).

Podcast: The term is combined by two words representing two technologies as Ipod and Broadcast and refers to audio-visual series spread through the Internet in several formats (Stefancik and Stradiotová, 2020).

Social Networks: Social network sites enable web users a free and simple way of creating personal pages along with various content including digital photos, music, videos, blogs, and much more, and links could be shared by members who have common interests and would like to make new friends (Barsky and Purdon, 2006).

2.15. Web 2.0 Tools and Language Learning

Like in other fields, Web 2.0 tools give instructors and learners the opportunity of having enriched resources and learning environments in English teaching and learning process (Aşıksoy, 2018). Considering the four language skills including reading, writing, listening and speaking and also some other needs may require language learners to be instructed through a specialized design of pedagogical tools and within this regard, Web 2.0 tools may enable more interactive and user-developed content and can create "real-world" opportunities for learners to improve their listening and speaking skills that are not promoted by Web 1.0 tools (Stevenson and Liu, 2010). Furthermore, it is indicated that language learning environments that are supported by Web 2.0 tools have expanded the scope of topics discussed within CALL such as a shift from focusing on traditional language skills to more acknowledged topics including learner identities, learning communities and online collaboration (Wang and Vásquez, 2012).

Based on research evidence on prospective teachers, Cephe and Balçıkanlı (2012) suggest that utilizing Web 2.0 tools in language teaching and learning process enable learners to develop awareness of computer technologies and digital literacy in today's digital world as they are given the opportunity of experiencing learner autonomy for their own learning in phases of programming, monitoring and finally evaluating in terms of online activities.

With reference to gamification, it is suggested that creating web-based gamified environments promotes learners to undertake an online identity and to be able to interact

with their peers in the foreign language (Stevenson and Liu, 2010) in that sharing knowledge with others via Web 2.0 technologies also promotes their motivation for learning a language as most of the learners spend a great deal of time doing online activities nowadays (Cephe and Balçıkanlı, 2012).

2.16. Previous Research Studies on Gamified Web 2.0 Tools

Several research studies in terms of gamified Web 2.0 tools have been discussed in the literature. In an exploratory research which was designed in order to analyze in what ways the use of *Mentimeter* may enhance the teaching and learning process with a group of higher education lecturers from interdisciplinary fields during the 2020-2021 academic year in Spain, it was revealed that the application is a beneficial digital software to be used in higher education for the purpose of increasing motivation, engagement and encouraging participation in that the learners are able to take part in sessions anonymously and collaboratively that poses a more peaceful atmosphere rather than a traditional inactive learning setting (Pichardo et al., 2021).

Through a review of making comparison and contrast among different gamified applications including *Kahoot!, Socrative, Wooclap, Mentimeter* and *Quizizz*, Pichardo et al. (2021) conclude that *Mentimeter* functions as more dynamic.

In a research study conducted by Pitoyo et al. (2019) which aimed to analyze the effect of *Quizizz* application on students' test anxiety levels in an English course, it was revealed that the platform is effective in reducing students' anxiety levels with the help of game elements including points, test report, leaderboard, time restriction, profile, and meme respectively and they also suggested that *Quizizz* is beneficial for teachers to use for exams as well.

In another research study, Gokbulut (2020) aimed to investigate the effects of two Web 2.0 tools applications (*Kahoot!* and *Mentimeter*) on prospective teachers' perceptions of e-learning and through the results, it was indicated that the instruction via Web 2.0 tools has a positive impact on prospective teachers' attitudes towards e-learning. Furthermore, Lin et al. (2018) conducted a research study with undergraduate learners of English at a public

university in Malaysia by using a game-based platform, *Kahoot!*, and based on the results, they concluded that instruction through *Kahoot!* is beneficial in terms of raising learners' motivation and engagement, thus, it fosters learning in both theoretical and practical terms.

Mahayanti et al. (2020) aimed to investigate the effects of digital games on 144 Indonesian EFL young learners' process of self-regulated learning via mixed-methods explanatory sequential design and as a result of the findings, it was concluded that there was a positive impact of the treatment on the experimental group. Furthermore, it was indicated that digital game-based learning has a motivating force for participants to carry out the tasks by running strategic actions as well.

2.17. Chapter Summary

Firstly, the chapter revealed the literature review regarding context and terms acknowledged within gamification. Furthermore, gamification approaches, the hierarchy of game elements along with game components, mechanics, and dynamics; the relationship between gamification and motivation, the concept of self-efficacy, and major processes of self-efficacy were explained as well. Additionally, response systems including student response systems, audience response systems and gamified student response systems were discussed. Then, the historical background with reference to the comparison of Web 1.0 and Web 2.0 was indicated. Moreover, the relationship between learning a language and Web 2.0 tools and previous research studies on gamified Web 2.0 tools were revealed.

CHAPTER THREE

METHODOLOGY

In this chapter, the steps that are taken based on the study are revealed in detail. First, the information on the design of the study, participants, data collection tools, techniques to ensure the validity and reliability are presented. Following the pilot study procedures, the main study is introduced including setting and participants, data collection process, and data analysis. Besides, Web 2.0 tools used in the study, the similarities and differences of each Web 2.0 tools, game elements used in selected applications and samples from the treatment process based on the activities are indicated.

3.1. Design of the Study

The study was designed based on a quasi-experimental research method which tests causal relationships with a comparison group. Unlike true experimental designs, quasi-experimental research method does not have a random assignment procedure with reference to the participants in experimental or control groups (White and Sabarwal, 2014). Furthermore, since quasi-experimental designs differ from true-experimental designs in terms of control over variables, it becomes imperative that the researcher of the quasi-experimental design be fully aware of certain variables that his/her design cannot control (Campbell and Stanley, 2015).

Due to the fact that both quantitative and qualitative methods are used in the present study, it aims to utilize a *mixed-method sequential explanatory research design*. Analyzing the related literature on mixed-method research design, it is seen that there are different types and among those are mixed-methods sequential explanatory design which leads to collecting and analyzing the quantitative data followed by qualitative data in two phases consecutively in one research study is highly popular. Since the quantitative data are collected and analyzed first, the qualitative data are used to elaborate on or explain broadly the quantitative results (Ivankova et al., 2006).

It is indicated that although the implementation of mixed method is gaining popularity over time, there is limited research study using it with reference to online platforms (Lowenthal and Leech, 2010). Within this respect, a semi-structured interview is also conducted from the qualitative perspective as it is suggested that collecting and analyzing sequential quantitative and then qualitative data within one research study provides two different types of information on the results which implies better understanding and insight on the topics researched compared to the separate data collection and analysis (Bowen et al., 2017). Therefore, the study is considered to contribute to the literature with reference to online learning environments.

3.1.1. Mixed-Method Procedure

It is widely known that there exist three recognized methods in order to conduct a research study including quantitative, qualitative, and mixed methods which gives the researcher the opportunity of collecting and analyzing the data with the help of multiple approaches in a study while perceiving the limitations of utilizing a single method (Migiro and Magangi, 2011). Looking from a historical perspective regarding QUAN and QUAL traditions, it is seen that mixed-method functions as an alternative to those methods by benefiting from the necessary methodological tools for the research questions examined (Subedi, 2016).

The strengths of using a mixed-method approach are suggested by Migiro and Magangi (2011) as follows:

- Mixed method approach gives the researcher the opportunity of getting answers to the research questions in a wider and more complete way, as s/he is not limited to a single method.
- By using both qualitative and quantitative methods in a study, the researcher may benefit from the strengths of an extra method in order to cope with the weaknesses of another method.
- Mixed method provides the researcher with stronger evidence of findings for a conclusion.

- Through mixed-method research procedure, the researcher may have an insight which may be overlooked when just one method is used.
- The generalizability of the research findings might be increased via mixed-method approach.
- Using both qualitative and quantitative research provides more complete information which is necessary for informing theory and practice.
- The researcher may have the opportunity of developing and testing a grounded theory.
- The researcher may benefit from words and pictures in order to attribute meaning to quantitative data.
- The quantitative data could be utilized in order to ascribe precision to words and pictures.

3.1.2. Mixed-Method Sequential Explanatory Research Design

Reviewing the literature, it is seen that there are two common ways of viewing mixed method including the time order (concurrent or sequential) and the status of dominance (Wu, 2012) which is illustrated by Johnson and Onwuegbuzie (2004, p: 22) as follows:

Table 5

Mixed-method sequential explanatory research design

Paradigm Emphasis Decision	Time Order Decision: Concurrent	Time Order Decision: Sequential
Equal Status	QUAL + QUAN	QUAL → QUAN QUAN → QUAL
Dominant Status	QUAL + quan QUAN + qual	QUAL → quan qual → QUAN QUAN → qual quan → QUAL

As *Table 5* reveals, there are two different phases in mixed-methods sequential explanatory research design in terms of given priority and as the names suggest QUAL refers to qualitative and QUAN addresses the quantitative ways in terms of determining the priority and sequence for quantitative or qualitative data collection, data analysis and research procedures (Ivankova et al., 2006). Due to the fact that the researcher in this study follows the sequence firstly through quantitative, then qualitative data, the research design could be symbolized as QUAN → qual with quantitative data as the dominant status which is indicated in the table as well.

The figure of QUAN → qual status within mixed-methods sequential explanatory research design is illustrated (Creswell, 2009, p: 209) as follows:

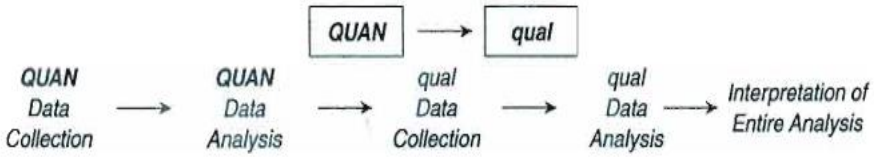

Figure 5. Sequential explanatory research process.

As the figure suggests, with reference to QUAN → qual status, the quantitative data are collected and analyzed first and then it is followed by qualitative data collection and analysis, and finally, the interpretations are run based on the research findings. It is indicated that the sequential explanatory research design is acknowledged to be one of the most popular techniques of mixed methods approach (Almeida, 2018). The rationale behind the use of this approach is the fact that utilizing the quantitative data and the related subsequent analysis procedure enables to have a better understanding of dealing with the research problem (Ivankova et al., 2006).

On the other hand, sequential exploratory design is addressed in the opposite way in which the steps are conducted as follows (Almeida, 2018):

1. Firstly, collecting and analyzing the QUAL data
2. Then, data collection and analysis for QUAN data

With reference to the present study which was carried out via mixed-method sequential explanatory research design and the steps to be followed for the purposes of the study are indicated in *Table 6* as follows:

Table 6

Steps to be followed in the study

	PROCEDURES TO FOLLOW		
STEPS	Experimental Group	Control Group	PURPOSE
1	PRE-TEST: *Course Interest Survey *Online Learning Self-Efficacy Scale * Achievement Test	PRE-TEST: *Course Interest Survey *Online Learning Self-Efficacy Scale * Achievement Test	To analyze the dependent variable before the treatment
2	Treatment: PowerPoint Presentations on Course Units + Gamification Activities with selected web 2.0 tools on Units Topics (*Kahoot!, Socrative, Quizizz, Mentimeter*)	No Treatment: PowerPoint Presentations on Course Units	To analyze the influence based on the dependent variable
3	POST-TEST: *Course Interest Survey *Online Learning Self-Efficacy Scale * Achievement Test *Semi-structured Interview	POST-TEST: *Course Interest Survey *Online Learning Self-Efficacy Scale * Achievement Test	To analyze the degree of change

As *Table 6* suggests, two instruments including *Course Interest Survey* and *Online-Learning Self-Efficacy* along with an *Achievement Test* are delivered to both groups as pre-test and after the treatment that only the experimental group participants get with the help of instructional Web 2.0 tools based on gamification, they are conducted as post-test as well in order to analyze any statistically significant difference with reference to the dependent variable. The quantitative data are also followed by the qualitative data to explain the findings in a broad sense.

3.2. Participants

The participants of the study are 60 freshmen learners studying at Balıkesir University, Faculty of Science and Letters and are learners of different departments including Turkish Language and Literature, Geography, Physics, Chemistry, Biology, Mathematics, and History. The demographic information on participants' characteristics including gender differences, period of learning English, previous experience with online learning platforms and Web 2.0 tools, mobile device preferences, frequency of use of technology for learning English are indicated through the Demographic Information Form as well.

3.3. Data Collection Tools

3.3.1. Course Interest Survey (CIS)

In order to collect quantitative data, two different scales and an achievement test were used. Among those are "Course Interest Survey" which was created by Keller (2010) is a situation-specific and self-report measure that could be utilized to evaluate learners' motivational attitudes within the context of both face-to-face classroom teaching and synchronous/asynchronous online practices that are instructor-facilitated. The survey includes 34 items in total and consists of four subscales as *attention, relevance, confidence,* and finally, *satisfaction* with a suggested level of Cronbach's alpha (Uçar, 2016) which is indicated by Keller (2010, p: 281) as follows:

Table 7

Internal consistency values of each component of CIS

Scale	Reliability Estimate (Cronbach's alpha)
Attention	.84
Relevance	.84
Confidence	.81
Satisfaction	.88
Total Scale	.95

Regarding the reliability of the scale in the present study, it was revealed as .90 for the pre-test scores on CIS and .91 for the post-test scores.

Keller's (1983, as cited in Kim and Frick, 2011) aforementioned motivational design which is named as ARCS model has been conducted in many educational institutions and also training sessions and emphasizes that the instruction becomes more motivating if it:

1. brings about higher learner attention (task engagement)
2. consists of activities and course content that learners recognize as more relevant
3. promotes learner confidence (self-efficacy) and
4. generate more satisfaction on learners with reference to what they have learned

The first subscale namely, *attention*, has 8 items and 2 of them (item 4 and item 26) are coded reversely. Therefore, the formulation for the reversed items could be indicated as: 5=1, 4=2, 3=3, 2=4, and 1=5 (Keller, 2010). All the items acknowledged within the subscale are revealed as follows:

Table 8

Items included in the subscale of attention

Item No	Subscale: Attention
1	The instructor knows how to make us feel enthusiastic about the subject matter of this course.
4	This class has very little in it that captures my attention.
10	The instructor creates suspense when building up to a point.
15	The students in this class seem curious about the subject matter.
21	The instructor does unusual or surprising things that are interesting.
24	The instructor uses an interesting variety of teaching techniques.
26	I often daydream while in this class.
29	My curiosity is often stimulated by the questions asked or the problems given on the subject matter.

The other subscale, called as *relevance* with a suggested level of Cronbach alpha (.84) includes 9 items and 2 of them (item 8 and item 25) are coded reversely as well and the items in the category are shown in *Table 9* as follows:

Table 9

Items included in the subscale of relevance

Item No	Subscale: Relevance
2	The things I am learning in this course will be useful to me
5	The instructor makes the subject matter of this course seem important
8	I do not see how the content of this course relates to anything I already know.
13	In this class, I try to set and achieve high standards of excellence.
20	The content of this course relates to my expectations and goals.
22	The students actively participate in this class
23	To accomplish my goals, it is important that I do well in this course.
25	I do not think I will benefit much from this course.
28	The personal benefits of this course are clear to me.

The third subscale, *confidence*, has 8 items and 3 of them in reverse order (items; 6, 11,17). All the items in the third category are indicated as follows:

Table 10

Items included in the subscale of confidence

Item No	Subscale: Confidence
3	I feel confident that I will do well in this course.
6	You have to be lucky to get good grades in this course.
9	Whether or not I succeed in this course is up to me.
11	The subject matter of this course is just too difficult for me.

17	It is difficult to predict what grade the instructor will give my assignments.
27	As I am taking this class, I believe that I can succeed if I try hard enough
30	I find the challenge level in this course to be about right: neither too easy not too hard.
34	I get enough feedback to know how well I am doing.

Lastly, the *satisfaction* subscale has 9 items and 2 of them are reversely coded (item 7 and item 31) that could be shown as in the following table:

Table 11

Items included in the subscale of satisfaction

Item No	Subscale: Satisfaction
7	I have to work too hard to succeed in this course.
12	I feel that this course gives me a lot of satisfaction.
14	I feel that the grades or other recognition I receive are fair compared to other students.
16	I enjoy working for this course.
18	I am pleased with the instructor's evaluations of my work compared to how well I think I have done.
19	I feel satisfied with what I am getting from this course.
31	I feel rather disappointed with this course.
32	I feel that I get enough recognition of my work in this course by means of grades, comments, or other feedback.
33	The amount of work I have to do is appropriate for this type of course.

The validity of the scale was also acknowledged through the data obtained from both 200 graduate and undergraduate learners based on internal consistency estimation values regarding their course grades and also their grade point averages as the scale is aimed to measure a situation-specific motivation (Keller, 2010).

To ensure that the learners understand the scale items better, Turkish versions of the scale items were adapted from Uçar (2016) and Acar (2009) and added to the original items.

3.3.2. Online Learning Self-Efficacy Scale (OLSES)

The other data collection instrument used in the present study is Online Learning Self-Efficacy Scale (OLSES) which was developed by Zimmerman and Kulikowich (2016) through the items obtained by 338 postsecondary learners enrolled in an online course with and without previous online learning experience before. The scale includes three factors, namely, *learning in the online environment*, *technology use*, and *time management*, and the Cronbach alpha values for each sub-scales are indicated as follows:

Table 12
Cronbach alpha values of each component of OLSES

Subscale	Cronbach's alpha
Learning in the online environment (10 items)	.89
Technology use (7 items)	.84
Time Management (5 items)	.85

It is acknowledged that there are various self-efficacy scales for online learning, however, it is suggested that they need to be updated regarding the rapid developments in terms of technology. Thus, up-to-date online learning self-efficacy scales are believed to enable stakeholders more accurate results with reference to current situations. In line with this, the OLSES which was used in the present study as a data collection tool is regarded to be the most suitable scale regarding current online learning technologies and the number of items (22) in terms of practicability (Yavuzalp and Bahcivan, 2020). Furthermore, there was not found a significant difference between students with and without previous online learning experience during the scale development process which suggests using it for learners with and without online learning experience before (Zimmerman and Kulikowich, 2016; Yavuzalp and Bahcivan, 2020).

With reference to the reliability of the instrument and based on the pre-test and post-test scores of the participants on OLSES in the main study, the Cronbach's Alpha value was calculated as .93.

In order to ensure better understanding of the scale by the research participants, the Turkish versions of the scale items which were adapted from Yavuzalp and Bahcivan (2020) were added to the original items as well.

3.3.3. The Achievement Test

Another instrument that is used for the collection of the quantitative data is the Achievement Test that was developed by the researcher and several steps were taken in terms of the development of it in order to ensure its validity and reliability. Firstly, previous development studies in the literature were examined and an item pool was created including the question types based on the course units in the curriculum that the participants of the study would be instructed through the process. Then a pre-test form (Appendix 1) was created and then was sent to the instructors that have been working at Balıkesir University, School of Foreign Languages for over 10 years, and based on the feedback some of the answers and a question were revised and a pilot form was created accordingly. The revised questions and answers were revealed as follows:

Questions:

8…….. I was walking on the street, I came across with an old classmate.

a) Which b) What c) Where d) While

Based on expert evaluations, the preposition "with" seemed to be unnecessary and was omitted from the question.

4. He is a/an ……. boy. He always makes jokes.

a) busy b) shy c) angry d) funny

Due to the fact that the answers include adjectives that start with a consonant and a vowel, both a/an articles were used in the question. Then, the pilot form was created on the *Google Forms* platform and was sent to the instructors working at Balıkesir University,

School of Foreign Languages to conduct for their freshmen learners of study on a voluntary basis.

103 volunteer 1st year students took part in the pilot study of the Achievement test and to ensure the validity and reliability of the test, a Test Analysis Program (TAP, version 19.1.4.) was run and the KR-20 reliability coefficient scores of the test that consists of 25 items were found to be 0.87. Based on item analyses, item difficulty indices were calculated as between 0.41 and 0.82 and item distinctiveness indices were found to be between 0.34 and 0.75. The mean item difficulty of the test was valued as 0.64 and the mean discrimination index was found to be 0.52.

Ensuring the validity and reliability measures, the last version of the Achievement Test (Appendix 2) was created to be conducted with the participants of the study.

3.3.4. Semi-Structured Interview

Examining the qualitative methods, it is indicated that interview functions as a key tool for researchers who conduct qualitative studies (Cassell, 2005) and there are various types of interviews to be conducted in social sciences including structured interviews, semi-structured interview forms, unstructured interviews, and focus group interviews along with different objectives that each one has and the responses based on research questions determine the most suitable one to run in a study (Alsaawi, 2014).

Semi-structured interview forms a verbal interchange process through which the interviewer aims to elicit the interviewee's answers via asking questions. Since the interviews are held in a conversational manner, the participants are given opportunity to reveal some issues that they think as important despite the fact that there are pre-determined questions (Longhurst, 2003). Regarding questions, it is seen that semi-structured interviews consist of both closed-ended and open-ended questions that are often followed by *how* or *why* questions as well. Therefore, rather than sticking to word-for-word questions as in a standard survey, the process can circulate around current topics and can involve completely unforeseen topics (Adams, 2015). Semi-structured interviews are also regarded to be

beneficial in that having a structured format can lead to deter the depth and the richness of the participants' answers (Bryman, 2008 as cited in Alsaawi, 2014).

The reason to benefit from a semi-structured interview in the current study is to overcome the limitations of the structured closed-ended questions on the questionnaires and to obtain more comprehensive data on the research hypotheses and questions as interviews provide researchers the opportunity of having in-depth information regarding interviewees' experiences and opinions on a specific topic and a well-rounded data for analyses (Turner, 2010) and could be used as a beneficial adjunct for mixed-method research studies as well (Adams, 2015).

Turner (2010) suggests a guide in order to conduct qualitative interviews that could be summarized as follows:

- *Preparation prior to the interview*
- *Selecting appropriate participants*
- *Conducting pilot testing*
- *Creating efficient research questions*
- *Performing interviews*
- *Interpreting the obtained data*

Due to the fact that the focus of the present study is to examine the effects of gamification in online learning environments, the semi-structured interview process was run on the *Microsoft Teams* platform where the participants are thought to feel comfortable as it is indicated that applying the interviews in a comfortable environment in which the interviewees do not feel themselves restricted in order to share information can make the process easier (Longhurst, 2003; Turner, 2010).

Expert evaluations were obtained regarding the semi-structured interview process and the questions were revised as follows:

Questions:

4. Did you experience any problems during the gamification activities?
7. Did gamification activities have an impact on your learning self-efficacy in online learning environments?
8. Is there anything you would like to add?

Due to the fact that they are yes/no questions, the questions were revised for further explanations that could be indicated as in the following:

Revised Questions:

4. Did you experience any problems during the gamification activities? If yes, could you please specify?
7. Did gamification activities have an impact on your learning self-efficacy in online learning environments? In what ways do you think it has an impact
8. Is there anything you would like to add? If yes, could you please specify?

In order to reveal any problematic circumstances or unambiguous questions, a pilot test of the interview was run first along with two volunteer participants that share similar backgrounds with the participants of the main study. Since the participants were not sure about the meaning of *academic achievement*, it was explained first and then the interview was held.

After ensuring that there were no problematic issues, the participants of the interview were selected on a voluntary basis and they were informed about the purpose of the interview, how it would be conducted, and how much time it would take. The interview process was recorded on the *Microsoft Teams* platform and was analyzed through content analysis.

3.4. Validity and Reliability of the Study

It is widely acknowledged that validity and reliability are the key elements of a research study that need to be ensured. Within this perspective, validity is related to the

meaningfulness of research elements (Drost, 2011) in that whether the research inferences based on the data are useful, meaningful, and appropriate (Fraenkel et al., 2011). Therefore, validity is about what a tool measures and how well it is done (Mohajan, 2017) as when researchers intend to measure behaviors in social sciences, they mind whether they measure what they aim to measure and there are 4 types of validity discussed in the literature: construct validity, internal validity, external validity, and statistical conclusion validity that each one answers a crucial question in a research study (Drost, 2011).

With reference to the other important component, reliability means the consistency of the measurements over time, place, and circumstances (Fraenkel et al., 2011), in other words, whether the inferences are repeatable when the measurements are performed by different people, in different circumstances, under various conditions and there are 3 main types of reliability including internal consistency, stability over time and equivalence (Drost, 2011).

The threats to internal validity for quantitative data and the trustworthiness criteria for qualitative data are discussed in the following sections.

3.4.1. Threats to Internal Validity for Quantitative Data

With reference to the validity and reliability of the quantitative data, threats to internal validity that were suggested by Fraenkel et al. (2011) and how to overcome them were revealed in the following parts.

Subject Characteristics: The way of selecting participants for a research study is important in that it may have a significant impact on the research results (Lynch, 1996) which is also called as *selection bias* and in research studies that involve comparing groups, subjects within the groups may differ from each other based on several variables including gender, age, socioeconomic background and so on and it makes it crucial to control those variables (Fraenkel et al., 2011).

In order to overcome the selection bias, a Demographic Information Form was created by the researcher including information on participants' gender, age, department,

perceived self-efficacy, perceived motivation levels in order to ensure that both groups have similar characteristics.

Loss of Subjects/ Mortality: It addresses to the fact that sometimes research participants leave the research before it is complete (Lynch, 1996). Due to the fact that the research study requires participation on an online platform and on a voluntary basis, there is no loss of subjects accordingly.

Location: It refers to the idea that some specific locations in which the data are collected or situations where an intervention is performed can lead to have alternative explanations regarding research results and it could be illustrated by classrooms themselves that are larger, better equipped, and with better lightning which can result in higher performance on the participants' side (Fraenkel et al., 2011). Since the current research study is conducted on online platforms, there is no location threat.

Instrumentation: The way of using the instruments may function as a threat to the internal validity of a research study. Within this regard, several problems may occur including instrument decay, data collector characteristics, and data collector bias. Since all data collection instruments were created on online platforms and the data regarding participants' preferences on the scales were collected through *Google Forms*, there was no instrumentation threat.

Instrumentation decay: Instrumentation itself may become a problem if any change is run on the instrument nature consisting of the scoring procedure. This mostly occurs if the instrument has potential for different interpretations on results such as essay tests or when it is long or difficult for scoring which results in exhaustion on the scorer's side. Therefore, it is suggested that the best way to be able to control instrument decay is to organize data collection and scoring procedures in a way which minimizes any changes. Due to the fact that the scales used in the study were constructed through 5 point-Likert scale, there was no possibility of different interpretations or changes.

Data collector characteristics: It is indicated that the characteristics of the data collectors-which form the undeniable part of most of the instrumentation-may have an effect

on research results and in order to avoid this threat, the data are needed to be collected by the same data collector(s). There was no such threat as the data were collected and analyzed by the same researcher throughout the process.

Data collector bias: It is likelihood that the data collector(s) and/or rater(s) may unintentionally skew the data in a way that would make definite results more likely such as getting support for the research hypothesis and in order to handle this threat, it is suggested primarily to standardize all research procedures. Within this perspective, the research procedures were based on well-acknowledged scales and expert opinions. The scales consisted of close-ended 5 point-Likert question types and the qualitative data were transcribed and analyzed through content analysis.

Testing: Testing threat refers to the intervention studies that are run over a period of time and it is widely known that the subjects are tested at the beginning of the study and if any improvement is found accordingly on post-test scores when compared to the pre-tests, then it is likely to conclude that the improvement is by cause of the intervention. However, there may be another alternative explanation in that the improvement may be the result of the pre-test itself. In order to overcome the testing threat, the research study was based on a quasi-experimental design with a comparison group and the similar pre-tests and post-tests were run for the control group as well in order to indicate that any substantial improvement on behalf of the experimental group is due to the treatment. Otherwise, a significant difference would be expected for the control group as well.

History: The history threat refers to the fact that occasionally, one or more unplanned and unexpected cases may occur during a research study which may have an effect on subjects' responses. As the students were instructed through online learning platforms during the Covid-19 pandemic and based on New Normalization Guide by CoHE, there were no unplanned or unexpected events throughout the data collection procedure.

Maturation: Frequently, the change in the course of intervention may result from not the intervention itself but the factors that are mostly related to the passing of time. It is mostly associated with research studies whose participants are very young students and the

study lasts over a period of time. Since the participants are graduate learners, and the research study took the required time, the maturation threat was avoided.

Attitude of Subjects: Participants' view of a study and the way of attending it may also function as internal validity, which is also known as the Hawthorne effect, in that the experimental group participants may outperform the control group participants due to being aware of the fact that they are in a research study procedure. In order to overcome the threat, it is possible to inform the participants that the treatment is just a normal element of instruction, not an experiment. On the other hand, it is regarded to be unnecessary to reveal that a treatment is being run. To be able to avoid the threat, the participants were informed that the treatment is a regular part of the instruction.

Regression: A threat of regression may exist when change is aimed to be studied in a group with extremely low or high pre-intervention performance. It is more likely to occur in research studies with special education participants and it is indicated that having an equivalent control/comparison group is a way of overcoming this threat. Since both groups of participants do not have extreme low or high pre-intervention performance and a control group exists in the study, the regression threat is believed to be handled accordingly.

Implementation: Any treatment or method within an experimental study needs to be conducted by someone including the researcher, the teachers that are included in the study, or other stakeholders and this may increase the possibility of treating the experimental group in an unintended way or a method which is not necessarily a part of it, thus may create an advantage in some way or another. It is called as implementation threat and a number of ways are suggested to handle it. It could be illustrated by the idea that the researcher may evaluate individuals applying each method on relevant characteristics and then equate the treatment groups on related dimensions such as assigning teachers with equivalent teaching ability for each group. Due to the fact that the researcher is the only one in the research process that runs the implementation for each group of participants in online learning environments, the implementation threat is regarded to be dealt with.

The overall techniques to control each threat to internal validity that are suggested by Fraenkel et al. (2011, p: 180) are revealed in *Table 13* as follows:

Table 13

Overall techniques to control threats to internal validity

	Technique			
Threat	Standardize Conditions	Obtain More Information on Subjects	Obtain More Information on Details	Choose an Appropriate Design
Subject characteristics		x		x
Mortality		x		x
Location	x		x	x
Instrumentation	x		x	
Testing				x
History			x	x
Maturation		x		x
Subject Attitude	x		x	x
Regression		x		x
Implementation	x		x	x

As shown in the table, techniques are suggested in order to ensure the validity for each threat in quantitative research studies.

3.4.2. Trustworthiness Principle for Qualitative Data

The validity and reliability of qualitative research is discussed under the term "trustworthiness criteria" which is suggested by Guba and Lincoln (1989, as cited in Lynch, 1996) and are addressed with different concepts as in the following:

Quantitative Research Designs	Qualitative Research Designs
internal validity	credibility
external validity	transferability
reliability	dependability
objectivity	confirmability

In order to ensure *credibility,* the suggested techniques are as follows:

Prolonged engagement: It refers to the involvement of the researcher into the research setting and building rapport with participants to figure out their perceptions. As the researcher is the one who conducts the research study and runs the treatment process, the criterion is ensured.

Persistent observation: As a natural result of prolonged engagement, it addresses to the researcher's efforts to reveal the most relevant issues to focus on the study through the observation process. Since the researcher is the only one who carries out the research study, the observations are addressed in order to have a better understanding of the research process.

Peer debriefing: It addresses a comprehensive discussion held by the researcher and a disinterested peer regarding research hypotheses, findings, and conclusions. During the development and the application of the qualitative research, the opinions of unbiased peers were taken.

Negative case analysis: It refers to the process of revising the hypotheses that do not match the working hypotheses. Within this regard, research hypotheses were revised and "why" questions were added for further explanation with reference to yes/no answers in the semi-structured interview and a better understanding of research hypotheses and findings.

Progressive subjectivity: It implies the importance of the continuing recording process and making comparisons in case of developing constructions rather than just initial ones. Participants' opinions were taken throughout the research process.

Member checks: It signifies both formal and informal recurring checking by the research members for developing constructions. The research process was checked by the research stakeholders reiteratively.

The criterion for *transferability* is suggested as follows:

Thick description: The term indicates a comprehensive description of each research element regarding the time, place, and research context. The details of the qualitative data gathering are indicated comprehensively.

The criterion for *dependability* is:

Dependability audit: It indicates the documentation process regarding the decisions taken by the researcher on the evaluation including data gathering and analysis. The steps concerning the evaluations were documented in detail.

The criterion for *confirmability* is:

Confirmability audit: This technique refers to the idea that the data and the research process need to be available to be evaluated by an outside researcher. Since the qualitative data were recorded, it is possible to be evaluated in the following process by an outside reviewer as well.

3.5. Web 2.0 Tools Used in the Current Study

Considering higher education, although traditional approaches require having pre-packaged materials and assessment tasks along with fixed deadlines indicated by the instructors, Web 2.0 tools make it possible to provide learner-centered environments via a great type of applications and networking sites (Lee and McLoughlin, 2007). In line with the changing world of information and communication technologies, it has been acknowledged that new types of teaching and learning strategies and tools are needed since the new era requires learners to be adaptable to rapid changes as well (Solomon and Schrum, 2007). Therefore, with the increase in user empowerment regarding Web 2.0 tools, a major change has been witnessed in the way of using Web technology among people in terms of new versions of user engagement with the help of various web-based resources, tools, and environments (Collis and Moonen, 2008) that could be illustrated as follows:

3.5.1. Kahoot!

Kahoot! is a game-based online teaching and learning platform which includes quizzes and surveys and is considered to be one of the best practices for educational purposes as it enables learners to engage in the process of problem-solving and to have critical thinking ability along with a review regarding their content knowledge through activities that are meaningful and full of fun (Dellos, 2015).

The stages of creating an activity or quiz on *Kahoot!* platform are indicated below:

1. Firstly, https://create.kahoot.it/auth/login is typed on the screen.
2. The account type including teacher, student, personal and professional is chosen.
3. The workplace including school, higher education, school administration, business or other is described.
4. A free account is created.
5. The user chooses among the options including survey, quiz, and discussion forms.

A screenshot of an activity which was created by the researcher on *Kahoot!* platform is indicated as follows:

Figure 6. A screenshot of a Kahoot! activity.

When the game is finished, it is possible for both students and teachers to have instant and immediate feedback based on the questions like *"how fun it was?"* which could be illustrated as follows:

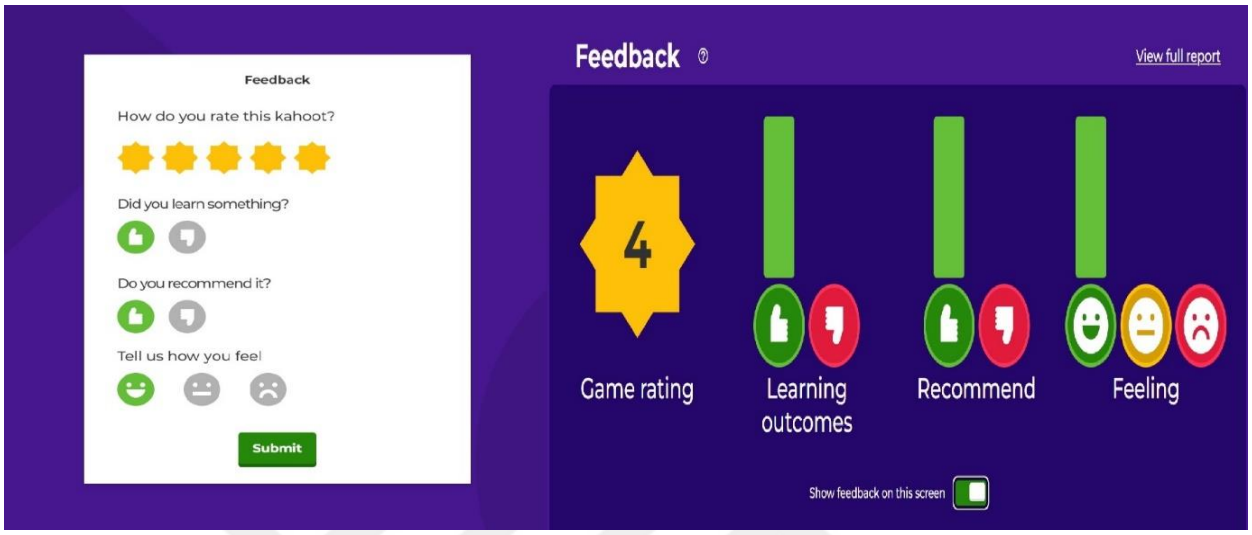

Figure 7. Feedback on Kahoot! platform.

The top five participants based on the scores are displayed on the scoreboard and following the quiz, they can give feedback through yes/no questions, smileys, or start ratings. When the quiz is over, instructors can have all information via an Excel file which reveals the name of the participants and the correct and wrong answers as well (Veljković Michos, 2017). The overall advantages of the program are as follows:

- No need to have a previous software, it's free to access and easy to use
- Possible to create questions on any topic with no complex work
- Possible to integrate images or videos into the questions that could be an incentive for learners
- Possible to answer individually or by group members
- All the responses by the participants are stored in an Excel program to be reviewed by the instructor (Veljković Michos, 2017).

3.5.2. Socrative

In order to start a *Socrative* platform, a "teacher" account is created by the instructor first. Unlike the previous application, students engage in the platform through a room number which is assigned by the instructor previously. The room number functions as the login key for learner to get access for the course material and the learners can use the platform through any device that has internet access and on their mobile phones by installing the application for the student version. Different types of activities including multiple-choice, short answer surveys, or true/false questions can be created by the instructors in the teacher login account. Based on several research studies and classroom practices regarding free web-based applications, it is suggested that *Socrative* is the most flexible and easiest platform to use (Wash, 2014).

Socrative is a dynamic student-response program that allows the instructor to apply both formative and summative assessment procedures and is indicated to be a great application for L2 learners in that participants are given the opportunity of answering the questions via trials and errors that leads to have lower anxiety along with gamification strategies consisting of immediate feedback and live results (Flores, 2015). A screenshot of an activity which was created by the researcher on *Socrative* platform is shown as in the following:

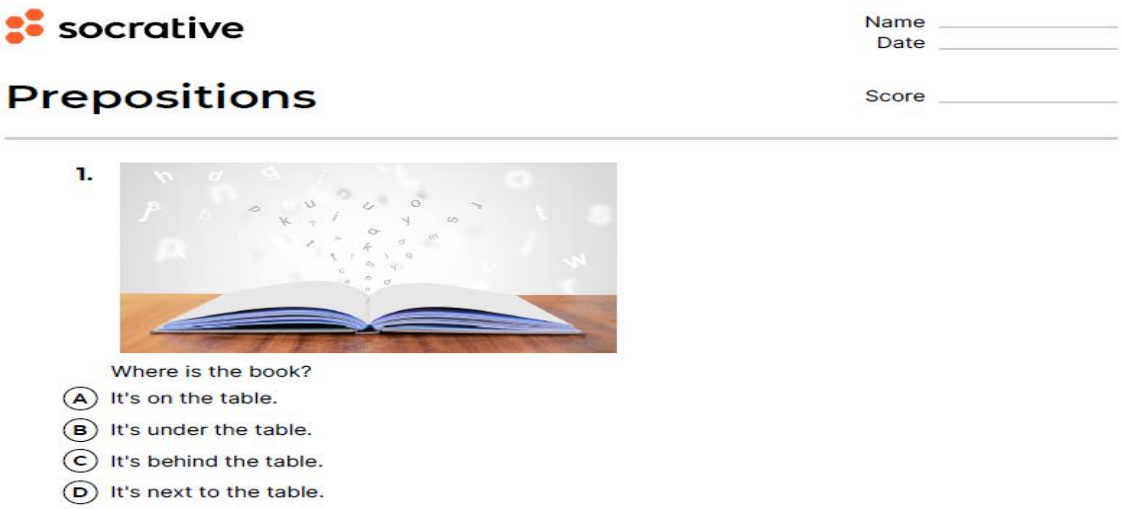

Figure 8. A screenshot of an activity on Socrative platform.

3.5.3. Mentimeter

Mentimeter is among 'student response systems' which provide learners a flexible way of responding by installing the application on their mobile phones or other devices with internet access. To create an 'interactive presentation', the instructors are registered at https://www.mentimeter.com first and select among various question types including polls, open-ended questions, and word clouds. After creating the presentation, the instructor shares a unique six-digit code with the students, and they go to https://www.menti.com/ which enables them to give quick and instant responses which appear on teachers' screen synchronously that could be illustrated as follows:

Figure 9. Teacher and learner screen on Mentimeter.

Due to its functions of providing instant and quick responses by students, the platform is suggested to be effective for student engagement and a more collaborative learning atmosphere (Moorhouse and Kohnke, 2020). Among the different features of the application, a word-cloud activity that is used in the present study could be utilized for *ice breaker* (at the beginning of the lesson), *team reflection* (there is no personal profile), *brainstorming (*both at the beginning and the end of the lesson), and *idea collection* (Features, 2022).

A screenshot of a word-cloud activity which was created by the researcher on the *Mentimeter* platform is shown as below:

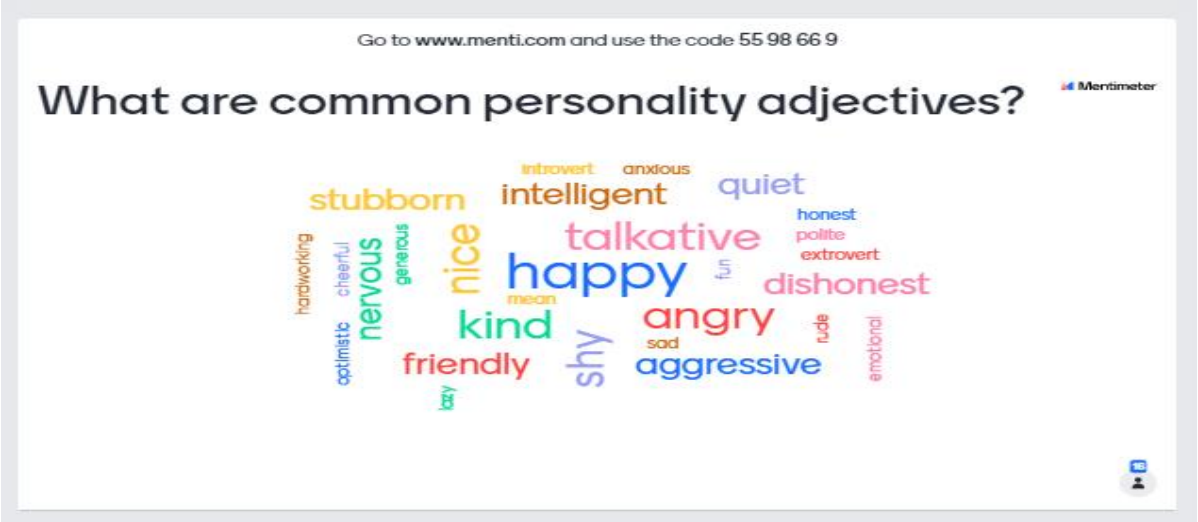

Figure 10. A screenshot of a word-cloud activity on Mentimeter platform.

3.5.4. Quizizz

Quizizz is among online assessment applications that provide learners with fun multiplayer activities for which they can study at their own pace. The instructor creates a free account and a quiz. When the quiz is over, the instructor can easily reach the results on an Excel spreadsheet which provides him/her with the opportunity of getting learners' overall performance on a specific quiz or any individual score (Nanda et al., 2018). A screenshot of a quiz which was created by the researcher on *Quizizz* platform is shown as in the following:

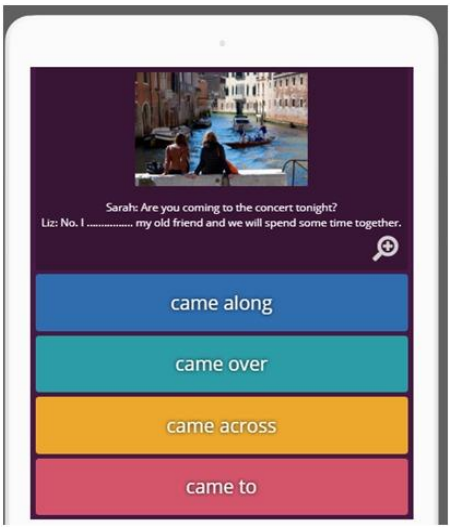

Figure 11. A screenshot of a quiz question on Quizizz platform.

The main characteristics of the platform could be suggested by Pitoyo et al. (2019) as follows:

Student-paced: A time limit is given by the teacher for students to answer before it is up.

BYOD: The platform is available on various devices with internet access including laptops, PCs, smartphones, tablets, and so on.

Thousands of public quizzes: Many quizzes on various topics are shared on Quizizz by a great number of teachers all around the world. Therefore, it is beneficial to get inspiration from colleagues across the globe in terms of designing a quiz and anyone can access those quizzes on the condition that they are a member of the platform.

Quiz Editor: Quizizz enables the teachers to utilize questions and images from the internet easily and has an auto-save feature for their progress along with other features.

Reports: The platform provides teachers with detailed information on students' progress and understanding on both student-level and class-level for each quiz. The teachers are able to download the report on an Excel spreadsheet as well.

Quiz Customization: The platform provides teachers with customization features of their quizzes in various options regarding the level of participants' speed, competition, and other factors.

Activity settings are shown in *Figure 12* as follows:

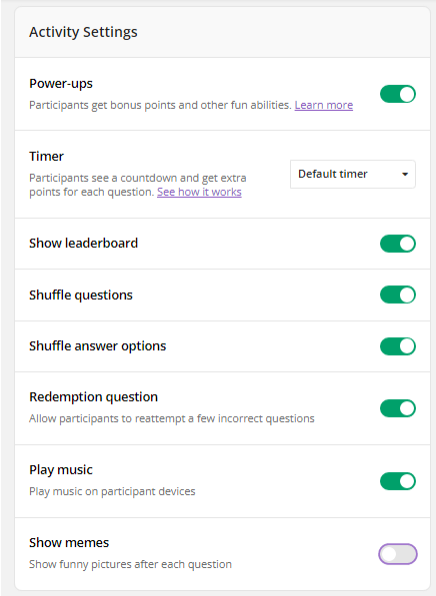

Figure 12. Activity settings on the Quizizz platform.

3.6. Exploring the Similarities and Differences of Each Web 2.0 Tools

Web 2.0 tools including *Mentimeter*, *Kahoot!*, *Socrative* and *Quizizz* are among student response systems that are commonly used in the literature along with several similar and different features that are suggested by De Boer and Winnips (2015) as follows:

1. All these applications provide users free access to a certain level and are easy tools to use that could be reached on any mobile or online platform. However, there are some differences: *Kahoot!* is a gamification-based platform and has a more animated look rather than the others which have a more formal appearance. Among the features to choose *Kahoot!* is the fact that it provides a more competitive atmosphere when compared to other applications so if the aim is to have a competition among participants, *Kahoot!* could be the best one to use as it is indicated that this competitive side is the element which makes it a source of motivation itself (Nicholson, 2012).

2. One of the Web 2.0 tools that could be used for smaller groups is *Socrative* as it does not ensure success for over 50 participants. Therefore, for a larger group of participants, the application will not be useful. However, it is beneficial in that it enables the instructor with voting data that could be exported for free as in *Kahoot!* platform. However, it needs to be paid in *Mentimeter*.

3. Lastly, while *Socrative* and *Mentimeter* enable instructors to create different question types and open-ended questions, *Kahoot!* provides multiple-choice questions. However, when the instructor wants to conduct a competitive quiz, then *Kahoot!* will be more effective while *Socrative* is too limited with reference to the bandwidth of internet connection.

The other Web 2.0 tool that was chosen in line with the aim of the study is *Quizizz.* While it is possible to have only 4 multiple choice options on *Kahoot!* platform, there is flexibility regarding the development of the questions on the *Quizizz* application. Additionally, with regard to the length of questions, there are character limitations on *Kahoot!* platform including maximum of 95-character types for questions and maximum of 60 characters for answers. On the other hand, the *Quizizz* platform does not have a character limitation. From another perspective, while users can add images to questions only on *Kahoot!* platform, they can add visuals for both questions and answers on the *Quizizz* application (Göksün and Gürsoy, 2019). The characteristics of each application could be summarized in *Table 14* as follows:

Table 14

Characteristics of selected Web 2.0 tools

	Kahoot!	Socrative	Quizizz	Mentimeter
Overall strength	Gamification with a more animated look + Competition	Opportunity for longer answers + student pacing	Opportunity for student pacing (when the timer is shut off, a stress-free environment)	Quick and instant responses synchronously
Question Types	Multiple-choice only	Different question types	Different question types	Different question types
Character Limitation	Max. 95 characters for questions and max. 60 characters for answers.	Limit up to 65 000 characters for questions and 10 000 for answers	No character limitation	Character limitations for different question types
Access	Free access to a certain level (Pro, Premium, Premium^{+} needs to be paid)	Free access to a certain level (Socrative Pro needs to be paid)	Free access to a certain level (Payment option for Quizizz Super)	Free access to a certain level (Basic and Pro need to be paid)

3.7. Game Elements Used in Selected Applications

Each application has some similar and different game elements that have been cited in the literature and could be illustrated in *Table 15* as follows:

Table 15

Game elements used in selected applications

Kahoot!	leaderboard, points, immediate feedback, and award (Zarzycka-Piskorz, 2016) point awarding system, leaderboard, background music, limited time (Cárdenas-Moncada et al., 2020) timelines, sound effects, and nicknames (Kapsalis et al., 2020)
socrative	Live results, immediate feedback (Flores, 2015)
QUIZIZZ	points, test report, leader board, time restriction, profile, meme (Pitoyo et al., 2019). level of difficulty, reward, and avatar (Razali et al., 2020)
Mentimeter	immediate feedback, entertainment, interaction (Gokbulut, 2020) cooperation (Mohammadi et al., 2021)

The selected Web 2.0 tools could also be associated with Robert Gagne's (1985, as cited in Zhu and St. Amant, 2010) nine instructional events indicated as follows:

* *Gaining Attention* (Reception of the stimuli in learner's brain),

* *Informing Learners of the Objective* (Creating expectancy on the learner's side for learning),

* *Stimulating Recall of Prior Learning* (Promoting retrieval of previous information),

* *Presenting the Stimulus* (Learner's selective perception of information),

**Providing Learning Guidance* (Providing semantic encoding of content to long-term memory),

* *Eliciting Performance* (Learner's responding to questions),

* *Providing Feedback* (Reinforcing ideas on learner's performance),

* *Assessing Performance* (Retrieving information on learner's final understanding),

* *Enhancing Retention and Transfer* (Learner's generalization of learning to new conditions).

Among those are *Kahoot!* is suggested to use for gaining learners' attention, assessing their performance, and enhancing knowledge transfer and retention. *Socrative* is possible to use for presenting the content and gaining learners' attention as well (Çetin and Solmaz, 2020). Additionally, *Mentimeter* could be used for gaining learners' attention and stimulating recall for prior learning (Hussin and Ahmad, 2019).

3.8. Pilot Study

3.8.1. Objectives

Before performing the main study, a pilot study was run first in order to determine any possible problems which may occur during the main process of the experiment, the implementation of data collection tools, and the analysis procedure. Within this perspective, the pilot study provided an opportunity for the researcher to make any necessary corrections, changes, or alterations and create the final version of the main study procedures. Additionally, one of the most important aims of the pilot study is to find out any possible problems that the participants may face while performing the tasks on selected applications in online learning environments and to be able to find solutions for them. In other words, the pilot study was carried out in order to plan the main design of the study. The procedures conducted during the pilot study will be indicated in the following parts as well.

3.8.2. Setting and Participants

For the purposes of the pilot study, 22 freshmen students studying at Balıkesir University, Faculty of Science and Letters that have a similar background with the participants of the main study took part in the process on the Microsoft Teams platform. Of the students that attended in the pilot study, 13 of them were male and 9 of them were female.

3.8.3. Instruments

In the pilot study, two scales Course Interest Survey (CIS), and Online Learning Self-Efficacy Scale (OLSES) and the Achievement Test along with Demographic Information Form and semi-structured interview that were revealed in the former parts were conducted as data collection instruments.

3.8.4. Procedures for Data Collection

A pilot study was conducted before the application of the main study and 22 volunteer students were involved. As the first step, the participants were given information on the purpose of the study, and CIS, OLSES and the Achievement Test were applied. Following the lecture, the participants were informed on how to access the online platform *Kahoot!* and how to answer the questions in detail regarding the time limit. As they were ready, the researcher shared the link and the Game Pin that are created synchronously. As soon as the participants were involved in the game, their names or nicknames were revealed on the screen. Due to the fact that the process was run on Microsoft Teams Program, the participants were able to see the whole steps through the researcher's screen sharing. However, some of the participants did not have access to the computer as they were following the lectures on their mobile phones, they could not involve in the process via the shared link. Therefore, in order to overcome the problem, the researcher shared another link regarding a self-paced learning alternative for those who participated in the activity through their mobile phones, otherwise, they needed another tool to view the questions that were displayed on the researcher's screen. Hereby, both groups of learners who participated in the activity through their mobile phones and those with their computers answered the questions. Since there were two different shared links, two different leaderboard tables were shared with the participants accordingly.

During the next step, the participants were informed about another Web 2.0 tool, Mentimeter word cloud activity. Since the lecture was on *common holiday activities* the week before, they were asked to type the shared activity link and the pin code and write what kind of holiday activities they remembered. As soon as the responses were displayed on the screen, the participants were able to see their instant responses via the researcher's screen

sharing. As they typed their responses, some of them were situated in the center as they were answered by many in recurrent order. As the application is not complex and easy to use synchronously, there were no problems during the pilot study procedure.

In the following week, the participants were informed about the rules and procedures on the Quizizz platform regarding power-ups that are listed on the website (www.quizizz.com) and are suggested as follows (Quizizz, 2022):

- Double jeopardy — One gets double points when the answer is correct, however, loses it all if it is wrong
- X2 — One gets twice as many points for a question
- 50-50 — Excludes half of the wrong options
- Eraser — Eliminates one wrong option
- Immunity — One gets a second chance on a wrong answer
- Time Freeze — Time is frozen and one gets a full point on a question
- Power Play — Anyone within the game receives 50% more points for 20 seconds
- Streak Saver — Assures one's streak against an incorrect answer
- Glitch — Anyone except you sees a 10-second glitchy screen

As they answered questions correctly, they got power-ups to be used in any questions. Besides, the participants were also informed about the redemption question in that they would have a second chance regarding the questions they answered wrong before by choosing among three alternatives. No problems were observed during the pilot study as the platform is easy to use provided that the rules and the time limit are followed.

The participants were given information on another Web 2.0 tool, *Socrative*. As there were no extra rules on the platform, they were asked to do the task through the link that was shared by the instructor. As soon as they answered the questions, they were able to see if each one was correct or wrong via the researcher's screen sharing. The participants also gave feedback through the open-ended question. No problem was observed during the process.

Following the application of the tasks on selected Web 2.0 tools, 2 volunteer students were interviewed and the process was recorded for ensuring the reliability and validity of the questions. The scales were not conducted as post-test as the objective of the pilot study was not to analyze the significance degree of pre-test and post-test scores of the participants but to ensure the reliability and validity of the data collection tools and any problems that could be faced during the treatment.

3.9. Main Study

3.9.1. Setting and Participants

The participants of the study are EFL learners who are studying at Balıkesir University, Faculty of Science and Letters. They are freshmen and learners of different departments including Turkish Language and Literature, Physics, Biology, Chemistry, History, Geography, and Mathematics. The course that forms the focus of this present study is compulsory *Foreign Language* which is acknowledged in Article 5-i by the Council of Higher Education. Each group of participants is 30 freshmen learners. Participants' demographic information regarding their gender, age, departments, period of learning English, mobile device preferences, previous experience with online learning environments, use of technology for learning English, perceived computer proficiency levels, playing games to learn English, perceived motivation levels, previous experience with Web 2.0 tools will be indicated in the following sections.

3.9.2. Data Collection Tools

The CIS was formed by the original developer as a situational instrument in that the aim is not to analyze learners' general motivation levels toward learning but to measure their motivation regarding a particular course. Therefore, the items are adaptable to fit several specific conditions. Additionally, the instrument is suggested to be used both for graduate and undergraduate learners. The scale has 34 items along with four subscales including *attention, relevance, confidence,* and *satisfaction* that are possible to use and score independently or as a total scale score (Keller, 2010).

The OLSES which consisted of 22 items was applied to post-secondary learners by Zimmerman and Kulikowich (2016) at one university and joined in online courses. The scale was formed under three subscales including *learning in the online environment, time management,* and *technology use.* Group comparisons and correlations were applied to ensure the reliability and validity measures of the scale. The original developers of the scale discovered that there was a need for such a scale in order to measure the constructs regarding learners who are participating in online courses and those who enroll in courses on physical campuses which makes it possible to use it for participants with or without previous online learning experiences as well.

3.10. Data Collection Procedures

To be able to collect data for the purposes of the study, several procedures were followed accordingly. As an initial step, the participants of the study were assigned randomly as Experimental and Control groups. Following the process, data collection instruments were conducted as pre-tests on *Google Forms* platform.

After ensuring that the participants of each group are equal in terms of their motivation, online-learning self-efficacy, and academic achievement levels, the participants included in the experimental group were started to be instructed through gamification using Web 2.0 tools including *Kahoot!, Quizizz, Socrative,* and *Mentimeter* while the control group participants were being instructed through power-point presentations based on relevant course unit subjects. The underlying reason behind the application of different activities on different platforms is to analyze whether various Web 2.0 tools have an impact on EFL learners' online-learning self-efficacy, motivation, and academic achievement in online learning environments.

3.10.1. Procedures for Kahoot! application

In terms of the main study and the first week, the participants were informed about the online platform, *Kahoot!*. Based on the process during the pilot study, two different activity links were created by the researcher regarding virtual classrooms and self-paced learning, and the activity was started at the same time. The ones that participated in the task

through their computers were informed to have their mobile phones with them as they would see the questions via the researcher's screen sharing and would answer through their phones by clicking on the symbol with reference to the correct answer. The step is shown as follows:

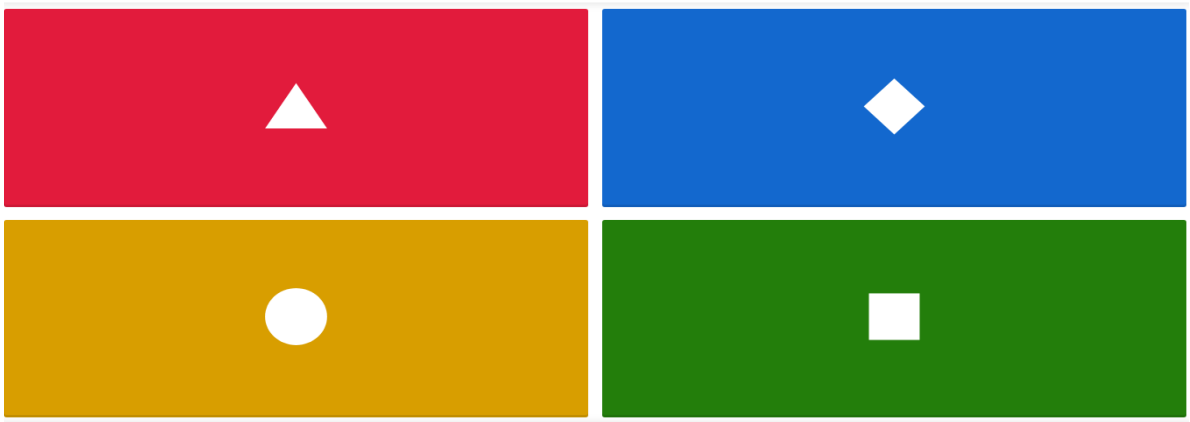

Figure 13. A screenshot of learner answers on Kahoot! platform.

On the other hand, the participants that followed the online courses on their mobile phones and did not have a computer, were involved into the task via the self-paced learning alternative in that the participants were able to see the questions on their screen that could be illustrated as in the following:

Figure 14. A Kahoot! activity on participants' screen.

As the participants answered the questions, the top 5 were shown after each question that led to an enjoyable and competitive process that is shown on *Figure 15* as follows:

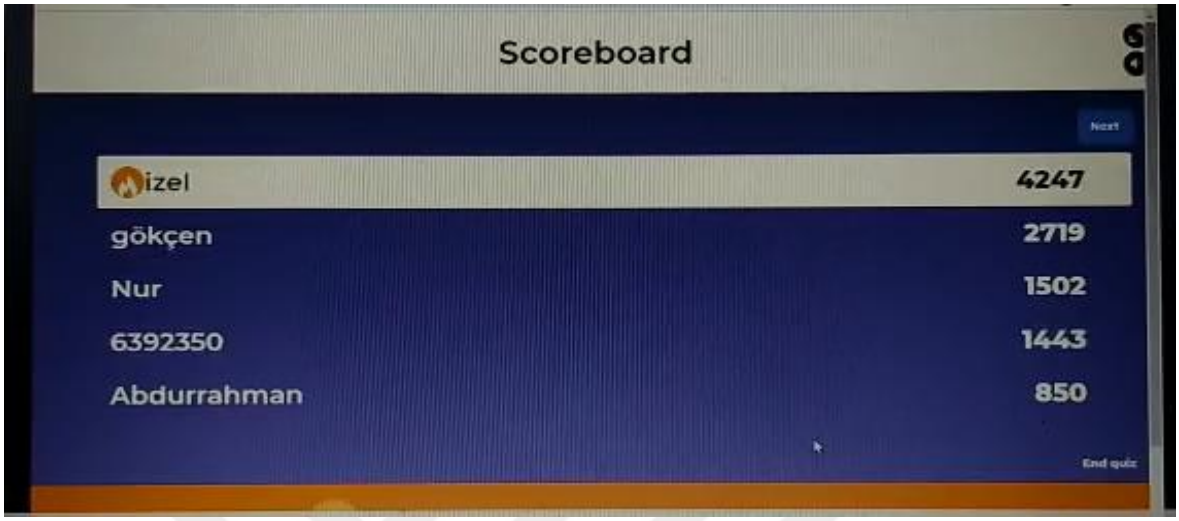

Figure 15. Participant leaderboard on Kahoot! screen.

At the end of the process, the top 3 were reflected on the screen and was shared with the participants through the researcher's screen sharing as well.

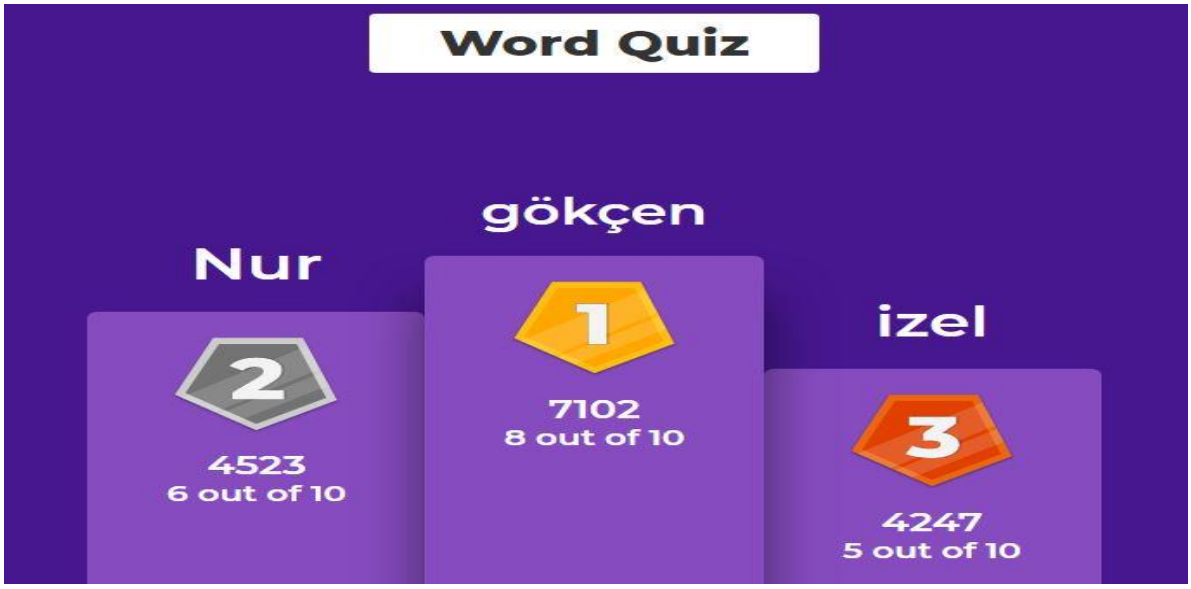

Figure 16. The top three at the end of the activity on Kahoot! platform.

Due to the fact that there was a second shared link for self-paced learning, a second table was also shared by the researcher for the participants.

Figure 17. The end of the activity on Kahoot! platform on self-paced learning.

When the game is over, the participants gave feedback on the process as well. The sample lesson plan of a Kahoot! activity is indicated on Appendix 7.

3.10.2. Procedures for Quizizz Platform

Due to the fact that there were no problems during the pilot study, the participants were informed about the rules, power-ups and the redemption question and a live quiz was started (Appendix 8) on Quizizz platform. As the participants started to answer the questions at their own pace, the leaderboard and the process was displayed through the researcher's screen sharing. Unlike *Kahoot!*, the participants were able to see the questions on their mobile phones or computers without any further device. The visual display of a question on the Quizizz platform could be illustrated in *Figure 18* as follows:

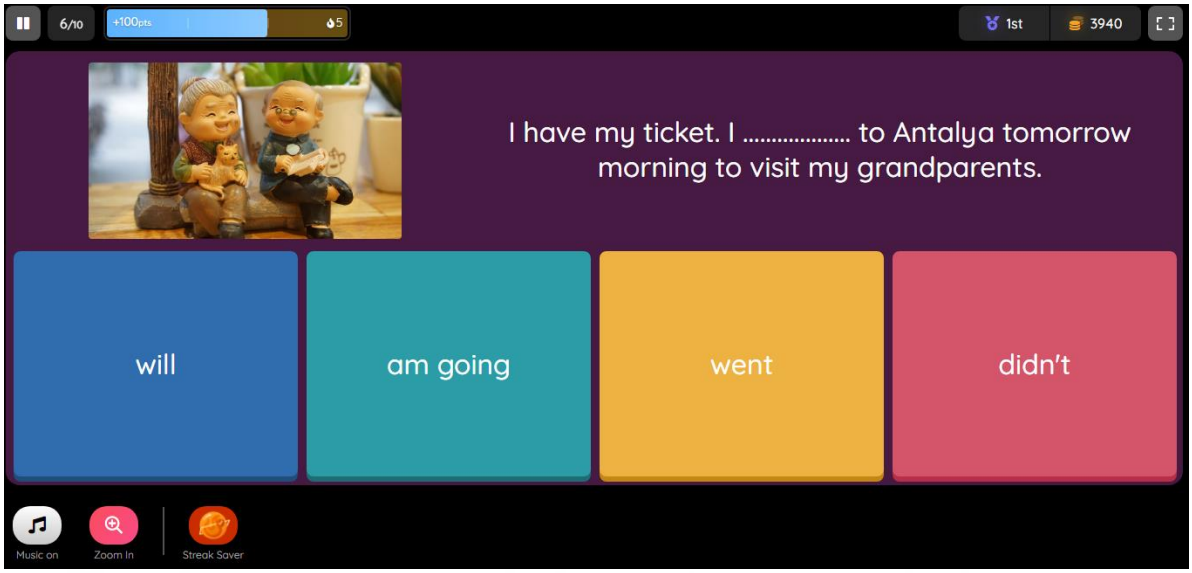

Figure 18. Quizizz application on devices.

As long as the participants answer correctly in order, they are able to utilize the power-up they get in any question. In case a participant forgets to use the power-up, then an alert is displayed on the screen and one can activate it in any question.

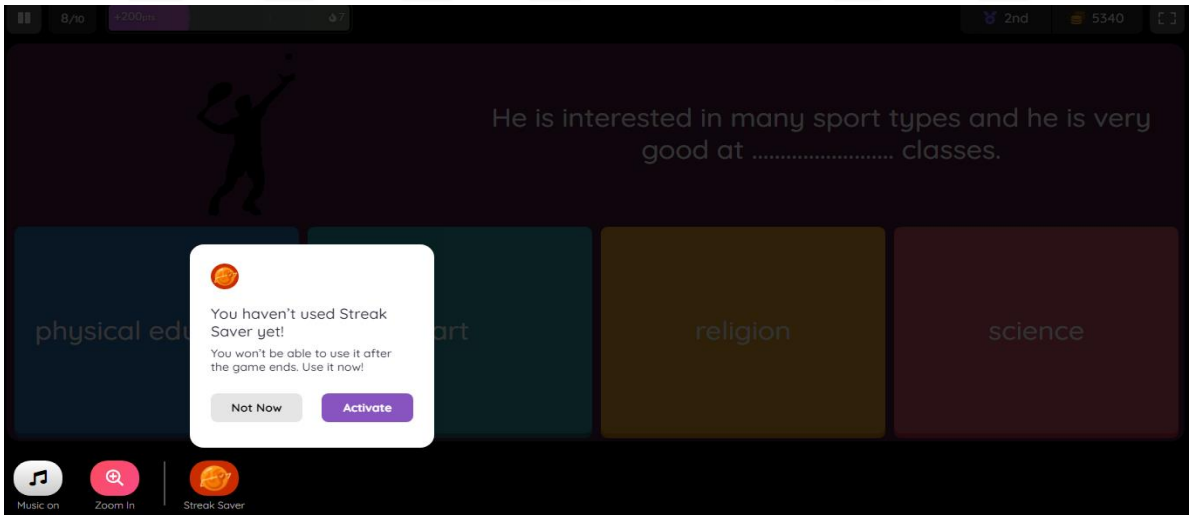

Figure 19. Recall regarding how to activate a power-up on Quizizz.

When the game is over, the participants are given a second chance to reattempt for three questions they have answered wrong before. They are required to choose among the symbols regarding wrong question and then they can answer it again which is shown as follows:

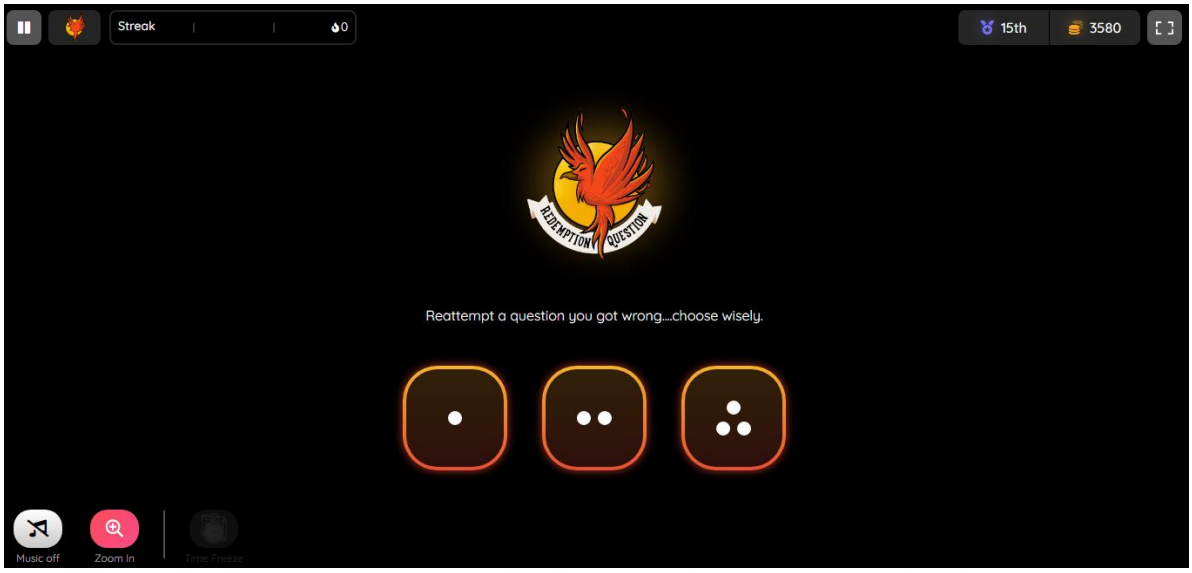

Figure 20. A screenshot of the redemption question on Quizizz platform.

3.10.3. Procedures for Socrative application

Since there did not occur any problems during the pilot study, the participants were given information about the activity on the Socrative platform. Unlike the previous applications, a room name was shared with the participants, and they logged in to the activity. A screenshot of a question on Socrative platform could be illustrated in *Figure 21* as follows:

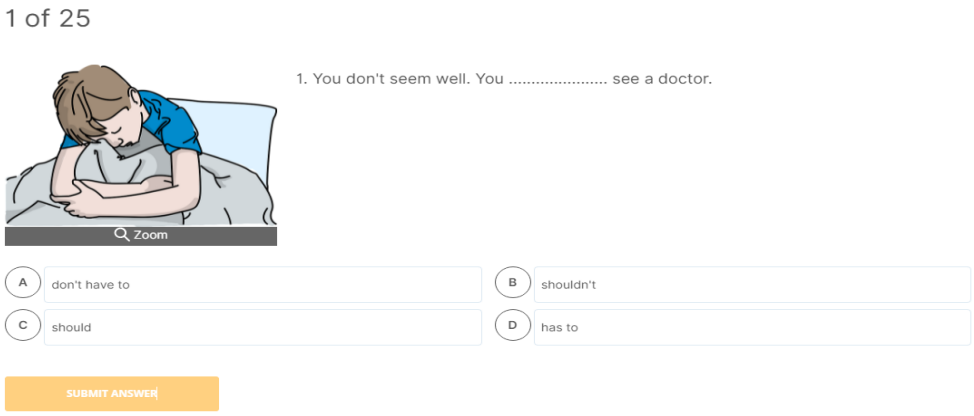

Figure 21. A question sample on Socrative platform.

Since immediate feedback is an important feature of the platform, an illustration of it could be revealed in *Figure 22* as in the following:

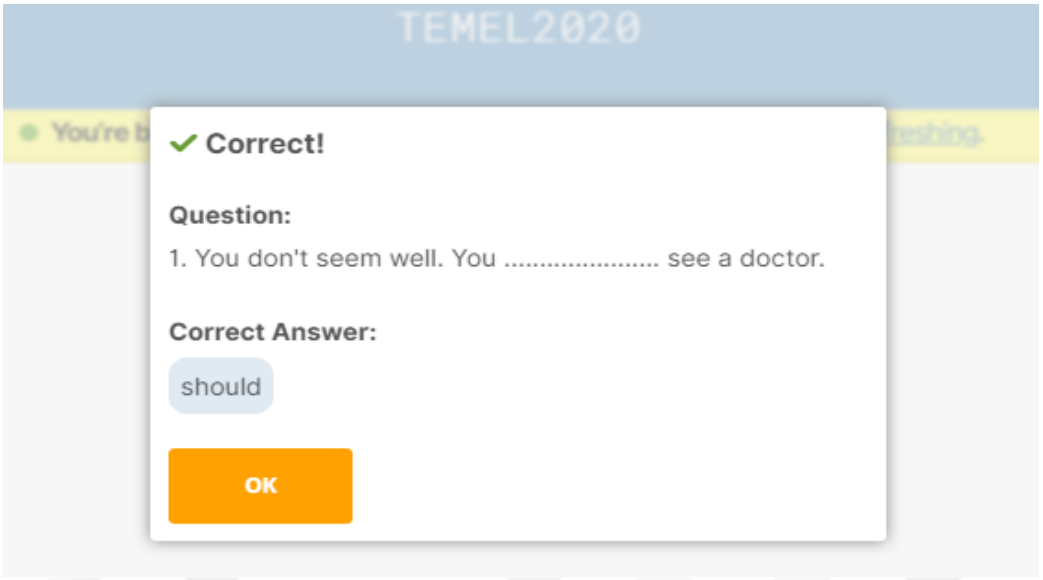

Figure 22. Feedback on Socrative platform.

Learners are able to see the correct answers through corrective feedback on Socrative platform that could be shown in *Figure 23* as follows:

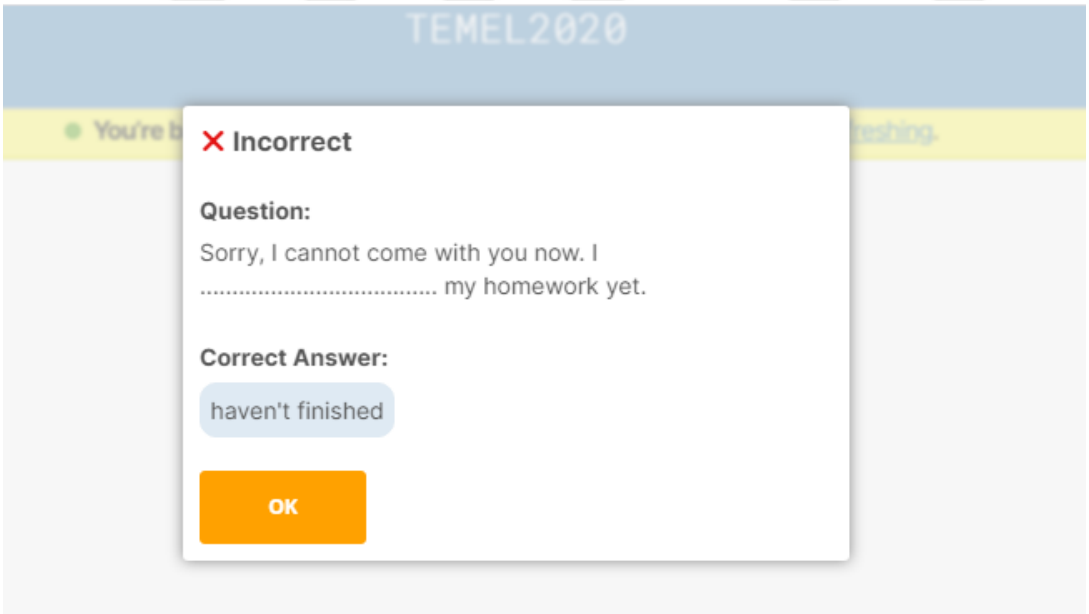

Figure 23. Corrective feedback on Socrative platform.

A screenshot of the instant feedback on the platform is revealed in *Figure 24* as in the following:

NAME	SCORE %	1	2	3	4	5	6	7	8	9	10	11
ceren	67%	× B	✓ A	✓ A	× B	× D	✓ C	✓ A	✓ D	× D	✓ A	✓ C
esma	8%	× D	✓ A	✓ A	× A							
Gizem	83%	× A	✓ A	✓ A	✓ D	✓ B	✓ C	✓ A	✓ D	✓ B	× D	× D
İlke	88%	✓ C	✓ A	✓ A	× B	✓ B	✓ C	✓ A	✓ D	✓ B	✓ A	✓ C
kübra	54%	× D	✓ A	✓ A	× A	× D	× B	✓ A	× C	✓ B	✓ A	× D
Öykü	67%	× B	✓ A	✓ A	✓ D	× C	✓ C	✓ A	× C	✓ B	✓ A	✓ C
sena g	67%	× B	✓ A	✓ A	✓ D	× A	✓ C	✓ A	× C	✓ B	✓ A	✓ C

Figure 24. Instant feedback on the Socrative platform.

As shown in the figure, learners' right answers appear in green while the wrong ones in red which make it possible for the lecturer to observe the difficulties that learners face through a single glance and give them the opportunity of getting instant formative feedback (Faya Cerqueiro and Martín-Macho Harrison, 2019).

There are various question/activity alternatives on the platform that could be illustrated as follows:

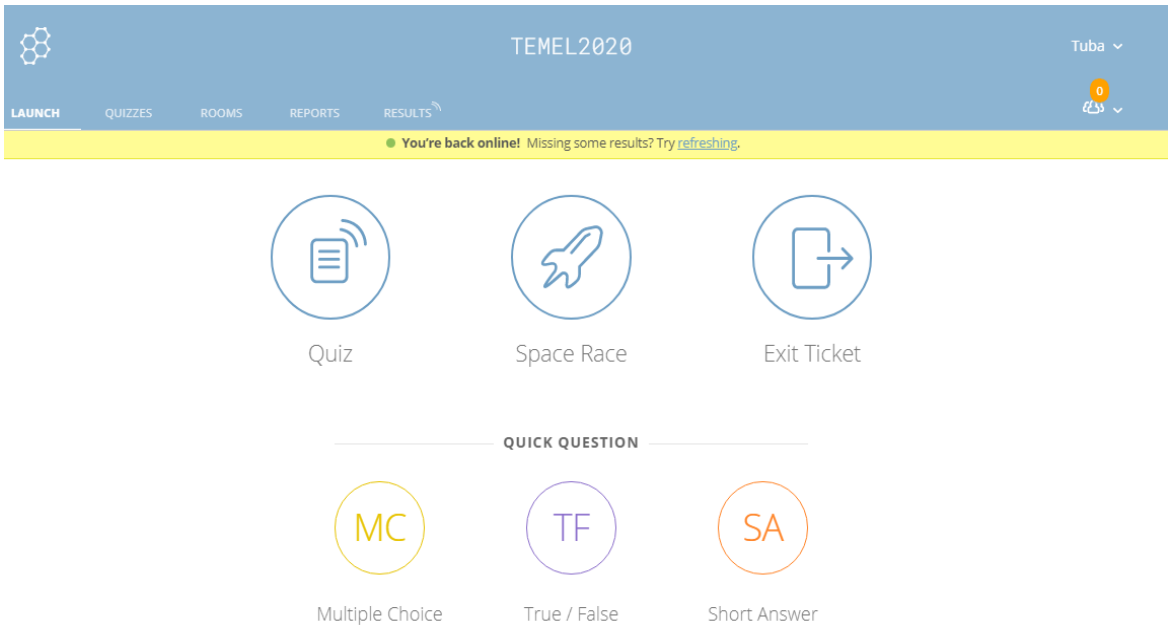

Figure 25. Question versions on Socrative platform.

3.10.4. Procedures for **Mentimeter**

The participants were informed about another online learning platform, *Mentimeter* and how to access the word-cloud activity. The researcher shared the game code and asked the participants to go to menti.com and type their responses and each participant had three entries options and they were able to submit multiple times. Since the topic was on *verbs in classroom*, the participants were required to type the verbs that they remembered at the end of the course that could be illustrated as follows:

Figure 26. A screenshot of presentation on Mentimeter platform.

As seen in the figure, the more the same answers are typed by the participants, the more they are situated in the center with bigger initials.

While the Experimental group participants were instructed through gamification with selected Web 2.0 tools, the control group participants were instructed through PowerPoint presentations on course units on the *Microsoft Teams* platform. The rationale behind the use of gamification activities via different online learning platforms is to analyze the effects of gamification with several Web 2.0 tools having different functions on EFL Learners' motivation, online learning self-efficacy, and academic achievement.

3.11. Data Analysis

In this part, the statistical measurements and the logic underlying the use of them in the current study are explained in detail. Descriptive statistics which refer to the basic components of the data and simple summaries regarding the research sample and measures (Mishra et al., 2019) were run in the current study through the Demographic Information Form developed by the researcher including participants' gender, age, period of learning English, perceived computer proficiency levels, previous experiences with online learning environments and Web 2.0 tools before in order to describe the characteristics of participants and ensure whether the experimental group and the control group share similar backgrounds.

Before the decision on whether to utilize a parametric or non-parametric test, a Test of Normality was run first for each analysis as it is acknowledged that the normality assumption needs to be checked (Ghasemi and Zahediasl, 2012) because it is regarded to be a prerequisite for statistical procedures (Mishra et al., 2019; Razali and Wah, 2011). Due to the fact that normal data functions as the underlying assumption for parametric tests (Mishra et al., 2019) and if the normality assumption is violated, then the inferences and interpretations on the data may not ensure validity and reliability so this assumption should be checked before conducting any statistical procedures (Razali and Wah, 2011).

In order to determine whether there are statistically significant differences between two types of measurements including interval data such as test scores, the most used statistic is *t-test* which is mostly utilized for small data sets and when there exist two different groups in the study, then the *independent samples t-test* is conducted in that the contributing data of each group are not influenced by each another, on the other hand, the *dependent samples t-test* is used when the two related groups are based on some criterion (Nunan and Bailey, 2009).

In order to make a comparison between the mean scores of pre-test and post-test within each group, a paired samples t-test which refers to the comparison of the mean scores of two matched groups or entities or the mean scores of a single group that is tested at two different time points (Ross and Willson, 2017) was used in the study as well.

Concerning the data distribution, a non-parametric test is needed when the distribution is measured as asymmetrical, in other words, non-parametric tests are differentiated from parametric tests because the model structure is identified from the data as the parameters are not fixed beforehand as opposed to the parametric alternatives in which they are determined a priori (Nachar, 2008). In line with this, *Mann Whitney U* test which is also called as *Wilcoxon sum of ranks test* and is used as the non-parametric alternative to independent samples t-test was used for non-parametric data in the study.

Wilcoxon signed-rank test is a non-parametric test which is utilized for analyzing matched-pair data regarding differences or for a single-sample case and is also regarded to be a crucial alternative to the t-test when the normality assumption is violated in the population (Shieh et al., 2007). Furthermore, it is used for having inferences on the value with reference to the median of those differences (Taheri and Hesamian, 2013).

Table 16

Analysis techniques used in the present study for each research question

Research Questions	Analysis Techniques
1. What is the effect of gamification using Web 2.0 tools on EFL learners' motivation levels in online learning environments?	✓ Mann-Whitney U test (pre-test) ✓ Independent samples t-test (post-test) ✓ Paired samples t-test (Experimental group pre-test and post-test) ✓ Wilcoxon signed ranks test (Control group pre-test and post-test)
1.1. What are learners' views of gamification using Web 2.0 tools on EFL learners' motivation levels in online learning environments?	✓ Content Analysis

1.2. Do EFL learners' perceptions change according to their gender?	✓ Independent samples t-test (Experimental group pre-test and post-test of females and males) ✓ Mann Whitney U test (Control group pre-test and post-test of females and males)
1.3. Do EFL learners' perceptions change according to their previous experiences with Web 2.0 tools before?	✓ Independent samples t-test (Experimental group pre-test and post-test) ✓ Mann Whitney U test (Control group pre-test) ✓ Independent samples t-test (Control group post-test)
2. What is the effect of gamification using Web 2.0 tools on EFL learners' learning self-efficacy in online learning environments?	➢ Mann-Whitney U test (pre-test) ➢ Independent samples t-test (post-test) ➢ Paired samples t-test (Experimental group pre-test and post-test) ➢ Wilcoxon signed ranks test (Control group pre-test and post-test)
2.1. What are learners' views of gamification using Web 2.0 tools on EFL learners' motivation levels in online learning environments?	➢ Content Analysis
2.2. Do EFL learners' perceptions change according to their gender?	➢ Independent samples t-test (Experimental group pre-test and post-test of females and males) ➢ Mann Whitney U test (Control group pre-test and post-test of females and males)

2.3. Do EFL learners' perceptions change according to their previous experiences with Web 2.0 tools before?	➢ Independent samples t-test (Experimental group pre-test) ➢ Mann Whitney U test (Experimental group post-test) ➢ Mann Whitney U test (Control group pre-test) ➢ Independent samples t-test (Control group post-test)
3. What is the effect of gamification using Web 2.0 tools on EFL learners' academic achievement in online learning environments?	• Mann-Whitney U test (pre-test and post-test) • Wilcoxon signed ranks test (Experimental group pre-test and post-test) • Wilcoxon signed ranks test (Control group pre-test and post-test)
3.1. What are learners' views of gamification using Web 2.0 tools on EFL learners' academic achievement in online learning environments?	• Content Analysis
3.2. Do EFL learners' perceptions change according to their gender?	• Independent samples t-test (Experimental group pre-test of females and males) • Mann Whitney U test (Experimental group post-test of females and males) • Mann Whitney U test (Control group pre-test and post-test of females and males)

3.3. Do EFL learners' perceptions change according to their previous experience with Web 2.0 tools before?	• Independent samples t-test (Experimental group pre-test) • Mann Whitney U test (Experimental group post-test) • Independent samples t-test (Control group pre-test and post-test)

CHAPTER FOUR
FINDINGS

4.1. Participants' Demographic Information

In order to ensure that the experimental and control group participants share similar characteristics/backgrounds, a Demographic Information Form was applied, and the findings were revealed in the following section:

Table 17

Gender differences between the experimental and the control group

	Experimental		Control	
Gender	Frequency	Percent	Frequency	Percent
Female	20	66.7	18	60.7
Male	10	33.3	12	40.0
Total	30	100.0	30	100.0

Analyzing the table, it is seen that there are 20 female and 10 male learners in the experimental group and 18 female and 12 male learners in the control group. Furthermore, it is possible to conclude that both groups are similar based on gender frequencies.

Table 18

Age differences of the experimental and control groups

	Experimental		Control	
Age	Frequency	Percent	Frequency	Percent
18	5	16.7	7	23.3
19	12	40.0	11	36.7
20	8	26.7	10	33.3
21	1	12.1	0	0
22	0	0	1	3.3
24	1	3.3	0	0.0
26	0	0	1	3.3
28	1	3.3	0	0
30	1	3.3	0	0
34	1	3.3	0	0
Total	30	100.0	30	100.0

The table reveals that most of the participants of the experimental group and control group are between 19 and 20 ages which indicate a similarity between the two groups as well.

Table 19

Department distributions regarding experimental and control groups

	Experimental		Control	
Department	Frequency	Percent	Frequency	Percent
Biology	8	26.7	0	0
Physics	4	13.3	0	0
Chemistry	2	6.7	0	0
Turkish L. and Lit.	16	53.3	0	0
Geography	0	0	16	53.3
Mathematics	0	0	14	46.7
Total	30	100.0	30	100.0

As shown in *Table 19*, the participants of the Experimental group are learners of the departments of Biology (N=8), Physics (N=4), Chemistry (N=2), Turkish Language and Literature (N=16); and the participants of the Control group are learners of the departments of Geography (N=16) and Mathematics (N=14).

Table 20

Experimental and control group participants' period of learning English as a foreign language

	Experimental		Control	
Year	Frequency	Percent	Frequency	Percent
0-2 years	1	3.3	2	6.7
3-5 years	4	13.3	4	13.3
6-8 years	11	36.7	4	13.3
9-11 years	12	40.0	18	60.0
12-15 years	2	6.7	2	6.7
Total	30	100.0	30	100.0

The table indicates that 12 participants of the Experimental group which addresses to %40 percent have been learning English for 9-11 years and 18 participants of the Control group along with %60 percent have been learning English for 9-11 years.

Table 21

Participants' mobile device preferences

	Experimental		Control	
Device	Frequency	Percent	Frequency	Percent
Computer	21	70.0	19	63.3
Mobile Phone	8	26.7	11	36.7
Tablet	1	3.3	0	0
Total	30	100.0	30	100.0

Since the participants are learners of online learning environments, they were asked to choose the device that they have been taking the course on and the results indicated that 21 participants of the experimental group and 19 of the control group follow the courses on their computers which is an indicator of a similarity between the two groups regarding the use of mobile devices.

Table 22

Participants' experiences of online learning environments before

	Experimental		Control	
Experience	Frequency	Percent	Frequency	Percent
Yes	9	30.0	11	36.7
No	21	70.0	19	63.3
Total	30	100.0	30	100.0

The participants were asked whether they had any experiences with online learning environments before and the results indicated that most of the participants of the Experimental (N=21) and Control groups (N=19) typed as "No".

Table 23

Frequency of using technology for learning English

	Experimental		Control	
Frequency	Frequency	Percent	Frequency	Percent
Never	1	3.3	2	6.7
Occasionally	3	10.0	2	6.7
Sometimes	15	50.0	16	53.3
Often	6	20.0	7	23.3
Always	5	16.7	3	10.0
Total	30	100.0	30	100.0

The participants were asked how often they used technology for learning English and most of the experimental group (N=15) and control group participants (N=16) answered as "sometimes". Therefore, it is possible to indicate that the groups are similar to each other.

Table 24

Playing games to learn English

	Experimental		Control	
Games	Frequency	Percent	Frequency	Percent
Yes	20	66.7	15	50.0
No	10	33.3	15	50.0
Total	30	100.0	30	100.0

Since the focus of the study is to investigate the effects of gamification in online learning environments, the participants were asked whether they like playing mobile games to learn English and 20 participants in the experimental group and 15 participants in the control group answered as "yes".

Table 25

Participants' overall perceived computer proficiency levels

	Experimental		Control	
Proficiency	Frequency	Percent	Frequency	Percent
Low	2	6.7	5	16.7
Medium	25	83.3	16	53.3
High	3	10.0	9	30.0
Total	30	100.0	30	100.0

To reveal participants' perceived computer proficiency levels, they were asked to rate among low, medium, and high levels and most of the participants in the experimental group (N=25) and the control group (N=16) typed as "medium" as an indicator of a similarity as well.

Table 26

Participants' previous experiences with Web 2.0 tools

	Experimental		Control	
Web 2.0	Frequency	Percent	Frequency	Percent
Yes	6	20.0	10	33.3
No	24	80.0	20	66.7
Total	30	100.0	30	100.0

It is suggested that being familiar with technology is of importance for learners while participating in an online course as students become more familiar with technology, they prefer to learn online more (Lee and Mendlinger, 2011). Hence, to ensure the similarity between the two groups, the participants were asked whether they had any experiences with Web 2.0 tools including *Kahoot!*, *Socrative, Mentimeter,* and *Quizizz* before and 6 of them in the experimental group and 10 of them in the control group typed as "yes".

Table 27

Participants' perceived motivation levels

	Experimental		Control	
Motivation	Frequency	Percent	Frequency	Percent
Low	5	16.7	6	20.0
Medium	17	56.7	13	43.3
High	8	26.7	11	36.7
Total	30	100.0	30	100.0

Since the study also aims to investigate the effects of gamification with Web 2.0 tools on EFL learners' motivation levels, they were asked to rate their perceived English language learning motivation levels and 17 of them in the experimental group and 13 of them in the control group answered as "medium".

4.2. Findings Regarding the 1st Research Question

Analyses were run based on the research hypotheses and the1st research question that are indicated as follows:

$H0_1$: There will be no statistically significant difference between experimental and control group participants' overall pre-test and post-test scores in terms of their motivation levels.

$H1_1$: There will be a statistically significant difference between experimental and control group participants' overall pre-test and post-test scores in terms of their motivation levels.

$H0_2$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their motivation levels.

$H1_2$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their motivation levels.

$H0_3$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their motivation levels.

$H1_3$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their motivation levels.

$H0_{10}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{10}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{11}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{11}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{12}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{12}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools

$H0_{13}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{13}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

The 1st Research Question:

1. What is the effect of gamification using Web 2.0 tools on EFL learners' motivation levels in online learning environments? (Related parts: 4.2.1, 4.2.2, 4.2.3)
   1.1. What are EFL learners' views of gamification using Web 2.0 tools on their motivation levels in online learning environments? (Related part: 4.2.4)
   1.2. Do EFL learners' perceptions of motivation change according to their gender? (Related parts: 4.2.5, 4.2.6)
   1.3. Do EFL learners' perceptions of motivation change according to their previous experiences with Web 2.0 tools before? (Related parts: 4.2.7, 4.2.8)

4.2.1. Comparison of Participants' Pre-Test and Post-Test Scores on CIS

With reference to the 1st research question, Tests of Normality were run first in order to analyze the normality distribution of the pre-test scores of the participants on the Course Interest Survey and the results were indicated as follows:

Table 28

Test of Normality of pre-test scores on CIS

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.116	30	.200	.947	30	.139
Control	.189	30	.008*	.888	30	.004

*p<.05

Since the number of participants are 30, Kolmogorov-Smirnov test is preferred (Büyüköztürk, 2013, as cited in Uysal and Kılıç, 2022) and as *Table 28* suggests, the pre-test scores of the control group on CIS are not distributed normally. Therefore, a Mann Whitney U test was run, and the findings were shown as follows:

Table 29

Mann Whitney U test results of the pre-test mean scores on CIS

Group	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Experimental	30	125.87	29.97	899.00	434.000	.813
Control	30	123.87	31.03	931.00		

p>.05

The results indicated that there is not a statistically significant difference between the pre-test scores of both groups on the Course Interest Survey (U = 434.0, p >0.05). Based on the overall mean scores of the experimental (125.87) and control group (123.87), it could be indicated that they are similar to each other. In other words, it is possible to reveal that the groups are equivalent to each other before the administration of the treatment. Therefore, the null hypothesis addressing no statistically significant difference between experimental and control group participants' pre-test scores in terms of their motivation levels was accepted and the alternative hypothesis was rejected as well.

A test of Normality was run in order to analyze the homogeneity level of post-test scores of the groups on CIS and the results were indicated as follows:

Table 30

Test of Normality regarding post-test scores of the groups on CIS

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.130	30	.200	.953	30	.208
Control	.116	30	.200	.937	30	.077

p>.05

As shown in *Table 30*, it is seen that the post-test scores are distributed normally, Therefore, an independent-samples t-test was conducted and the results are indicated as in the following:

Table 31

Independent-Samples t-test results of the groups' post-test scores on CIS

Group	N	X	SD	df	t	p
Experimental	30	136.20	13.02	58	-2.98	.004*
Control	30	121.96	22.69			

*p<.05

The results in *Table 31* reveal that there is a statistically significant difference between the experimental group (M=136.20, SD=13.02) and the control group (M=121.96, SD=22.69), t(58)=-2.98, p=.004, d=0.76 participants' overall post-test scores in favor of the experimental group with a medium effect size. Therefore, the null hypothesis which

indicated no statistically significant difference between experimental group participants' pre-test and post-test scores was rejected and the alternative hypothesis was accepted accordingly.

4.2.2. Comparison of Experimental Group Participants' Overall Pre-Test and Post-Test Scores on CIS

A Test of Normality was run first in order to decide to run a parametric or non-parametric test regarding the pre-test and post-test scores of the experimental group and the findings were revealed as in the following:

Table 32

Test of Normality regarding experimental group participants' mean differences of the pre-test and post-test scores on CIS

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Pre-test	.116	30	.200	.947	30	.139
Post-test	.130	30	.200	.953	30	.208

p>.05

As shown in the table, the mean scores are distributed normally. Thus, a paired samples t-test was run for each analysis, and the findings were indicated as follows:

Table 33

Paired samples t-test regarding the mean differences of the pre-test and post-test scores of the experimental group on CIS

Experimental	N	X	SD	df	t	p
Pre-test	30	3.70	.41	29	-4.723	.000*
Post-test	30	4.00	.38			

*p<.05

Based on the analysis, the findings revealed a statistically significant difference between experimental group participants' pre-test (M=3.70, SD= .41) and post-test scores (M=4.00, SD= .38) on CIS; t(29)=-4.72, p=0.00 in favor of their post-test scores.

4.2.3. Comparison of Control Group Participants' Overall Pre-Test and Post-Test Scores on CIS

A test of Normality was run in order to analyze the pre-test and post-test scores of the control group on CIS and the results were indicated as in the following:

Table 34

Test of normality regarding control group participants' mean differences of the pre-test and post-test scores on CIS

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Pre-test	.189	30	.008*	.888	30	.004
Post-test	.116	30	.200	.937	30	.077

*p<.05

As shown in *Table 34*, the mean scores do not have a normal distribution. Therefore, a Wilcoxon signed ranks test was run, and the findings were illustrated as follows:

Table 35

Wilcoxon signed ranks test regarding control group participants' mean differences of the pre-test and post-test scores on CIS

	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks	19[a]	14.92	283.50	-1.050[b]	.294
Positive Ranks	11[b]	16.50	181.50		
Ties	0[c]				
Total	30				

**Based on negative ranks, p>.05*

The findings suggested that there is not a statistically significant difference between pre-test and post-test scores of the participants on CIS and based on ranks scores, it was indicated that 19 of the participants have a lower score, 11 of them have a higher score and 1 of them has a similar score when compared to their pre-test scores.

4.2.4. Qualitative Findings in terms of Participants' Pre-Test and Post-Test Scores on CIS

Due to the fact that CIS was designed in order to analyze learners' course interest/motivation levels (Keller, 2010), the participants were asked about their motivation in the semi-structured interview regarding the 1st sub-question and the findings were revealed as in the following:

"It encourages learning as our names are ranked as 1st and 2nd on the leaderboard. It provides competition to answer earlier. It's nice to have our names on the list and this encourages us. In terms of motivation, I would like these gamification activities to continue. I think Kahoot! is the most useful app among them because I felt more comfortable as we all answered the same question at the same time." (Interviewee 5)

"Of course. To be honest, I was more motivated to see if the activity would be repeated every week and I thought that if there was an activity, I would attend the class to participate in it." (Interviewee 6)

"Of course. When there is a subject that I do not know, I go to research it directly and this increases my motivation." (Interviewee 10)

"I am normally a very shy person. When there are such gamification activities, I can participate a little more actively. It was good for me; it had a positive effect on my motivation for the course." (Interviewee 1).

The findings regarding gender differences are also suggested as follows:

"From my point of view, I think gamification activities definitely increase motivation." (Interviewee 8- Female)

"You learn more quickly when you associate something with your own need. If what we associate with ourselves while learning a language is to pass the exam, even if it has a quantitative effect, it is short-lived, but if it is approached within the framework of a general

vital purpose, such as I need to live this language in my life, it also increases motivation in my opinion. It motivates me because I study English" (Interviewee 7-Male)

It is seen that the findings are also aligned with the overall semi-structured interview analysis. Therefore, both quantitative and qualitative data findings indicate that the treatment has a positive impact on participants' course interest/motivation levels.

4.2.5. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Gender Differences on CIS

A Test of Normality in terms of female and male participants' pre-test and post-test scores of the experimental group on CIS was run and the findings were reported as follows:

Table 36

Test of normality results regarding experimental group participants' pre-test and post-test scores in terms of gender differences on CIS

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.125	20	.200	.945	20	.297
Male Pre-test	.141	10	.200	.944	10	.598
Female Post-test	.176	20	.105	.946	20	.313
Male post-test	.223	10	.175	.876	10	.119

p>.05

As shown in *Table 36*, the results indicated normal distribution. Therefore, an independent-samples t-test was conducted for each comparison and the results were shown as follows:

Table 37

Independent samples t-test results regarding the pre-test and post-test scores of the female and male participants of the experimental group on CIS

Experimental	N	X	SD	df	t	p
Female pre-test	20	125.60	14.05	28	-.142	.602
Male pre-test	10	126.40	15.45			
Female post-test	20	134.20	14.58	28	-1.198	.241
Male post-test	10	140.20	8.43			

p>.05

Depending on the results, it was indicated that there is not a statistically significant difference between female (M=125.60, SD= 14.05) and male participants' overall pre-test scores (M=126.40 SD=15.45), t(28)=-.142, p=.602. Similarly, as shown in the table, not a statistically significant difference appears between female (M=134.20, SD= 14.58) and male participants' overall post-test scores (M=140.20, SD=8.43), t(28)=-1.198, p=.241 as well.

4.2.6. Comparison of the Pre-Test and Post-Test Scores of the Control Group Regarding Gender Differences on CIS

A Test of Normality was conducted to analyze the homogeneity level of the pre-test scores of female and male participants of the control group on CIS and the findings were illustrated in *Table 38* as follows:

Table 38

Test of normality results regarding the pre-test and post-test scores of the female and male participants of the control group on CIS

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.224	18	.017	.848	18	.008*
Male Pre-test	.166	12	.200	.915	12	.246
Female Post-test	.193	18	.075	.903	18	.064
Male post-test	.214	12	.136	.899	12	.152

*p<.05

Due to the fact that the p-value addresses that the pre-test scores are not distributed normally, a non-parametric test, Mann Whitney U test was run, and the findings were suggested as follows:

Table 39

Mann Whitney U test regarding the pre-test scores of the female and male participants of the control group on CIS

Control	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Female	18	128.88	17.50	315.00	72.000	.127
Male	12	116.33	12.50	150.00		

p>.05

The findings revealed that there does not seem a statistically significant difference between female and male learners' pre-test scores on CIS (U= 72.0, p> 0.05). However, the Test of Normality revealed a normal distribution for their post-test scores. Thus, an independent samples t-test was run, and the results were indicated as follows:

Table 40

Independent samples t-test regarding the post-test scores of the female and male participants of the control group on CIS

Experimental	N	X	SD	df	t	p
Female	18	128.61	21.17	28	2.073	.048*
Male	12	112.00	21.99			

*p<.05

The findings revealed a statistically significant difference between control group participants' female (M=128.61, SD= 21.17) and male learners' overall post-test scores (M=112.0, SD=21.99), t(28)=2.07, p=.048, d=0.76 with a moderate effect size.

4.2.7. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Their Previous Experiences with Web 2.0 Tools on CIS

A Kolmogorov-Smirnov test was applied to reveal the normality distribution of experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on CIS and the findings are indicated as in the following table:

Table 41

Test of Normality results regarding experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on CIS

Experimental		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	p	Statistic	N	p
Pre-test	Yes	.190	6	.200	.915	6	.468
	No	.117	24	.200	.939	24	.157
Post-test	Yes	.272	6	.189	.929	6	.571
	No	.149	24	.178	.948	24	.249

p>.05

Test of Normality results reveal that both pre-test and post-test scores are distributed normally which address using parametric test and based on the analyses, the findings were indicated as in the following:

Table 42

Independent samples t-test results regarding the pre-test and post-test scores of the experimental group in terms of their previous experiences with Web 2.0 tools on CIS

Group (Experimental)		N	X	SD	df	t	p
Pre-test	Yes	6	132.00	10.33	28	1.18	.246
	No	24	124.33	14.87			
Post-Test	Yes	6	144.16	10.64	28	1.73	.094
	No	24	134.20	12.98			

p>.05

An independent samples t-test was run to compare whether there seems a statistically significant difference between experimental group participants' pre-test and post-test scores regarding their previous experiences with Web 2.0 tools on CIS and the results indicated that there is not a statistically significant difference between participants' pre-test scores (M_{yes}=132.00, SD= 10.33; M_{no}=124.33 SD=14.87), t(28)=1.18, p=.246. Furthermore, the analysis based on their post-test scores revealed that there is not a statistically significant difference regarding participants' post-test scores (M_{yes}=144.16, SD= 10.64; M_{no}=134.20, SD=12.98), t(28)=1.73, p=.094 as well.

4.2.8. Comparison of Control Group Participants' Pre-Test and Post-Test Scores Regarding Their Previous Experiences with Web 2.0 Tools on CIS

To determine which test to use in order to compare the pre-test and post-test scores of the control group with reference to their previous experiences with Web 2.0 tools on CIS, a Test of Normality was run, and the findings were illustrated as follows:

Table 43

Test of Normality results of control group participants' pre-test and post-test scores regarding their previous experiences with Web 2.0 tools on CIS

Control		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	p	Statistic	N	p
Pre-test	Yes	.192	10	.200	.909	10	.274
	No	.233	20	.006	.873	20	.013*
Post-test	Yes	.180	10	.200	.907	10	.261
	No	.125	20	.200	.952	20	.403

*p<.05

As shown in the table, the Shapiro Wilk test results revealed that there is not a normal distribution regarding participants' pre-test scores. Hence, a Mann Whitney U test was conducted, and the results were indicated as follows:

Table 44

Mann Whitney U test results of the pre-test scores of the control group regarding previous experience with Web 2.0 tools on CIS

Control	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Yes	10	125.40	15.95	159.50	95.50	.843
No	20	123.10	15.28	305.50		

p>.05

The findings suggested that there is not a statistically significant difference between participants' pre-test scores on CIS (U=95.50, p>.05).

Table 45

Independent-samples t-test results of the post-test scores of the control group regarding previous experience with Web 2.0 tools on CIS

Group (Control)		N	X	SD	df	t	p
Post-Test	Yes	10	123.20	23.39	*28*	*.207*	*.838*
	No	20	121.35	22.92			

p>.05

An independent samples t-test was applied to analyze the post test scores of the control group regarding their previous experiences with Web 2.0 tools on CIS and the

findings revealed that there is not a statistically significant difference in terms of participants' post-test scores (M_{yes}=123.20, SD= 23.39; M_{no}=121.35, SD=22.92), t(28)=.207, p=.838 as well.

4.3. Findings Regarding the 2nd Research Question

The findings regarding the formulated hypotheses and the 2nd research question along with sub-questions are indicated as follows:

$H0_4$: There will be no statistically significant difference between experimental and control group participants' pre-test and post-tests in terms of their online learning self-efficacy.

$H1_4$: There will be a statistically significant difference between experimental and control group participants' pre-test and post-tests in terms of their online learning self-efficacy.

$H0_5$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their online learning self-efficacy.

$H1_5$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their online learning self-efficacy.

$H0_6$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their online learning self-efficacy.

$H1_6$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their online learning self-efficacy.

$H0_{10}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{10}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{11}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{11}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{12}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{12}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools

$H0_{13}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{13}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

The 2nd Research Question:

2. What is the effect of gamification using Web 2.0 tools on EFL learners' learning self-efficacy in online learning environments? (Related parts: 4.3.1, 4.3.2, 4.3.3)

2.1. What are EFL learners' views of gamification using Web 2.0 tools on their learning self-efficacy in online learning environments? (Related part: 4.3.4)

2.2. Do EFL learners' perceptions of learning self-efficacy change according to their gender? (Related parts: 4.3.5, 4.3.6)

2.3. Do EFL learners' perceptions of learning self-efficacy change according to their previous experiences with Web 2.0 tools before? (Related parts: 4.3.7, 4.3.8)

4.3.1. Comparison of Experimental and Control Groups Regarding Their Pre-Test and Post-Test Scores on OLSES

In order to determine to run parametric or non-parametric tests, a Test of Normality was conducted first based on participants' pre-test mean scores of OLSES and the results were indicated as follows:

Table 46

Test of Normality of pre-test mean scores on OLSES

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.107	30	.200	.943	30	.113
Control	.198	30	.004*	.849	30	.001

p*<.05

Since the data for each group are over 29, a *Kolmogorov-Smirnov* test was run, and it was revealed based on the mean scores of the experimental (p=.200) and control group (p=.004) that the data regarding the pre-test scores of the control group on *Online Learning Self-Efficacy Scale* are not distributed normally. Hence, a Mann Whitney U test, which is a non-parametric test, was conducted and the findings were reported as follows:

Table 47

Mann-Whitney U test results of the pre-test scores on OLSES

Group	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Experimental	30	77.90	27.02	810.50	345.500	.122
Control	30	80.37	33.98	1019.50		

p>.05

As shown in *Table 47*, the test results indicated that there does not seem a statistically significant difference between experimental and control group participants' pre-test scores in terms of their online learning self-efficacy beliefs (U = 345.5, p >0.05). Analyzing the pre-test mean scores of both control (80.37) and experimental group (77.90), it is possible to indicate that the mean scores are similar. Therefore, the null hypothesis that was formed for the purposes of the study regarding that there will not be a statistically significant difference between the pre-test scores of experimental and control groups in terms of their online learning self-efficacy was accepted. However, the alternative hypothesis regarding the idea that there will be a statistically significant difference between pre-test scores of both groups on OLSES was rejected.

In order to analyze participants' post-test scores on OLSES, a Test of Normality was run first, and the results were indicated as in the following:

Table 48

Post-test scores of the groups on OLSES

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.136	30	.165	.918	30	.023
Control	.154	30	.067	.902	30	.009

p>.05

Examining the table, it is seen that post-test mean scores of the experimental (p=.165) and control group (p=.067) on OLSES are distributed normally. Thus, an independent samples t-test was run, and the findings were revealed as follows:

Table 49

Independent samples t-test scores of the groups on OLSES

Group	N	X	SD	df	t	p
Experimental	30	79.00	9.49	58	-2.07	.044*
Control	30	86.73	18.12			

p*<.05

An independent-samples t-test was conducted in order to compare the overall post-test scores of the experimental and control groups and the results indicated that there occurs a statistically significant difference between experimental group (M=79.00, SD= 9.49) and control group (M=86.73, SD=18.12), t(58)=-2.07, p=.044, d=0.53 participants' overall post-test scores in favor of the experimental group with a moderate effect size.

4.3.2. Comparison of Pre-Test and Post-Test Scores of the Experimental Group on OLSES

A Test of Normality was conducted in order to determine whether to run parametric or non-parametric tests regarding experimental group participants' pre-test and post-test scores on OLSES and the results were indicated as follows:

Table 50

Test of Normality results of the mean differences of pre-test and post-test scores of the experimental group on OLSES

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
Pre-test	.107	30	.200	.943	30	.113
Post-test	.136	30	.165	.918	30	.023

p>0.05

Based on Kolmogorov-Smirnov Test results, it was revealed that the mean scores are distributed normally. Therefore, a paired samples t-test was run, and the findings were shown as follows:

Table 51

Paired-samples t-test results of experimental group participants' pre-test and post-test scores on OLSES

Experimental	N	X	SD	df	t	p
Pre-test	30	3.54	.54	29	-4.765	.001*
Post-test	30	3.94	.43			

*p<.05

A paired-samples t-test was conducted to measure the effects of the treatment on experimental group participants' pre-test and post-test scores on OLSES and it was revealed that there is a statistically significant difference between their pre-test (M=3.54, SD=54) and post-test scores (M= 3.94, SD=.43), t(29)=-4.765, p<.005 in favor of the post-test scores.

4.3.3. Comparison of Control Group Participants' Pre-Test and Post-Test Scores on OLSES

Kolmogorov-Smirnov test results regarding the pre-test and post-test scores of the control group on OLSES were illustrated in *Table 52* as in the following:

Table 52

Test of Normality results regarding the pre-test and post-test of the control group on OLSES

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
Pre-test	.198	30	.004*	.849	30	.001
Post-test	.154	30	.067	.902	30	.009

*p<.05

Analyzing the results on the normality test, it was revealed that the scores are not distributed normally, therefore, a non-parametric test, Wilcoxon signed ranks test was

conducted for control group participants' pre-test and post-test scores and the results were indicated as follows:

Table 53

Wilcoxon signed ranks test results regarding control group participants' mean differences of pre-test and post-test scores on OLSES

	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks	16[a]	16.22	259.50	-.909[b]	.363
Positive Ranks	13[b]	13.50	175.50		
Ties	1[c]				
Total	30				

**Based on negative ranks, p>.05*

Based on the results on the Wilcoxon signed ranks test, it was revealed that control group participants' overall pre-test and post-test scores did not statistically differ from each other on OLSES. Furthermore, through the findings on rank scores, it was also shown that 16 of the participants have a lower score, 13 of them have a higher score and 1 of them has a similar score when compared to their pre-test scores.

Based on the overall findings, it is possible to conclude that gamification activities have a positive impact on participants' self-efficacy beliefs in online learning environments and turn it into an enjoyable process.

4.3.4. Qualitative Findings Regarding Participants' Pre-Test and Post-Test on OLSES

The quantitative data findings are also in line with the qualitative data collected from semi-structured interviews that could be suggested as follows:

"*I observed that some of our friends, who were hesitant in the classroom, expressed themselves better in the online environment. I think they are more comfortable asking their ideas or questions. In the beginning, there were problems such as how it will be and how the system will be. When it becomes more practical and commonplace over time, it becomes*

easier to learn, and gamification activities have made this process more fun." (Interviewee 7).

"In terms of online learning, I was more nervous at the beginning of the semester. I felt more comfortable with gamification activities. As I got used to it, I continued to play more comfortably with my experiences." (Interviewee 4).

"Of course, it did. These activities are extracurricular applications, and these applications are always nice and encouraging for students." (Interviewee 5).

"At first, I was hesitant to participate. In the next lessons, I started to warm up more. It made us feel more comfortable. As I participate in gamification activities, my desire to attend the lesson increases proportionally." (Interviewee 6).

4.3.5. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Gender Differences on OLSES

With the rise in the number of female learners in online learning environments as opposed to the earlier times which referred to a male-dominated period, gender differences regarding study groups have been regarded to be a crucial point in the literature over time (Yukselturk and Bulut, 2009). In line with this, gender differences of the study group were examined, and the results were indicated as follows:

Table 54

Test of Normality results regarding experimental group female and male participants' pre-test and post-test scores on OLSES

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.160	20	.195	.920	20	.101
Male Pre-test	.144	10	.200	.954	10	.715
Female Post-test	.173	20	.119	.909	20	.060
Male Post-test	.141	10	.200	.951	10	.685

p>.05

Based on Kolmogorov-Smirnov test results, it was found that female and male participants' pre-test and post-test scores are distributed normally. Therefore, independent-samples t-tests were run and the findings were illustrated on *Table 55* as follows:

Table 55

Independent samples t-test regarding the pre-test and post-test scores of the female and male participants of the experimental group on OLSES

Experimental	N	X	SD	df	t	p
Female pre-test	20	78.65	12.94	28	.474	.639
Male pre-test	10	76.40	10.67			
Female post-test	20	86.00	10.87	28	-.592	.559
Male post-test	10	88.20	6.06			

p>.05

Independent samples t-tests were conducted to analyze gender differences of the experimental group on OLSES and it was indicated that there is not a statistically significant difference between the pre-test scores of female (M=78.65, SD=12.94) and male learners (M=76.40, SD=10.67), t(28)=.474, p>.005. Furthermore, the findings indicated that there is not a statistically significant difference between female (M=86.00, SD=10.87) and male learners' (M=88.20, SD=6.06) post-test scores on OLSES t(28)=-.592, p>.005 as well.

4.3.6. Comparison of Control Group Participants' Pre-Test and Post-Test Scores Regarding Gender Differences on OLSES

Since each number of the females and males in the control group addresses below 30, Shapiro-Wilk test was conducted to reveal the normality distribution and the findings were indicated as follows:

Table 56

Test of Normality regarding the pre-test and post-test scores of female and male participants of the control group on OLSES

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.209	18	.037	.865	18	.015*
Male Pre-test	.241	12	.052	.802	12	.010*
Female Post-test	.196	18	.066	.888	18	.036*
Male Post-test	.166	12	.200	.886	12	.103

*p<.05

Test of Normality findings indicated that female and male learners' pre-test and post-test scores are not distributed normally. Within this regard, a Mann Whitney U test was run for each test and the results were indicated as follows:

Table 57

Mann Whitney U test results regarding control group female and male participants' pre-test and post-test scores on OLSES

Control	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Female pre-test	18	82.27	15.44	278.00	107.000	.966
Male pre-test	12	78.65	15.58	187.00		
Female post-test	18	79.72	15.22	274.00	103.000	.832
Male post-test	12	77.92	15.92	191.00		

p>.05

The findings indicated that there seems no statistically significant difference between the pre-test scores of the female and male learners of the control group on OLSES (U = 107.0, p >0.05). Similar results were also revealed in that there is no statistically significant difference regarding gender differences of the control group with reference to their post-test scores on OLSES (U=103.0, p>0.05). Therefore, it is possible to indicate that like the treatment group participants, female and male learners' perceptions of online learning self-efficacy in the control group did not vary across gender.

4.3.7. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Previous Experience with Web 2.0 Tools on OLSES

A Test of Normality was run for the pre-test and post-test scores of the experimental group to analyze the homogeneity level of the scores regarding participants' previous experiences with Web 2.0 tools on OLSES that could be illustrated as in the following:

Table 58

Test of Normality regarding pre-test and post-test scores of the experimental group on OLSES

Experimental		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	p	Statistic	N	p
Pre-test	Yes	.220	6	.200	.920	6	.504
	No	.121	24	.200	.950	24	.266
Post-test	Yes	.097	6	.200	.997	6	.999
	No	.159	24	.118	.909	24	.034*

*p<.05

As shown in *Table 58*, it was revealed that their pre-test scores are distributed normally, however, their post-test scores are not, and the results are indicated as follows:

Table 59

Independent samples t-test results of the pre-test scores of the experimental group regarding their previous experiences with Web 2.0 tools on OLSES

Experimental	N	X	SD	df	t	p
Yes	6	81.00	6.87	*28*	*.696*	*.492*
No	24	77.12	13.07			

p>.05

An independent samples t-test was conducted and it was revealed that there is not a statistically significant difference between the pre-test scores of the experimental group regarding their previous experiences with Web 2.0 tools on OLSES (M_{yes}=81.00, SD=6.87; M_{no}=77.12, SD=13.07), t(28)=.474, p>.005.

Table 60

Mann Whitney U test results of the post-test scores of the experimental group regarding their previous experiences with Web 2.0 tools on OLSES

Experimental	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Yes	6	93.00	21.42	128.50	36.50	.065
No	24	85.16	14.02	336.50		

p>.05

A non-parametric test was conducted, and the findings indicated that there does not appear a statistically significant difference on the post-test scores of the experimental group regarding their previous experiences with Web 2.0 tools on OLSES (U=36.50, p>0.05).

4.3.8 Comparison of Control Group Participants' Pre-Test and Post-Test Scores Regarding Their Previous Experiences with Web 2.0 Tools on OLSES

A Test of Normality was carried out to reveal the normality distribution of the scores and to determine a parametric or non-parametric test to use and the findings are indicated in *Table 61* as follows:

Table 61

Test of Normality results of control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on OLSES

Control		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	p	Statistic	N	p
Pre-test	Yes	.253	10	.069	.774	10	.007*
	No	.179	20	.094	.886	20	.023*
Post-test	Yes	.224	10	.167	.878	10	.123
	No	.162	20	.176	.907	20	.057

*p<.05

The results based on Shapiro-Wilk test indicated that participants' pre-test scores are not distributed normally. Therefore, a Mann-Whitney U test was run, and the results were revealed as follows:

Table 62

Mann Whitney U test results of control group participants' pre-test scores on OLSES

Control		N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Pre-test	Yes	10	82.70	16.30	163.00	92.00	.725
	No	20	79.20	15.10	302.00		

p>.05

The findings indicated that there is not a statistically significant difference between control group participants' pre-test scores on OLSES (U=92.00, p>.05). However, since the results indicated a normal distribution for their post-test scores, an independent samples t-test was run, and the findings were revealed as follows:

Table 63

Independent samples t-test results of control group participants' post-test scores on OLSES

Control	N	X	SD	df	t	p
Post-test Yes	10	80.90	20.42	28	.400	.692
No	20	78.05	17.34			

p>.05

As shown in the table, it was found out that there does not appear a statistically significant difference between participants' post-test scores on OLSES (M_{yes}=80.90, SD= 20.42; M_{no}=78.05, SD=17.34), t(28)=.400, p=.69.

4.4. Findings Regarding the 3rd Research Question

The data were analyzed based on the 3rd research question and the hypotheses that are indicated as follows:

$H0_7$: There will be no statistically significant difference between experimental and control group participants' pre-test and post-test scores in terms of their academic achievement.
$H1_7$: There will be a statistically significant difference between experimental and control group participants' pre-test and post-test scores in terms of their academic achievement.
$H0_8$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their academic achievement.

$H1_8$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their academic achievement.

$H0_9$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their academic achievement.

$H1_9$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their academic achievement.

$H0_{10}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{10}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{11}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H1_{11}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their gender differences.

$H0_{12}$: There will be no statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{12}$: There will be a statistically significant difference between experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H0_{13}$: There will be no statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

$H1_{13}$: There will be a statistically significant difference between control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools.

The 3rd Research Question:

3. What is the effect of gamification using Web 2.0 tools on EFL learners' academic achievement in online learning environments? (Related parts: 4.4.1, 4.4.2, 4.4.3)

3.1. What are EFL learners' views of gamification using Web 2.0 tools on their academic achievement in online learning environments? (Related part: 4.4.4)

3.2. Do EFL learners' perceptions of academic achievement change according to their gender? (Related parts: 4.4.5, 4.4.6)

3.3. Do EFL learners' perceptions of academic achievement change according to their previous experiences with Web 2.0 tools before? (Related parts: 4.4.7, 4.4.8)

4.4.1. Comparison of Participants' Pre-test and Post-Test Scores on the Achievement Test

In order to analyze the pre-test mean scores of both group participants on the Achievement Test, a Test of Normality was run and the results were indicated as follows:

Table 64

Test of Normality of the pre-test mean scores on the Achievement Test

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.166	30	.034*	.923	30	.031
Control	.209	30	.002*	.890	30	.005

*p<.05

As shown in *Table 64*, participants' pre-test mean scores are not distributed normally. Thus, a Mann Whitney U test was conducted, and the findings were indicated as follows:

Table 65

Mann Whitney U Test of the pre-test mean scores on the Achievement Test

Group	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Experimental	30	78.20	28.98	869.50	404.500	.498
Control	30	80.93	32.02	960.50		

p>.05

Mann Whitney U test results indicated that there is not a statistically significant difference between the pre-test scores of the experimental and control group participants on the Achievement Test (U=404.5, p>0.05). In line with the results, the null hypothesis with reference to the idea that there will be no statistically significant difference between the pre-test scores of the two groups on the Achievement Test was accepted and the alternative hypothesis addressing a statistically significant difference between the two was rejected. In order to analyze participants' post-test scores on the Achievement Test, a Test of Normality was applied, and the results were revealed as follows:

Table 66

Test of Normality regarding post-test scores of the groups on the Achievement Test

Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Experimental	.248	30	.000*	.858	30	.001
Control	.144	30	.115	.924	30	.034

*p<.05

The results revealed that the scores are not distributed normally which addresses running a non-parametric test. Hence, a Mann-Whitney U test was conducted, and the results were shown in *Table 67* as follows:

Table 67

Mann-Whitney U test of the groups' post-test scores on the Achievement Test

Group	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Experimental	30	84.66	33.90	1017.0	348.000	.129
Control	30	79.60	27.10	813.0		

p>.05

A Mann-Whitney U test was conducted, and the results revealed that there is no statistically significant difference between experimental and control groups regarding their post-test scores on the Achievement Test (U=348.00, p>0.05). However, analyzing the mean scores of each group, it is possible to suggest that the experimental group participants have a higher mean score than the control group participants on the Achievement Test.

4.4.2. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores on the Achievement Test

A Test of Normality was run to reveal the normality distribution of the pre-test and post-test scores of the experimental group on the Achievement Test and the findings were revealed as follows:

Table 68

Test of Normality results of the pre-test and post-test of the experimental group on the Achievement Test

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Pre-test	.166	30	.034*	.923	30	.031
Post-test	.248	30	.000*	.858	30	.001

*p<.05

Kolmogorov-Smirnov Test results indicated that there is not a normal distribution which addressed applying a non-parametric test and within this regard, a Wilcoxon signed ranks test was run, and the findings are shown in *Table 69* as follows:

Table 69

Wilcoxon signed ranks test regarding the mean differences of the pre-test and post-test scores of the experimental group on the Achievement Test

	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks	3[a]	15.17	45.50	-3.4788[b]	.001*
Positive Ranks	24[b]	13.85	332.50		
Ties	3[c]				
Total	30				

**Based on negative ranks, *p<.05*

The results indicated that there seems a statistically significant difference regarding the pre-test and post-test scores of the experimental group in favor of their post-test scores on the Achievement Test. Taking the participants' ranks scores into account, it was revealed that 24 of the participants have a higher score, 3 of them have a lower score and 3 of them have a similar score when compared to the pre-test scores.

4.4.3. Comparison of Control Group Participants' Pre-Test and Post-Test Scores on the Achievement Test

A Test of Normality was run in order to analyze the homogeneity level of the control group participants' pre-test and post-test scores on the Achievement Test and the findings are shown in *Table 70* as follows:

Table 70

Test of Normality results regarding control group participants' mean differences of pre-test and post-test scores on the Achievement Test

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Pre-test	.209	30	.002*	.890	30	.005
Post-test	.144	30	.115	.924	30	.034

*p<.05

Due to the fact that the results are not distributed normally, a non-parametric test, Wilcoxon signed ranks test was conducted, and the results were indicated as follows:

Table 71

Wilcoxon signed ranks test regarding the mean differences of the pre-test and post-test scores of the control group on the Achievement Test

	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks	16[a]	13.50	216.00	-1.038[b]	.299
Positive Ranks	10[b]	13.50	135.00		
Ties	4[c]				
Total	30				

p>.05

Based on the results, it was revealed that there is not a statistically significant difference between pre-test and post-test scores of the control group on the Achievement Test. Furthermore, it needs to be indicated that 16 of the participants have a lower score, 10 of them have a higher and 4 of them have a similar score regarding their pre-test scores.

4.4.4. Qualitative Findings Regarding Participants' Pre-Test and Post-Test Scores on the Achievement Test

The quantitative data findings are also in line with qualitative findings obtained through the semi-structured interview that are indicated as follows:

"Thanks for the gamification activities. The lesson becomes more fun. Since it is online education, we can get bored and drop out of the lesson, but with such activities, we can adapt to the lesson even more. Gamification activities help us remember words and spellings, make them memorable and make the lesson more efficient." (Interviewee 5).

"*Gamification activities enable the subject and words to take more place in our memory and reinforce the subjects and words. I think it helps a lot in this respect." (Interviewee 8).*

"I find gamification activities beneficial for success because games, entertainment, and competition are parts of life. I think follow-up activities have a reinforcing effect. In fact, to give an example, there are people I know who don't know English at all but only learn English by playing games. I believe that the most important thing while learning a language is to keep it alive in daily life. I think it is effective because games are also related to current life." (Interviewee 7).

Participants were also asked on their perceptions of leaderboards on the gamification activities with reference to their achievements and the findings are shown as follows:

"Leaderboards add pleasure because they create competition, even if it is small. You feel a little better. Of course, it feels good to see that you are in the first rows, on the top rows." (Interviewee 6).

"It creates a competitive environment. We could see that our friends whom we had never heard of were participating in the activities and I think it's nice. If one can do it, I feel like I can too. One day, people can try harder so that their names will appear on that

leaderboard, and in this way, they can start to show more interest in the lesson" (Interviewee 8).

"When I saw my name at the bottom of the list, there was a need to look at my mistakes. I saw that it was beneficial in that way" (Interviewee 10).

However, one of the participants in the semi-structured interview process indicated negative perception of the leaderboard as in the following:

"I think competition leads to loss of originality" (Interviewee 7).

With reference to academic achievement, participants of the study suggest that the treatment positively affects their language learning process.

4.4.5 Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Gender on the Achievement Test

A Test of Normality was run first for pre-test and post-test scores of the groups respectively in order to determine whether to conduct parametric or non-parametric tests and the findings were revealed as follows:

Table 72

Test of Normality regarding experimental group female and male participants' pre-test and post-test scores on the Achievement Test

Experimental	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.170	20	.132	.945	20	.293
Male Pre-test	.172	10	.200	.878	10	.122
Female Post-test	.268	20	.001	.892	20	.030*
Male post-test	.321	10	.004	.759	10	.005*

*p<.05

As shown in *Table 72*, it is possible to conclude that participants' pre-test mean scores are distributed normally. Therefore, an independent samples t-test was applied for each group and the findings were illustrated as in the following:

Table 73

Independent samples t-test regarding the pre-test scores of the female and male participants of the experimental group on the Achievement Test

Experimental	N	X	SD	df	t	p
Female	20	76.30	17.51	28	-.857	.595
Male	10	82.00	16.46			

p>.05

Based on the findings, it was revealed that there is not a statistically significant difference between female (M=76.30, SD=17.51) and male learners' (M=82.00, SD=16.46) overall scores on the Achievement Test t(28)=-.857, p=.595. However, as the p-values on the normality test indicated that participants' post-test scores are not distributed normally, a Mann Whitney U test was run, and the findings were revealed as follows:

Table 74

Mann Whitney U test regarding the post-test scores of the female and male participants of the experimental group on the Achievement Test

Experimental	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Female	20	83.40	14.13	282.50	72.50	.221
Male	10	87.20	18.25	182.50		

p>.05

A Mann Whitney U test was run in order to compare female and male learners' overall scores on the Achievement Test and the findings indicated no statistically significant difference between the two (U=72.50, p>0.05). Furthermore, the results of the present study indicated that male learners (M= 87.20) have higher scores when compared to females (M= 83.40) as well.

4.4.6. Comparison of Control Group Participants' Pre-Test and Post-Test Scores Regarding Gender on the Achievement Test

Test of Normality was run for pre-test and post-test scores of the control group in terms of gender differences on the Achievement Test and the results were revealed as follows:

Table 75

Test of Normality regarding control group female and male participants' pre-test and post-test scores on the Achievement Test

Control	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	p	Statistic	N	p
Female Pre-test	.205	18	.045	.868	18	.017*
Male Pre-test	.205	12	.173	.920	12	.285
Female Post-test	.189	18	.089	.842	18	.006*
Male Post-test	.151	12	.200*	.969	12	.897

*p<.05

Taking the p-value scores on Shapiro Wilk test into account, it was revealed that the scores are not distributed normally which addresses running a non-parametric test whose results are shown in *Table 76* as follows:

Table 76

Mann Whitney U test results regarding control group female and male participants' pre-test and post-test scores on the Achievement Test

Control	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Female pre-test	18	79.77	15.36	276.50	105.500	.915
Male pre-test	12	82.66	15.71	188.50		
Female post-test	18	81.33	16.92	304.50	82.50	.278
Male post-test	12	77.00	13.38	160.50		

p>.05

A Mann Whitney U test was applied, and the results indicated that there is not a statistically significant difference between female and male learners' overall pre-test scores on the Achievement Test (U=105.50, p>0.05). Similarly, the findings indicated no statistically significant difference between female and male participants' overall post-test scores (U= 82.50, p>0.05). Therefore, it is possible to conclude that gender differences showed similar results when compared to the overall mean scores of female and male students in the control group as well.

4.4.7. Comparison of Experimental Group Participants' Pre-Test and Post-Test Scores Regarding Their Previous Experiences with Web 2.0 Tools on the Achievement Test

Table 77

Test of Normality results regarding experimental group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on the Achievement Test

Experimental		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	p	Statistic	N	p
Pre-test	Yes	.191	6	.200	.893	6	.336
	No	.172	24	.063	.918	24	.052
Post-test	Yes	.243	6	.200	.840	6	.131
	No	.242	24	.001	.872	24	.006*

*p<.05

Tests of Normality were applied in order to analyze the homogeneity levels of participants' pre-test and post-test scores and the results indicated that their pre-test scores are distributed normally, however, their post-test scores are not. Therefore, both parametric and non-parametric tests were run, and the findings were revealed as follows:

Table 78

Independent samples t-test results regarding experimental group participants' pre-test scores in terms of their previous experiences with Web 2.0 tools on the Achievement Test

Group (Experimental)		N	X	SD	df	t	p
Pre-test	Yes	6	74.00	20.03	*28*	*-.666*	*.511*
	No	24	79.25	16.60			

p>.05

An independent samples t-test was conducted in order to reveal any statistically significant differences regarding the pre-test scores of the experimental group who answered as "yes" and "no". Based on the findings, it was revealed there is not a statistically significant difference regarding participants' pre-test scores (M_{yes}=74.00, SD=20.03; M_{no}=79.25, SD=16.60), t(28)=-.666, p=.51.

Table 79

Mann Whitney U test results on the post-test scores of the experimental group regarding their previous experiences with Web 2.0 tools on the Achievement Test

Group (Experimental)	N	Mean	Mean Rank	Sum of Ranks	M-Whitney U	p
Yes	6	80.67	13.42	80.50	59.50	.512
No	24	85.67	16.02	384.50		

p>.05

As shown in the *Table 79*, the results of Mann Whitney U test revealed no statistically significant difference with reference to experimental group participants' post-test scores on the Achievement Test (U=59.50, p>.05).

4.4.8. Comparison of Control Group Participants' Pre-Test and Post-Test Scores Regarding Their Previous Experiences with Web 2.0 Tools on the Achievement Test

Table 80

Test of Normality results regarding control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on the Achievement Test

Control		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	N	P	Statistic	N	P
Pre-test	Yes	.187	10	.200	.934	10	.487
	No	.156	20	.200	.933	20	.180
Post-test	Yes	.217	10	.199	.953	10	.709
	No	.124	20	.200	.933	20	.173

p>.05

The analyses indicated that participants' both pre-test and post-test scores are distributed normally. Therefore, independent samples t-tests were applied, and the findings were revealed as follows:

Table 81

Independent samples t-test results regarding control group participants' pre-test and post-test scores in terms of their previous experiences with Web 2.0 tools on the Achievement Test

Group (Control)		*N*	*X*	*SD*	*df*	*t*	*p*
Pre-test	Yes	10	89.20	6.54	*28*	*1.81*	*.085*
	No	20	76.80	17.96			
Post-Test	Yes	10	85.20	9.052	*28*	*1.45*	*.158*
	No	20	76.80	17.04			

p>.05

As a result of the findings, it is possible to suggest that there is not a statistically significant difference with reference to participants' pre-test scores (M_{yes}=89.20, SD= 6.54; M_{no}=76.80, SD=17.96), t(28)=1.81, p=.85. The results also indicated no statistically significant difference in terms of the post-test scores of the participants who answered as "yes" and those answered as "no" (M_{yes}=85.20, SD= 9.05; M_{no}=76.80, SD=17.04), t(28)=1.45, p=.158 as well.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1. Introduction

The current study investigated the effects of gamification on EFL learners' self-efficacy, motivation and academic achievement levels via selected Web 2.0 tools including *Kahoot!*, *Quizizz, Socrative* and *Mentimeter* in online learning environments. In this chapter, conclusion based on the research findings and implications will be revealed accordingly and finally, suggestions for further research studies will be presented.

5.2. Discussion and Conclusion

It is widely acknowledged that online learning is not a new trend. However, there are some challenges faced both by learners and instructors in online learning environments that mostly derive from motivational issues and with the sudden outbreak of the Covid-19 pandemic all over the world, online teaching and learning practices have been given much more importance. Therefore, differently from previous research studies whose main focus are mostly making a comparison between traditional classroom practices and online learning procedures, the current study aimed to explore the effects of gamification via Web 2.0 tools including *Kahoot, Socrative, Mentimeter* and *Quizizz* on EFL learners' motivation, learning self-efficacy and academic achievement levels in online learning environments through a quasi-experimental research design. Since the global pandemic has led to an emergent transition from traditional approaches to online learning platforms, learners' motivation for digital learning has been observed to be affected from both intrinsic and extrinsic aspects (Gustiani, 2020). Therefore, new ways of searching for innovative approaches occurred to overcome the threat for learners' high level of course drop-outs. Furthermore, it is widely accepted that the practices have been conducted during the pandemic will continue to be utilized during the post-pandemic period as well (Adams, 2020; Pichardo et al., 2021). In line with this perspective, it is suggested that the use of Web 2.0 tools in today's technology-driven world is important to facilitate the process to adapt new practices and approaches

(Yildirim and Gurleroğlu, 2022) since the utilization of Web 2.0 tools increases online collaborative learning (Chou and Chen, 2008).

5.2.1. Discussion and Conclusion Regarding the 1st Research Question

The findings regarding the 1st research question revealed that the treatment via Web 2.0 tools has a positive impact on the experimental group participants' post-test scores in terms of their motivation/course interest levels. Furthermore, the quantitative findings were closely aligned with the qualitative findings obtained through the semi-structured interview results. Bawa (2019) investigated the impact of Kahoot! activities on undergraduate learners' course engagement via a mixed-method research design and it was revealed that the treatment enhanced learners' course performance and engagement. Similarly, Licorish et al. (2017) conducted a research study with higher education learners in New Zealand and the findings indicated that Kahoot! activities facilitated a better engagement on learners' side and contributed to their learning experiences, motivation levels and classroom dynamics.

In another study, Li (2021) aimed to investigate the effects of game-based vocabulary learning on Chinese EFL learners' motivation, self-confidence and vocabulary achievement via a quasi-experimental research design and based on the findings, it was revealed that there appeared a statistically significant difference between two groups on behalf of the experimental group in their vocabulary learning motivation and self-confidence levels but not a statistically significant difference in their vocabulary learning achievement scores.

The quantitative findings were seen to be similar to those obtained from semi-structured interview results. The participants on the interview process were also asked on their perceptions of the effects of leaderboard, which is one of the most important game elements, on their course interest/motivation levels, and while some of them answered in a positive way, one expressed negative feeling for that. The findings were aligned with another research finding revealed by Pakinee and Puritat (2021) who aimed to explore the effects of learning outcome in a gamified and non-gamified course along with different personality types and as a result of the findings, it was revealed that leaderboard or competition is not effective on promoting the overall knowledge with reference to all personality types as each

one of the game elements has somewhat positive and negative influences on each learner's personality type.

The current study also investigated whether gender variable which is regarded to be controversial in terms of online learning outcomes (Yu, 2021) has an impact on learners' course interest/motivation levels in online learning environments based on the 2nd sub-question. The findings obtained through experimental group participants' pre-test and post-test scores revealed that female and male learners' course interest/motivation levels do not statistically differ from each other. The analysis process regarding the control group revealed similar results in that there does not seem a statistically significant difference between participants' pre-test scores regarding gender differences. However, it was found that there is a statistically significant difference between control group female and male participants' overall post-test scores on the behalf of the former one. Similar findings were also cited in the literature as well. In a research study, Lim and Kim (2003) aimed to investigate the effects of learner characteristics and motivation types in online learning settings and as a result of the findings, they concluded that gender variable affected participants' learning in favor of the females. Similarly, Tsay et al. (2018) who aimed to analyze the effects of student background, indicated that females took part in online activities significantly more than males. With reference to the findings, it needs to be also noted that both the experimental and control group participants are online learners.

Considering the 3rd sub-question in terms of participants' prior experiences with Web 2.0 tools before, it was concluded that there is not a statistically significant difference between participants' pre-test and post-test scores. Similarly, through the research findings, Bennett et al. (2012) indicate that although previous experiences of Web 2.0 technologies are claimed to be important for learners' intrinsic motivation and immediate use, in practice, it leads to few problems as most of the learners were seen to develop related skills quickly and value those skills as well. However, in a research study, Landers and Armstrong (2017) aimed to test a technology-enhanced gamification system and based on the results, they indicated that learners' prior experiences and their attitudes towards learning via game-based instruction influenced their motivation as well.

5.2.2. Discussion and Conclusion Regarding the 2nd Research Question

With reference to the findings of the 2nd research question on the effects of gamification via Web 2.0 tools on EFL learners' self-efficacy in online learning environments, it was revealed that there seems a statistically significant difference regarding the pre-test and post-test scores of the experimental and control groups in favor of the former group. The quantitative findings were also in line with the qualitative findings in that the participants addressed the positive impact of the treatment on their learning self-efficacy in online learning environments. In a study, Lee and Mendlinger (2011) aimed to analyze the effects of learners' perceived self-efficacy levels on their perceptions regarding the ease and usefulness of learning in an online environment and through the samples obtained from learners of online classes in Korea and the United States, it was revealed that there is a positive relationship between one's perceived self-efficacy and his/her perceptions of the ease and usefulness of online learning environments. In another research study which was conducted with 8 participants that were selected randomly from 73 college freshmen learners with mixed genders regarding their internet self-efficacy levels and online learning strategies based on comparisons and in-depth case studies, it was revealed that learners who have high internet self-efficacy levels had better performance on a web-based learning task and better information searching strategies when compared to those along with low internet-self-efficacy levels (Tsai and Tsai, 2003). Similarly, Wang and Wu (2008) aimed to analyze the role of self-efficacy and feedback in a web-based learning environment and based on the regression analysis regarding the role of self-efficacy on learning strategies, they concluded that learners with higher self-efficacy levels attempt to use more learning strategies including elaboration, rehearsal, and critical thinking skills. A research study which aimed to investigate learner characteristics in distance education platforms indicated that the learners had relatively positive self-efficacy beliefs of distance learning which were relevant to both their self-regulated skills and intrinsic motivation. Furthermore, it was revealed that learners' self-efficacy of distance learning, computing skills, and self-regulated learning skills are important indicators of students' attainments in distance education platforms (Zhang et al., 2001). In another research study, Alemayehu and Chen (2021) aimed to investigate the effects of learners' motivation, self-monitoring and self-efficacy on their learning engagement process in online learning environments along with 354 participants of different

years studying in Taiwan higher education institutions and as a result of the findings, they revealed a positive relationship among the variables.

In terms of the 2nd sub-question which aims to explore whether gender differs across groups, the findings indicated that there is not a statistically significant difference regarding experimental group participants' pre-test and post-test scores. Similarly, in a research study Jan (2015) aimed to analyze the relationships between computer self-efficacy, academic self-efficacy, previous online learning experience and satisfaction and whether they vary across age and gender. As a result of the findings, it was shown that there is no significant difference between the overall mean scores of females and males on computer self-efficacy. Furthermore, Holcomb et al. (2004) investigated the roles of technology self-efficacy, self-regulation, and distance-education self-efficacy on both graduate and undergraduate students' learning in distance education and the results indicated no statistically significant differences across gender. However, in another research study, Chang et al. (2014) aimed to explore whether learners' internet self-efficacy levels affect their learning performance and motivation along with 87 college learners enrolled in an online course and the results indicated that learners who had high level of perceived internet self-efficacy outperformed the others with low level on their final exam and the former group was seen to be more confident to complete the online course and significant differences were revealed based on gender variable in that while males had higher levels of perceived internet self-efficacy and confidence compared to females, the latter had higher level of discussion participation held online and their final exam scores as well.

In search of the 3rd sub-question the results indicated that there is not a statistically significant difference between both pre-test and post-test scores of the groups regarding their previous experiences with Web 2.0 technologies before. However, in a research study Alhassan (2017) aimed to analyze whether there is a relationship between teachers' self-efficacy levels in terms of the use of Web 2.0 tools and various demographic variables and the results indicated statistically significant relationship between their self-efficacy and previous experiences of educational technologies.

5.2.3. Discussion and Conclusion Regarding the 3rd Research Question

The current study also aimed to investigate whether gamification activities along with Web 2.0 tools affect EFL learners' academic achievement levels in online learning environments and the findings showed evidence that there is not a statistically significant difference between the groups as experimental and control. Nevertheless, the findings also revealed that the experimental group participants had higher mean scores compared to the control group on the Achievement test. Therefore, it is possible to conclude that the treatment affected learners' achievement scores in a positive way. It was also revealed that there does not seem a statistically significant difference regarding control group participants' pre-test and post-test scores in the Achievement Test and similar findings were also indicated in previous research studies. Glowacki et al. (2018) aimed to analyze the effects of gamification on English for Specific Purposes (ESP) higher education classes in Poland and Ukraine and based on the results, it was revealed that only 1 which accounts for 5% of the experimental group participants had a lower degree of achievement while there were 6 of them (29%) in the control group. Furthermore, the findings showed that while high level of achievement was performed by 5 (23%) learners in the experimental group after the treatment, there were only 2 (10%) participants of such level in that although there were 4 students in the high level on the pre-test, the number of the students decreased 2 in the post-test scores of the control group. Through a research study, Denny et al. (2018) investigated whether student activity with game elements mediates the relationship between learners' exam scores and gamification and the results indicated that the treatment group had higher scores. On the contrary, it was revealed that a higher level of students of the control group had lower exam scores.

Through an experimental research study which aimed to reveal the effectiveness of online learning on tenth-grade learners, it was revealed that the experimental group that was instructed in an online learning environment had a higher score on the achievement test than the control group of traditional face to face teaching (Baig, 2011). With reference to gamification and student achievement, Yildirim (2017) conducted a true experimental research study with 97 participants who studied at a state university in Türkiye in the 2014-2015 academic year, and through the findings obtained from pre-test and post-test scores, it

was revealed that the treatment via gamified teaching practices which lasted for 14 weeks in fall semester positively affected student achievement and their attitudes toward the lesson.

In a research study, it was aimed to explore the effects of a game-based SRS application, Kahoot!, on EFL learners studying at a vocational higher-education institute in Chile through a pretest-posttest quasi-experimental research design and the results indicated that the experimental group were highly positive for Kahoot! activities which also promoted a better academic performance for them (Cárdenas-Moncada et al., 2020).

Maesaroh et al. (2020) investigated the effects of Kahoot! and Socrative applications on high-interest and low-interest students' grammar achievement through an experimental research study with a 2x2 factorial design and the results indicated that both Kahoot! and Socrative are effective on grammar scores of learners with different interests and Kahoot! has a higher mean score than Socrative. However, in a research study Rachels and Rockinson-Szapkiw (2018) aimed to investigate the effects of a mobile gamification platform on learners' language achievement and academic self-efficacy through a quasi-experimental research design and they concluded that there was no significant difference in their language achievement and academic self-efficacy.

Through a quasi-experimental research design, Uz Bilgin and Gul (2020) aimed to analyze the effects of gamification including both online and face-to-face practices on learners' attitudes, group cohesion, and academic achievement and based on the scores obtained by the experimental group (N=44) and traditional/control group (N=48), it was found out that there appeared a significant difference between the experimental and control group on their academic achievement scores.

In another research study, it was aimed to reveal the findings obtained from two online gamified undergraduate courses held synchronously and it was concluded based on online surveys, participants' final scores and their correlations that gamification promoted learners' motivation to active participation into the courses and developed their academic performance levels (Rincon-Flores and Santos-Guevara, 2021).

However, a longitudinal study that lasted 16-weeks in a semester and investigated the effects of gamification on learners' intrinsic motivation, satisfaction, social comparison, effort, and academic performance revealed different results in that the experimental group students had less motivation and lower academic scores over time than the control group as it was indicated that students who are already intrinsically motivated for a material may be demotivated when there are efforts for gamifying the classroom (Hanus and Fox, 2015). The finding is also supported by Denny et al. (2018) in that external rewards seem to be complex with reference to intrinsic motivation as the rewards can support competence when it provides learners with positive feedback regarding their performance but can be demotivating if they are perceived by the learners as controlling factor which may in return decrease their intrinsic motivation.

Furthermore, the quantitative findings were in line with the qualitative findings based on the 1st sub-question. Similarly, Yıldırım and Şen (2021) explored the effects of gamification on student achievement through a meta-analysis process and as a result of the findings, it was indicated that it has a positive impact on student achievement with a moderate level. With reference to the 2nd sub-question, both experimental and control group participants' pre-test and post-test scores did not reveal statistically significant differences regarding gender variable. Kaya and Balta (2016) intended to explore undergraduate prep school students' attitudes towards Socrative and they concluded that it is useful for promoting learners' engagement without gender differences and it enables both instructors and learners to have an interactive atmosphere for English language classes. Similarly, through a research study, Nistor (2013) aimed to find out the stability of undergraduate learners' attitudes and participation in online courses and the results indicated that gender variable did not reveal a significant effect on learning outcomes as it was indicated that although female participants outperformed males in engagement process, male participants were more stable than females in attitudes.

Considering the 3rd sub-question, it was concluded that there is not a statistically significant difference regarding experimental and control group participants' previous experiences with Web 2.0 tools on the Achievement Test. Similarly, through a mixed-method research study Malhiwsky (2010) aimed to explore the effects of Web 2.0 tools on

learners' achievement and revealed that there was no statistically significant difference between pre-test and post-test scores of groups regarding previous/background knowledge.

5.3. Implications and Suggestions for Further Research

Since the current study aimed to explore the effects of gamification with Web 2.0 tools on EFL learners' motivation, learning self-efficacy and academic achievement levels in online learning environments along with two variables including gender and participants' previous experiences with Web 2.0 tools before, other variables such as mobile device preferences for online courses, perceived computer self-efficacy levels, previous experiences in online learning environments, frequency of computer use to learn English that were included in the Demographic Information Form could be the other sources of research for further studies. It needs to be noted that the study has some limitations regarding the sample size as the data were collected from 60 1st year undergraduate learners studying at Balıkesir University, Faculty of Science and Letters. Therefore, the findings of the present study may not be generalizable to other learners studying at different institutions, education levels or contexts. In line with this, researchers can create a large-scale online learning experience with other Web 2.0 tools and the effects of each Web 2.0 tool could also be explored in other research studies as well.

Although the present study has some limitations as mentioned above, it is possible to reveal several implications especially in today's digital age as nowadays anybody could reach information from anywhere and individuals need to be adaptable to the changing constructions that occur every day. Therefore, it is suggested that various levels of educational institutions should enable their learners to have interactive learning settings to arouse motivation and course interest in them for a more dynamic course engagement process as gamification is a design that could be applied to various levels of instruction from primary school to higher education level (Yıldırım and Şen, 2021). From this perspective, the present study is believed to give insights into the field in that it suggests an alternative way regarding the gamified instruction via Web 2.0 tools in online learning environments and is believed to possibly decrease learners' course drop-outs on those platforms accordingly.

It is acknowledged by many that the practices or methods utilized during the Covid-19 pandemic regarding online learning environments will continue to reshape and affect the instructional methods or techniques in terms of an educational reform in the post-pandemic period as well (Tartavulea et al., 2020; Robson et al., 2022). Within this regard, based on the decision included in "*Procedures and Principles Regarding Distance Education in Higher Education Institution*" by the Council of Higher Education (CoHE), the instruction regarding the courses acknowledged in Article 5-i including Compulsory Foreign Language which requires all of the 1st year undergraduate students learning English as a foreign language and a maximum of 40% of the courses in other programs in higher education institutions could be delivered via both formal and online practices. Therefore, the current study which was conducted in online learning environments and whose participants as experimental and control group are both online learners, reveals empirical findings regarding the positive impact of the gamification via Web 2.0 tools in those settings.

Since the rapid transition from traditional practices to online platforms mostly during the global pandemic has led to tremendous changes in our daily lives and educational practices accordingly, many instructors have tended to use direct transmission for their online courses without making significant changes in terms of their teaching practices due to having limited knowledge in online learning environments (Başal and Eryılmaz, 2021). However, Köksal (2004) emphasizes that it is crucial that language teachers be conscious of the latest and greatest equipment and knowledgeable about what is appropriate and applicable in any teaching situation and within this regard, Cesur (2021) suggests that if the technological tools to be used in online foreign language instruction become easier, more meaningful and enjoyable, they will have a positive impact on the process. Therefore, prospective teachers could be provided new applications and methods to be used in educational institutions via elective courses in English Language Teacher Education Programs and technology teaching courses could also be designed for instructors/teachers working with different levels of education. Furthermore, the reflections of the global pandemic on educational processes requires benefiting from Web 2.0 tools for educators to develop course materials and instructional content as well (Kul et al., 2022). Besides, with reference to the CIS survey used in the study and the sub-titles including attention, relevance, confidence, and satisfaction, it is revealed by Izmirli and Izmirli (2015) through a research study that if the related dimensions are considered while designing the courses in online

learning environments, learners' course interest/performance and motivation will increase. Therefore, the present study also reveals online practices that could be used by instructors/educators in design of the courses in online learning environments. Furthermore, in-service training programs, seminars and sessions regarding online platforms could be organized for educators/teachers/instructors of all educational levels, faculty members and other stakeholders in order to promote learners' course interest/motivation and self-efficacy levels and to increase their academic achievement as well. Since without having professional development, in-service teachers may believe that integrating Web 2.0 tools into teaching and learning practice seems difficult which addresses the need for an ongoing in-service training process for the use of modern technologies, specifically Web 2.0 tools (Alhassan, 2017). Besides, as a result of the advances in technology, Web 2.0 tools could also be used in assessment and evaluation process in foreign language teaching and learning settings and necessary updated changes may be conducted for curriculum contents regarding the use of technology and decision makers may consider the best practices or examples to implement the tools for necessary adjustments accordingly (Orava and Worrall, 2011). From another perspective, Tasir and Al-Dheleai (2019) suggest that as participants feel themselves disconnected from others in online learning settings, their social presence could be promoted by more interactive and collaborative learning opportunities supported with Web 2.0 tools in online learning environments.

Since the participants of the present study are freshmen undergraduate EFL learners, the study has some implications for learners in that they should be provided with more online practices to arouse interest in online learning environments. Therefore, more effective online courses could be designed for online learners and educational institutions should provide ways of maximizing the interactive and effective use of gamified activities with Web 2.0 tools in online learning platforms accordingly.

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APPENDICES

APPENDIX 1

EXPERT EVALUATION FORM

Dear Expert,

This form was designed to reveal EFL learners' academic achievement scores based on the study regarding the impact of gamification via Web 2.0 tools including *Kahoot!, Socrative, Quizizz, and Mentimeter* on EFL learners' academic achievement, learning self-efficacy and motivation in online learning environments. Please choose the alternative for each question based on the criteria whether the question is relevant to be used in an achievement test which was formed through 5 Likert scale as follows:

1: Not relevant
2: Slightly relevant
3: Moderately relevant
4: Mostly relevant
5: Very relevant

In case you have any further questions, please contact me at e-mail.

Thank you very much.

Tuba TEMEL
Balıkesir University, School of Foreign Languages

ACHIEVEMENT TEST	1	2	3	4	5
1. ……. were a lot of people at the concert last night. a) Them b) They c) There d) Their					
2.The weather is rainy, ……. an umbrella with you. a) take b) do c) make d) tell					
3. Sally: …… do you go to the theatre? Tom: Once a month. a) How much b) How often c) How many d) How					

4. He is a/an ……. boy. He always makes jokes. a) busy b) shy c) angry d) funny					
5. A: What's …… city in Turkey? B: It's Istanbul. a) crowdest b) the crowdest c) the crowd d) crowd					
6. The baby is sleeping at the moment. Please turn …… the TV. a) of b) in c) off d) at					
7. Jenny is very unhappy now, …… she has lost her favourite pen. a) because b) however c) so d) and					
8…….. I was walking on the street, I came across with an old classmate. a) Which b) What c) Where d) While					
9. The coffee was …… hot that I could not drink. a) such b) so c) but d) much					
10. I am very busy. I …….. on a project these days. a) working b) am working c) worked d) work					
11. I want to buy a new bike but I don't have …… money. a) little b) many c) enough d) few					
12. A: I'm worried about my exams this week. B: You …… study hard. a) did b) can't c) don't have to d) should					
13. I always …….. to school on time but I ……. late today. a) am/go b) going/am not c) goes/am d) go/am					
14. She is very talented. She …….. draw nice pictures. a) can't b) doesn't have to c) can d) mustn't					
15. A: …… is that boy over there? B: He is a friend of mine. a) Who b) What c) Where d) When					
16. Those are my notebooks. Could you please give ……. to ……..? a) them/my b) their/me c) theirs/I d) them/me					
17. There is …… milk left in the refrigerator. We need to go shopping. a) much b) little c) many d) few					

18. …… any eggs to make a cake? a) Are there b) Is there c) There is d) There are					
19. Jack wasn't at school yesterday …….. he was ill. a) but b) so c) because d) and					
20. I go to the cinema once a month. I …….. go to the cinema. a) always b) never c) rarely d) usually					
21. What kind of films do you ……. watching? a) hear b) listen c) turn d) prefer					
22. Tim …… reading historical books. a) loves b) watches c) does d) sees					
23.I don't get on the bus. I …… to the school. a) am always walk b) always walk c) walk always d) don't always					
24.I am 1.60 and my brother is 1.72. He is …….. than me. a) taller b) shorter c) older d) smaller					
25. A: What do you do at weekends? B: I usually …… with my friends and spend some time with ……. a) am going out/their b) go out/their c) go out/them d) am going out/them					

APPENDIX 2

ACHIEVEMENT TEST QUESTIONS

Name-Surname: *30 minutes*

Choose the best answer.

1. ……. were a lot of people at the concert last night.

a) Them b) They c) There d) Their

2.The weather is rainy, ……. an umbrella with you.

a) take b) do c) make d) tell

3. Sally: …… do you go to the theatre? Tom: Once a month.

a) How much b) How often c) How many d) How

4. He is a/an ……. boy. He always makes jokes.

a) busy b) shy c) angry d) funny

5. A: What's …… city in Turkey? B: It's Istanbul.

a) crowdest b) the crowdest c) crowd d) the crowd

6. The baby is sleeping at the moment. Please turn …… the TV.

a) of b) in c) off d) at

7. Jenny is very unhappy now, …… she has lost her favourite pen.

a) because b) however c) so d) and

8…….. I was walking on the street, I came across an old classmate.

a) Which b) What c) Where d) While

9. The coffee was …… hot that I could not drink.

a) such b) so c) but d) much

10. I am very busy. I …….. on a project these days.

a) am working b) working c) worked d) work

11. I want to buy a new bike but I don't have …… money.

a) little b) many c) enough d) few

12. A: I'm worried about my exams this week. B: You …… study hard.

a) did b) can't c) don't have to d) should

13. I always …….. to school on time but I ……. late today.

a) am/go b) go/am c) goes/am d) going/am not

14. She is very talented. She …….. draw nice pictures.

a) doesn't have to b) can't c) can d) mustn't

15. A: …… is that boy over there? B: He is a friend of mine.

a) Who b) What c) Where d) When

16. Those are my notebooks. Could you please give ……. to ……..?

a) them/my b) their/me c) theirs/I d) them/me

17. There is …… milk left in the refrigerator. We need to go shopping.

a) much b) little c) many d) few

18. …… any eggs to make a cake?

a) Are there b) Is there c) There is d) There are

19. Jack wasn't at school yesterday …….. he was ill.

a) but b) so c) because d) and

20. I go to the cinema once a month. I …….. go to the cinema.

a) always b) never c) rarely d) usually

21. What kind of films do you ……. watching?

a) hear b) listen c) turn d) prefer

22. Tim …… reading historical books.

a) loves b) watches c) does d) sees

23.I don't get on the bus. I …… to the school.

a) am always walk b) always walk c) walk always d) don't always

24.I am 1.60 and my brother is 1.72. He is …….. than me.

a) taller b) shorter c) older d) smaller

25. A: What do you do at weekends?

B: I usually …… with my friends and spend some time with …….

a) am going out/their b) go out/their c) go out/them d) am going out/them

Thank you!

APPENDIX 3

DEMOGRAPHIC INFORMATION FORM

Dear Participant,

This form was designed to find out participants' demographic information based on the study regarding the effects of gamification with Web 2.0 tools including *Kahoot!*, *Socrative*, *Quizlet*, and *Mentimeter* on EFL learners' academic achievement, learning self-efficacy and motivation in online learning environments. Participation is voluntary in the study. Please answer the following questions or choose the best option for you.

If you have any further questions, please contact me at e-mail.

Thank you very much for your voluntary participation.

Tuba TEMEL
Balıkesir University
School of Foreign Languages

1.Gender: ☐ Female ☐ Male

2.Age:

3.Department:

4.How long have you been learning English as a Foreign Language (in years)? ……..

(Ne kadar süredir Yabancı Dil olarak İngilizce öğreniyorsunuz (yıl)?

5.Do you have a computer or mobile device with internet access? Yes ☐ No ☐

(İnternet erişimi olan bir bilgisayarınız veya mobil cihazınız var mı?)

6. How do you rate your English language proficiency level?

(İngilizce dil yeterlilik seviyenizi nasıl değerlendirirsiniz?)

☐ A1(Beginner) ☐ A2 (Elementary) ☐ B1(Intermediate)

7. Have you had any experience in online learning environments before? Yes ☐ No ☐

(Daha önce çevrimiçi öğrenme ortamlarında herhangi bir deneyiminiz oldu mu?)

8.How often do you use technology for learning English?

(İngilizce öğrenmek için teknolojiyi ne sıklıkla kullanıyorsunuz?)

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

9.Do you like playing mobile games to learn English? ☐ Yes ☐ No

(İngilizce öğrenmek için mobil oyunlar oynamayı sever misiniz?)

10. How would you rate your perceived proficiency level in using computers?

(Bilgisayar kullanmadaki algılanan yeterlilik düzeyinizi nasıl değerlendirirsiniz?)

☐ Low ☐ Medium ☐ High

11. Have you ever had any experience with Web 2.0 tools including *Kahoot!, Socrative, Quizizz* and *Mentimeter*? Yes No

(Kahoot!, Socrative, Quizizz ve Mentimeter gibi Web 2.0 araçlarıyla deneyiminiz oldu mu?)

If yes, please specify: …….

12. How do you rate your motivation level in learning English?

(İngilizce öğrenirken motivasyon seviyenizi nasıl değerlendirirsiniz?)

☐ Low ☐ Medium ☐ High

APPENDIX 4

ONLINE LEARNING SELF-EFFICACY SCALE

1: I completely disagree 2: I disagree 3: I am undecided 4: I agree 5: I completely agree

	Items					
1	Navigate online course materials efficiently *(Çevrimiçi kurs materyalleri arasında etkili şekilde gezinebilirim)*	1	2	3	4	5
2	Find the course syllabus online *(Ders içeriğini online bulabilirim)*	1	2	3	4	5
3	Communicate effectively with my instructor via e-mail *(Eğitmenimle e-posta yoluyla etkili iletişim kurarım)*	1	2	3	4	5
4	Communicate effectively with technical support via e-mail, telephone, or live online chat *(E-posta, telefon veya canlı çevrimiçi sohbet aracılığıyla, teknik destekle etkin bir biçimde iletişim kurabilirim)*	1	2	3	4	5
5	Submit assignments to an online drop box *(Ödevleri bir online depolama alanına gönderebilirim)*	1	2	3	4	5
6	Overcome technical difficulties on my own *(Teknik zorlukların üstesinden kendi kendime gelebilirim)*	1	2	3	4	5
7	Navigate the online grade book *(Çevrimiçi notlarda gezinebilirim)*	1	2	3	4	5
8	Manage time effectively *(Zamanı verimli şekilde kullanabilirim)*	1	2	3	4	5
9	Complete all assignments on time *(Tüm ödevleri vaktinde tamamlayabilirim)*	1	2	3	4	5
10	Learn to use a new type of technology efficiently *(Yeni bir teknolojiyi verimli bir biçimde kullanmayı öğrenebilirim)*	1	2	3	4	5

11	Learn without being in the same room as the instructor *(Öğretim elemanıyla aynı sınıf ortamında bulunmadan öğrenebilirim)*	1	2	3	4	5
12	Learn without being in the same room as other students *(Diğer öğrencilerle aynı sınıf ortamında bulunmadan öğrenebilirim)*	1	2	3	4	5
13	Search the Internet to find the answer to a course-related question *(Dersle ilgili bir sorunun cevabını bulabilmek için internette arama yapabilirim)*	1	2	3	4	5
14	Search the online course materials *(Çevrimiçi ders materyallerini arayabilirim)*	1	2	3	4	5
15	Communicate using asynchronous technologies (discussion boards, e-mail, etc.) *(Eşzamansız teknolojileri (tartışma panoları, e-posta) kullanarak iletişim kurabilirim)*	1	2	3	4	5
16	Meet deadlines with very few reminders *(Çok az hatırlatıcıyla online ödevlerin son teslim zamanına uyabilirim)*	1	2	3	4	5
17	Complete a group project entirely online *(Bir grup projesini tamamen online tamamlayabilirim)*	1	2	3	4	5
18	Use synchronous technology to communicate with others (such as Skype) *(Başkalarıyla iletişim kurmak için senkronize (Skype gibi) teknolojiyi kullanabilirim)*	1	2	3	4	5
19	Focus on schoolwork when faced with distractions *(Dikkat dağıtıcı şeylerle karşılaşıldığında okul çalışmalarına odaklanabilirim)*	1	2	3	4	5
20	Develop and follow a plan for completing all required work on time *(Gerekli tüm çalışmaları zamanında tamamlamak için bir plan geliştirebilirim ve uygulayabilirim)*	1	2	3	4	5
21	Use the library's online resources efficiently *(Kütüphaneye ait çevrimiçi kaynakları verimli bir biçimde kullanabilirim)*	1	2	3	4	5
22	When a problem arises, promptly ask questions in the appropriate forum (e-mail, discussion board, etc.) *(Bir sorun ortaya çıktığında, hemen uygun forumda (e-posta, tartışma panosu vb.) sorular sorabilirim)*	1	2	3	4	5

APPENDIX 5

COURSE INTEREST SURVEY

1 = Not true 2 = Slightly true 3 = Moderately true 4 = Mostly true 5 = Very true

	Items					
1	The instructor knows how to make us feel enthusiastic about the subject matter of this course. *(Öğretim elemanı bu dersin konusu hakkında bizi nasıl heyecanlandıracağını bilir)*	1	2	3	4	5
2	The things I am learning in this course will be useful to me *(Bu kursta öğrendiğim şeyler benim için faydalı olacak)*	1	2	3	4	5
3	I feel confident that I will do well in this course. *(Bu derste başarılı olacağımdan eminim.)*	1	2	3	4	5
4	This class has very little in it that captures my attention. *(Bu sınıfta dikkatimi çeken çok az şey var.)*	1	2	3	4	5
5	The instructor makes the subject matter of this course seem important. *(Eğitmen bu dersin konusunu önemli olarak gösterir)*	1	2	3	4	5
6	You have to be lucky to get good grades in this course. *(Bu dersten iyi notlar almak için şanslı olmalısınız.)*	1	2	3	4	5
7	I have to work too hard to succeed in this course. *(Bu derste başarılı olmak için çok çalışmam gerekiyor)*	1	2	3	4	5
8	I do NOT see how the content of this course relates to anything I already know. *(Bu dersin içeriğinin zaten bildiğim herhangi bir şeyle nasıl ilişkili olduğunu göremiyorum)*	1	2	3	4	5
9	Whether or not I succeed in this course is up to me. *(Bu derste başarılı olmak yada olmamak bana bağlıdır.)*	1	2	3	4	5

10	The instructor creates suspense when building up to a point. *(Eğitmen bir noktaya kadar gerilim yaratır.)*	1	2	3	4	5
11	The subject matter of this course is just too difficult for me. *(Bu dersin konusu bana göre çok zor.)*	1	2	3	4	5
12	I feel that this course gives me a lot of satisfaction. *(Bu kursun bana çok zevk verdiğini hissediyorum.)*	1	2	3	4	5
13	In this class, I try to set and achieve high standards of excellence. *(Bu sınıfta, yüksek mükemmellik standartları belirlemeye ve bunlara ulaşmaya çalışıyorum.)*	1	2	3	4	5
14	I feel that the grades or other recognition I receive are fair compared to other students. *(Aldığım notların veya diğer takdirlerin diğer öğrencilere kıyasla adil olduğunu hissediyorum.)*	1	2	3	4	5
15	The students in this class seem curious about the subject matter. *(Bu sınıftaki öğrenciler konulara ilgili görünüyorlar.)*	1	2	3	4	5
16	I enjoy working for this course. *(Bu dersten keyif alıyorum).*	1	2	3	4	5
17	It is difficult to predict what grade the instructor will give my assignments. *(Öğretim elemanının ödevlerime hangi notu vereceğini tahmin etmek zor.)*	1	2	3	4	5
18	I am pleased with the instructor's evaluations of my work compared to how well I think I have done. *(Ne kadar iyi yaptığımı düşündüğüme kıyasla, eğitmenin çalışmalarımı değerlendirmesinden memnunum.)*	1	2	3	4	5
19	I feel satisfied with what I am getting from this course *(Bu kurstan elde ettiklerimden memnunum).*	1	2	3	4	5
20	The content of this course relates to my expectations and goals *(Bu kursun içeriği beklentilerim ve hedeflerim ile ilgilidir).*	1	2	3	4	5
21	The instructor does unusual or surprising things that are interesting *(Eğitmen ilginç olan alışılmadık veya şaşırtıcı şeyler yapar)*	1	2	3	4	5
22	The students actively participate in this class *(Öğrenciler bu derse aktif olarak katılırlar).*	1	2	3	4	5

23	To accomplish my goals, it is important that I do well in this course *(Hedeflerime ulaşabilmek için bu derste başarılı olmam önemlidir).*	1	2	3	4	5
24	The instructor uses an interesting variety of teaching techniques *(Eğitmen ilginç çeşitli öğretim teknikleri kullanır)*	1	2	3	4	5
25	I do NOT think I will benefit much from this course *(Bu dersten pek fayda göreceğimi zannetmiyorum)*	1	2	3	4	5
26	I often daydream while in this class *(Bu derste sıklıkla hayal kurarım).*	1	2	3	4	5
27	As I am taking this class, I believe that I can succeed if I try hard enough *(Bu dersi aldığım için yeterince denersem başarılı olabileceğime inanıyorum).*	1	2	3	4	5
28	The personal benefits of this course are clear to me *(Bu kursun kişisel faydaları benim için açıktır)*	1	2	3	4	5
29	My curiosity is often stimulated by the questions asked or the problems given on the subject matter *(Merakım genellikle sorulan sorular veya konuyla ilgili verilen problemler tarafından teşvik edilir.)*	1	2	3	4	5
30	I find the challenge level in this course to be about right: neither too easy not too hard. *(Bu kurstaki zorluk seviyesini aşağı yukarı doğru buluyorum: ne çok kolay ne çok zor.)*	1	2	3	4	5
31	I feel rather disappointed with this course. *(Bu dersle ilgili hayal kırıklığı hissediyorum.)*	1	2	3	4	5
32	I feel that I get enough recognition of my work in this course by means of grades, comments, or other feedback *(Notlar, yorumlar veya diğer geri bildirimler aracılığıyla bu kurstaki çalışmalarım hakkında yeterince takdir aldığımı hissediyorum.)*	1	2	3	4	5
33	The amount of work I have to do is appropriate for this type of course. *(Yapmam gereken iş miktarı bu tür bir kurs için uygundur.)*	1	2	3	4	5
34	I get enough feedback to know how well I am doing *(Ne kadar iyi yaptığımı bilmeye yetecek kadar geri bildirim alıyorum).*	1	2	3	4	5

APPENDIX 6

INTERVIEW FORM

This study aims to analyze the Effects of Gamification with Web 2.0 tools on EFL Learners' Academic Achievement, Motivation and Learning Self-Efficacy in Online Learning Environments. Participation is voluntary in the study. Your names will be kept anonymously, and the interview process will be recorded.

If you have any further questions, please contact me at e-mail

Lec. Tuba TEMEL
Balıkesir University
School of Foreign Languages

Name and Surname: ……

Gender: Female Male

Interview Date and Place: ……..

Interviewer: ……

Interview Questions:

1. Did gamification activities have an impact on the language learning process? In what ways do you think it has an impact?
2. Did gamification activities have an impact on your motivation? In what ways do you think it has an impact?
3. Did gamification activities have an impact on your academic achievement? In what ways do you think it has an impact?
4. Did you experience any problems during the gamification activities? If yes, could you please specify?
5. Which gamification activity do you think is more effective/useful? Why?
6. What do you think about leaderboards in the gamification activities?
7. Did gamification activities have an impact on your learning self-efficacy in online learning environments? In what ways do you think it has an impact?
8. Is there anything you would like to add? If yes, could you please specify?

APPENDIX 7

COURSE PLAN USING *KAHOOT!*

Course Description
Course: Foreign Language
Topic: Present Perfect Tense and Simple Past Tense
Level: Freshmen Students
Length: 90 minutes

Learning Outcomes
At the end of the course, the leaners will be able to:
Recognize how to form Present Perfect Tense sentence structure
Make a comparison between Present Perfect Tense and Simple Past Tense
Practice on the differences between Present Perfect Tense and Simple Past Tense

Course Materials

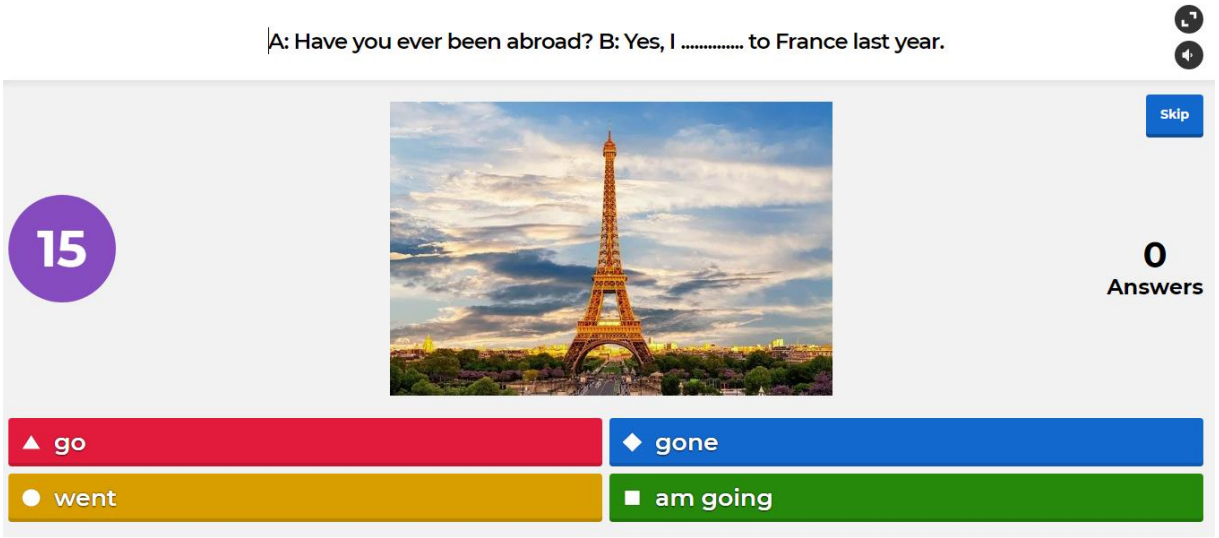
- PowerPoint slides
- Quiz Activity on Kahoot! Platform (Screenshots are given below)

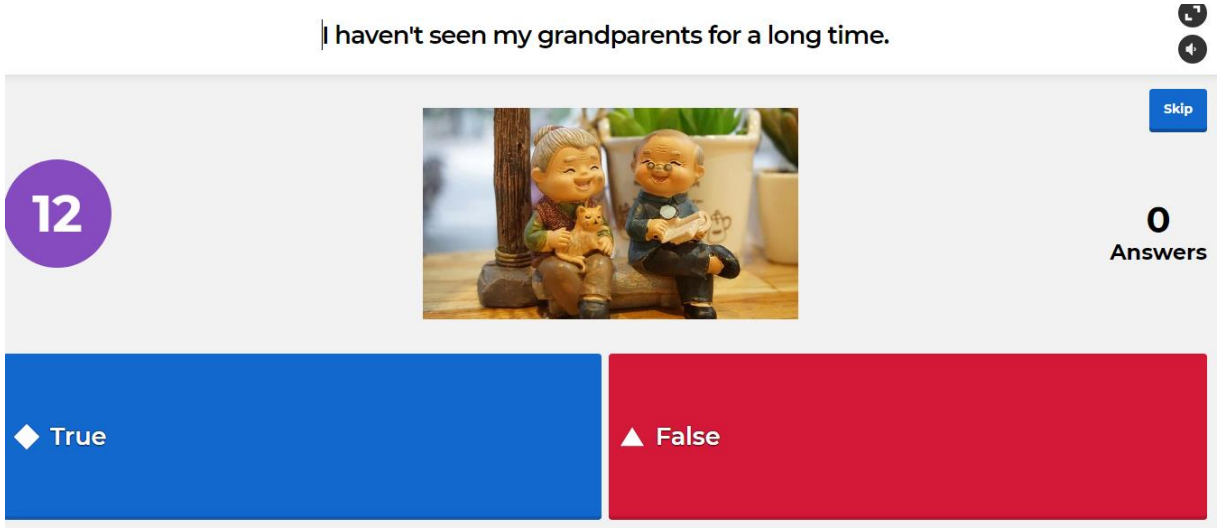
Kahoot! Activity Plan

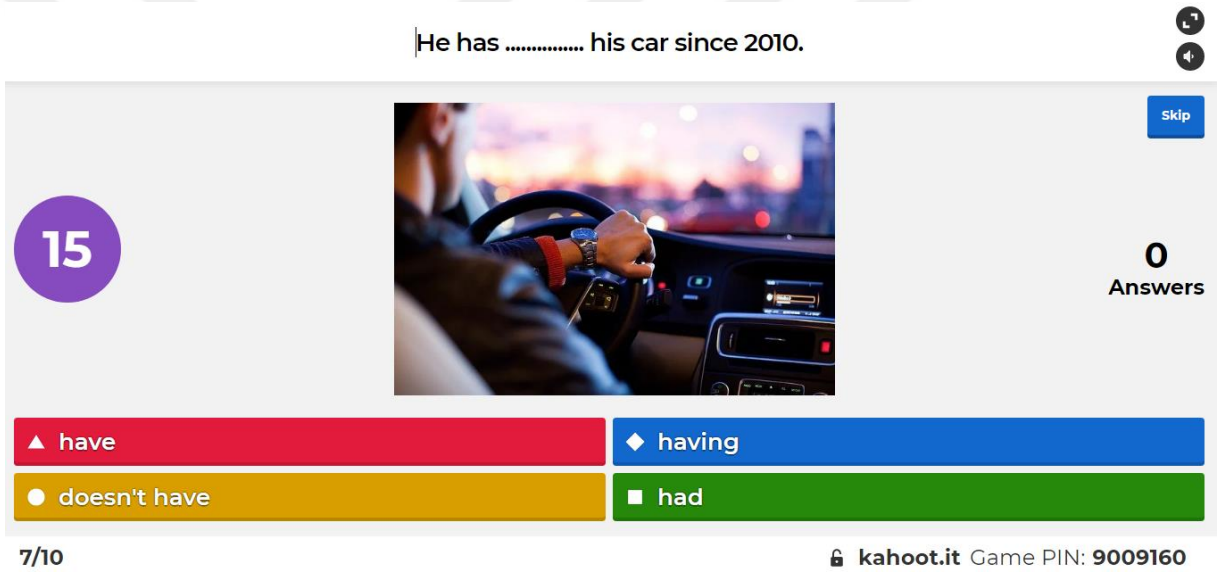
Course Stage	**Description**	**Material**
Introduction	Brainstorming on the previous week course topic: Present Perfect Tense	Questions and Answers
Presentation	Lecturer's presentations on making a compare and contrast between Present Perfect Tense and Simple Past Tense	PowerPoint presentation
Practice (*Kahoot!* Activity)	Students are informed about Kahoot! platform and how to access to it and the game pin is shared Students are asked to give answers using their mobile devices (mobile phones or laptops etc.) as clickers	*Kahoot!* Activity

	Kahoot! Quiz Activity on how to differentiate between Present Perfect Tense and Simple Past Tense The students follow the activity through the researcher's screen sharing on Microsoft Teams platform The lecturer stops at each question, makes a discussion with students on true answer and shares the leaderboard with them	
Production	Students are asked to confirm feedback on *Kahoot!* platform! at the end of the activity	
Presentation	Assignment on how to compare and contrast Present Perfect Tense and Simple Past Tense	PowerPoint Presentation

Kahoot! Quiz Screenshots on Present Perfect and Past Simple Course Sample







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APPENDIX 8

QUIZIZZ ACTIVITY

QUIZIZZ

Grammar 2

10 Questions

NAME : _____

CLASS : _____

DATE : _____

1. 

A: Did you ..... the match yesterday?B: No. I ..... my favourite movie.

☐ a) watched/watches

☐ b) watch/watched

☐ c) watched/watch

☐ d) watch/watching

2. 

He is interested in many sport types and he is very good at ..... classes.

☐ a) religion

☐ b) art

☐ c) science

☐ d) physical education

3. 

A: Where .....you go on your last vacation?B: I went to İzmir with my friends.

☐ a) did
☐ b) do
☐ c) does
☐ d) are

4. 

I.....some milk last night to sleep better.

☐ a) drink
☐ b) drank
☐ c) drinked
☐ d) drinking

5. 

I.....talk to the secretary about the meeting details tomorrow.

☐ a) am
☐ b) don't
☐ c) will
☐ d) didn't

6. 

Look! He is driving very fast. He .....have an accident.

☐ a) did
☐ b) is
☐ c) does
☐ d) is going to

7. 

I have my ticket. I..... to Antalya tomorrow morning to visit my grandparents.

☐ a) went
☐ b) didn't
☐ c) am going
☐ d) will

8. 

Children like to give gifts to their mums on ..... and it is celebrated..... May.

☐ a) Mother's Day/in
☐ b) New Year's Eve/in
☐ c) Earth Day/on
☐ d) Mother's Day/on

9. 

..... I go to bed, I read some books every night. It's my favourite daily routine.

☐ a) After
☐ b) Before
☐ c) Because
☐ d) That

10. 

I drink some coffee .....I have my breakfast to have more energy.

☐ a) but ☐ b) so

☐ c) after ☐ d) for

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APPENDIX 9

SOCRATIVE

socrative

Name _____
Date _____

Activity 2

Score _____

1. 1. You don't seem well. You ..... see a doctor.

(A) don't have to
(B) shouldn't
(C) should
(D) has to

2. Sorry, I cannot come with you now. I ..... my homework yet.

(A) haven't finished
(B) have finished
(C) finished
(D) finish

3. What is ..... food you have ever eaten?

(A) most delicious
(B) the most delicious
(C) more delicious
(D) the more delicious

4. I would like ..... English much better.

(A) learned
(B) learning
(C) learn
(D) to learn

5. If you ..... hard, you ..... pass your exam.

(A) will/study

(B) study/would

(C) study/will

(D) studied/will

6. You need to tidy your room ..... you leave.

(A) after

(B) before

(C) ago

(D) since

7. What ..... you do if you won the lottery?

(A) would

(B) will

(C) may

(D) can

8. A: Mum, did you ..... my favourite T-shirt?
B:Yes, I ..... it in the living room two hours ago.

(A) saw/seen
(B) see/see
(C) saw/see
(D) see/saw

9. ..... I was working on my project, the doorbell rang.

(A) When
(B) Which
(C) While
(D) Whose

10. These are our tickets. Our bus ..... at 9:00 p.m. tonight.

(A) is leaving
(B) leave
(C) will leave
(D) going to leave

11. I ..... in Istanbul since 2010.

(A) was living
(B) am living
(C) lived
(D) have lived

12. Although it was difficult, she managed ..... the exam.

(A) passing
(B) to pass
(C) pass
(D) passed

13.

It's a ..... road. Please don't drive ..... .

(A) fast/dangerous
(B) fastly/dangerous
(C) dangerously/fast
(D) dangerous/fast

14. They are very delicious. I ..... eating more.

(A) can't help
(B) offer
(C) want
(D) agree

15. If I ..... more money, I ..... buy a new car.

(A) earned/will

(B) earned/would

(C) earn/don't

(D) earn/would

16. Liz learned how ..... a bicycle when she was 4.

(A) rides

(B) riding

(C) ride

(D) to ride

17. A: What .....?
B: I .....my keys so I can't get into the house.

(A) happen/lost

(B) happened/lose

(C) happened/have lost

(D) happen/have lost

18. He ..... on the phone when he suddenly fell down.

(A) talking

(B) was talking

(C) talked

(D) is talking

19. Jack and Liz ..... get married two weeks later.

(A) doesn't

(B) going to

(C) aren't

(D) are going to

20. The baby was still sleeping ..... they arrived.

(A) when

(B) which

(C) while

(D) whose

21. ..... I finished my work, I went home.

(A) So

(B) Before

(C) After

(D) May

22. Kate is a ..... student and she passed the exam ..... .

(A) successful/successfully

(B) successfully/successful

(C) success/successfully

(D) successfully/success

23. A: What ..... you .....at 8 p.m. yesterday?
B: I guess I was doing my homework.

(A) are/do
(B) did/doing
(C) were/doing
(D) do/do

24. She needs to ..... to buy a new laptop.

(A) receipts
(B) residence
(C) experiment
(D) save money

25. I woud like to make a ..... for needy people.

(A) blood cells
(B) donation
(C) quarantine
(D) pollution

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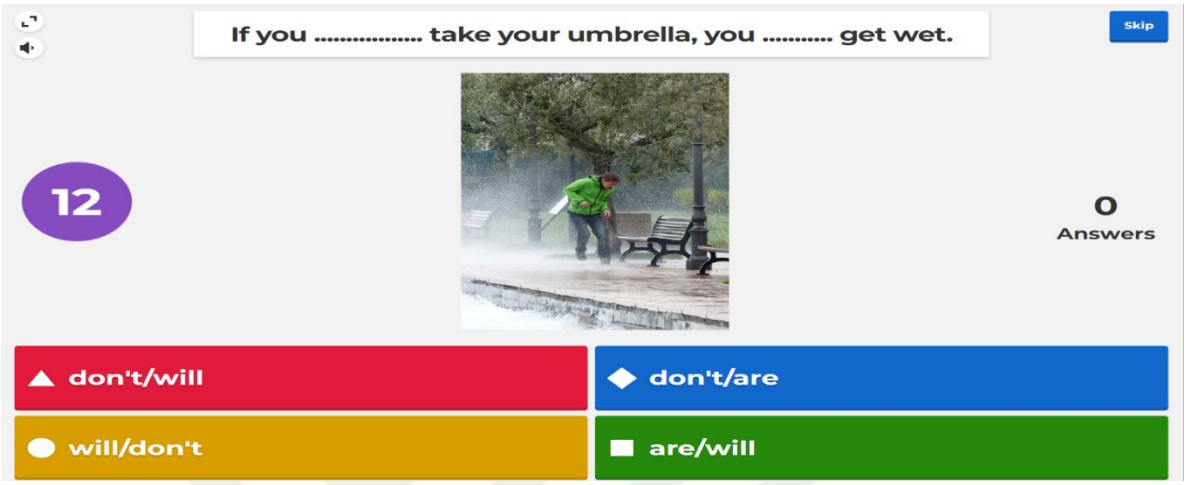
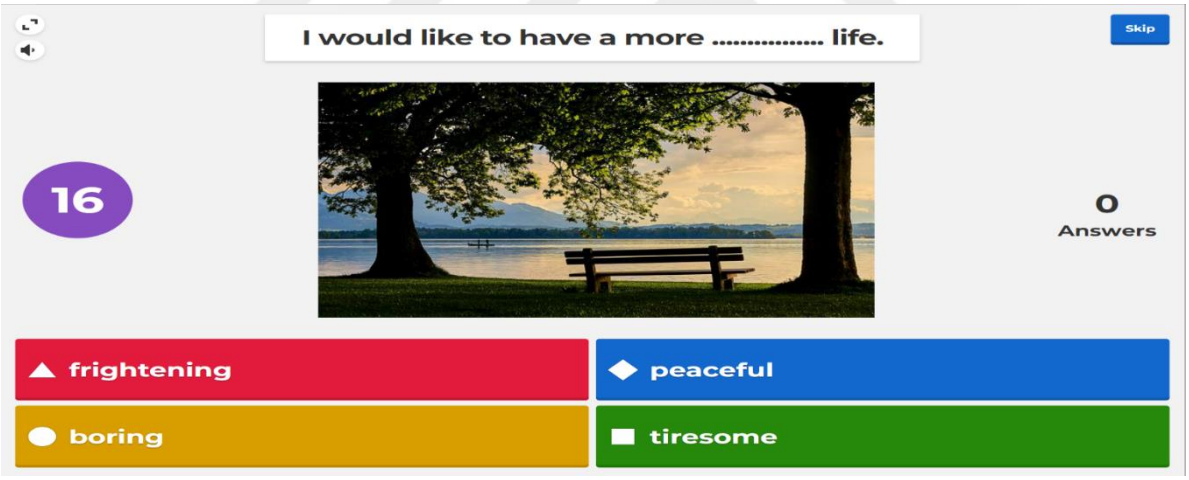
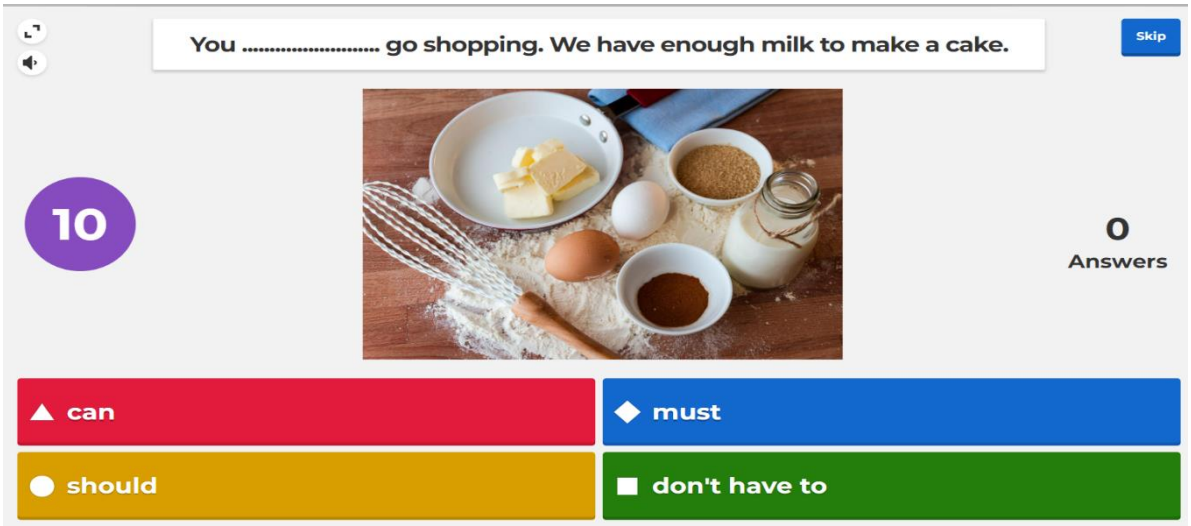
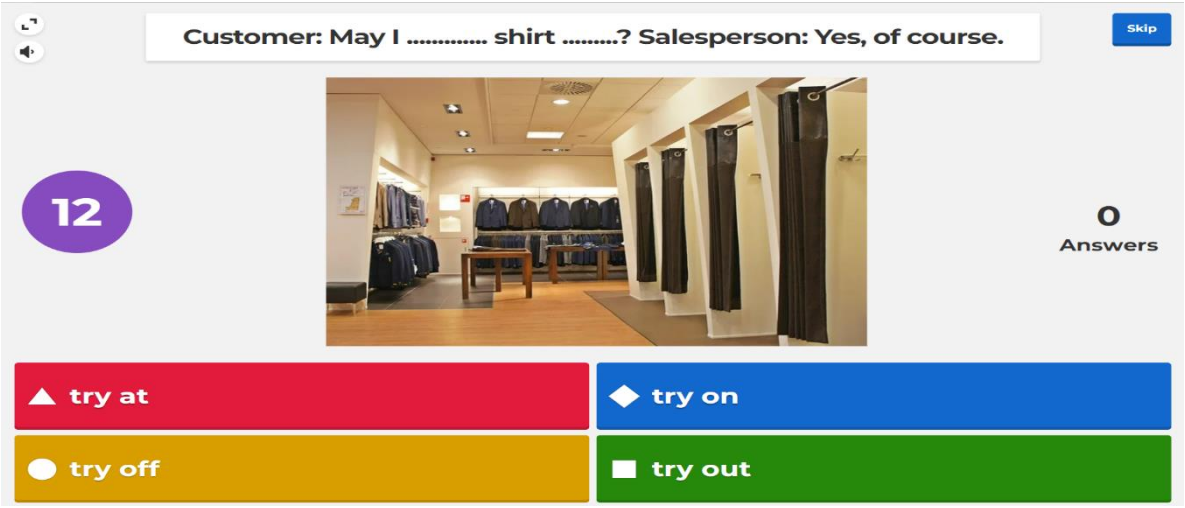
APPENDIX 10

KAHOOT! ACTIVITY

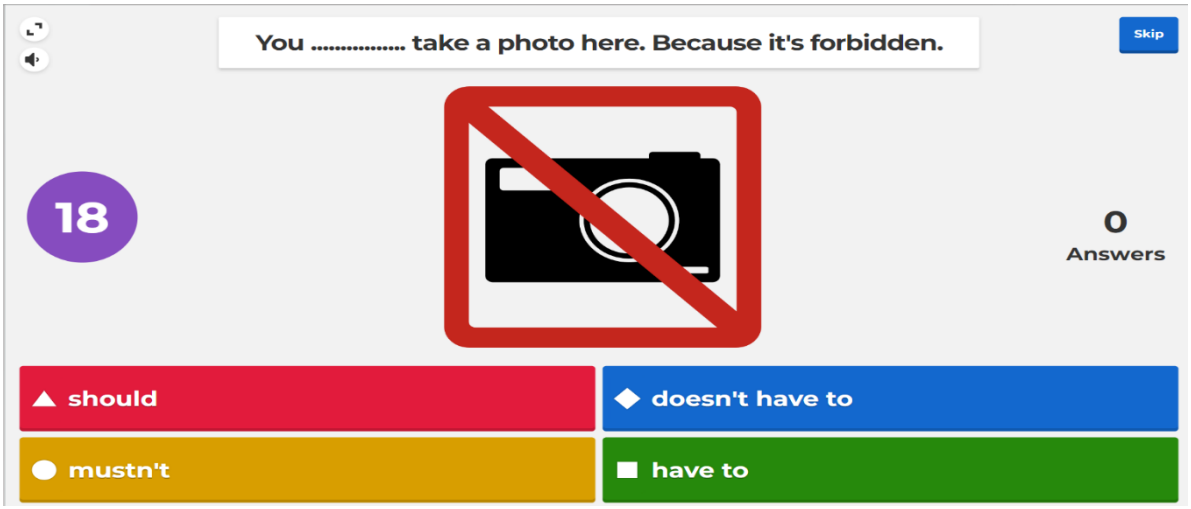





You ..... go shopping. We have enough milk to make a cake.
Skip
10
0
Answers
can
must
should
don't have to


Customer: May I ..... shirt .....? Salesperson: Yes, of course.
Skip
12
0
Answers
try at
try on
try off
try out

,


You ..... take a photo here. Because it's forbidden.
Skip
18
0
Answers
should
doesn't have to
mustn't
have to

The bride's ..... and the groom's ..... were very stylish at the wedding ceremony.

Skip

19

0
Answers

- ▲ wedding dress/suit
- ◆ shirt/sweater
- ● tie/jeans
- ■ wedding dress/jeans

I feel like ..... a big chocolate ice cream.

Skip

17

0
Answers

- ▲ to eat
- ◆ eating

She is planning to ..... many people for her birthday party.

Skip

11

0
Answers

- avoid
- manage
- invite
- deny

Would you mind if I ..... the air conditioner?

Skip

18

0
Answers

- am closing
- closed
- closing
- was closing

I would like ..... on holiday for two weeks.

Skip

17

0
Answers

- go
- going
- am going
- to go

Which verb is not about maths?

Skip

12

0
Answers

▲ calculate

◆ observe

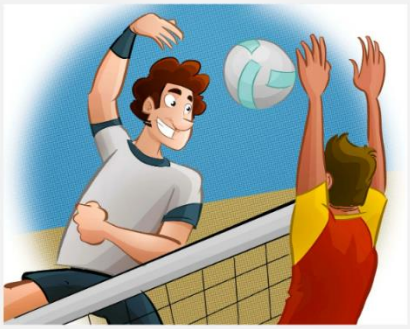
● solve

■ count

..... a volleyball match on TV tonight and I am very ..... about it.

Skip

14



0
Answers

▲ There are / excited

◆ There are/ exciting

● There is / exciting

■ There is / excited

Please, don't ..... your garbage into the street.

Skip

12

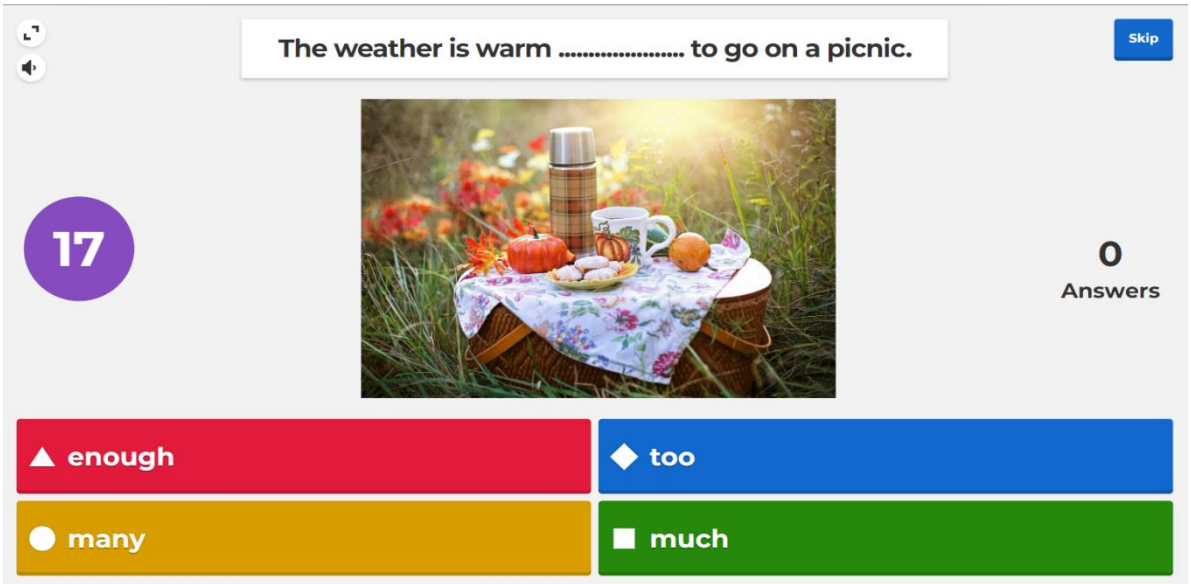
0
Answers

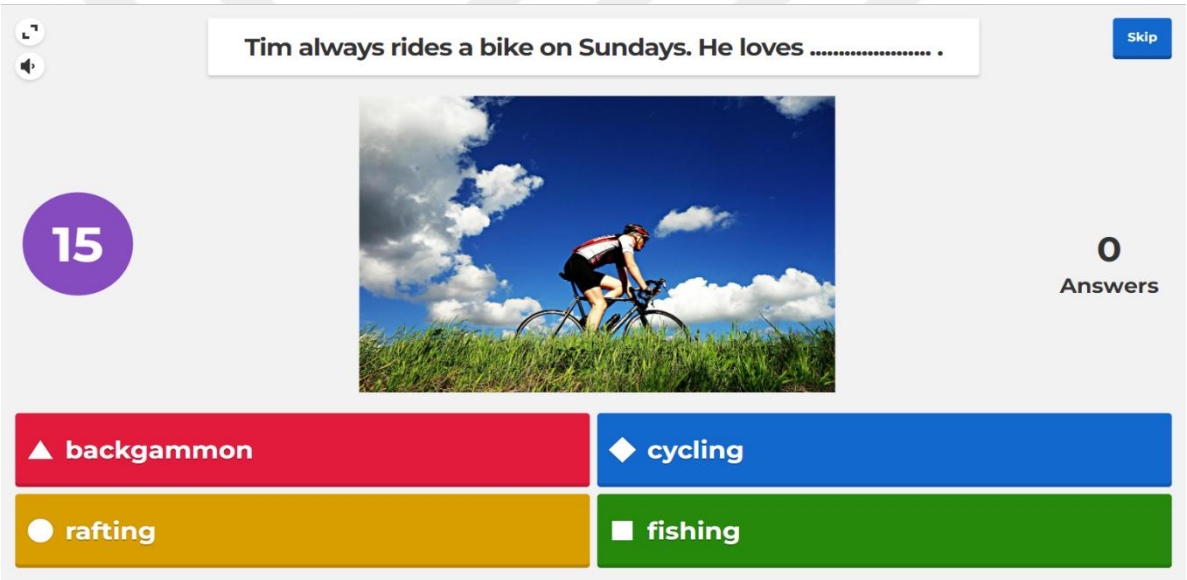
▲ exceed

◆ wait

● throw

■ promise





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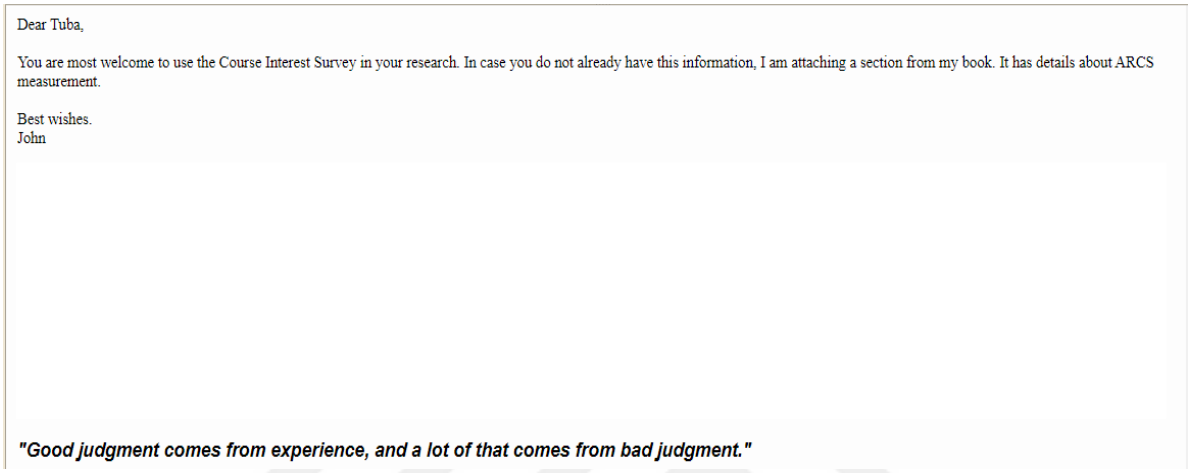
APPENDIX 11

OFFICIAL PERMISSION DOCUMENTS FOR SURVEYS

Permission for *Course Interest Survey*



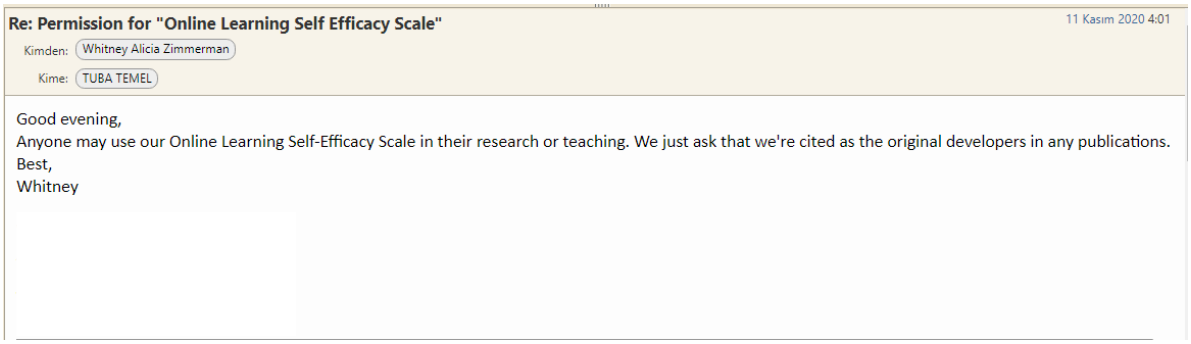
Dear Tuba,

You are most welcome to use the Course Interest Survey in your research. In case you do not already have this information, I am attaching a section from my book. It has details about ARCS measurement.

Best wishes.
John

"Good judgment comes from experience, and a lot of that comes from bad judgment."

Permission For *Online Learning Self-Efficacy Scale*



Re: Permission for "Online Learning Self Efficacy Scale"

11 Kasım 2020 4:01

Kimden: Whitney Alicia Zimmerman

Kime: TUBA TEMEL

Good evening,
Anyone may use our Online Learning Self-Efficacy Scale in their research or teaching. We just ask that we're cited as the original developers in any publications.
Best,
Whitney

APPENDIX 12

ETHICS COMMITTEE APPROVAL

T.C.
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ REKTÖRLÜĞÜ
Lisansüstü Eğitim Enstitüsü

Sayı : E-84026528-050.01.04-2000184621 08.12.2020
Konu : Başvuru İncelenmesi

Sayın Dr. Öğr. Üyesi Kürşat CESUR

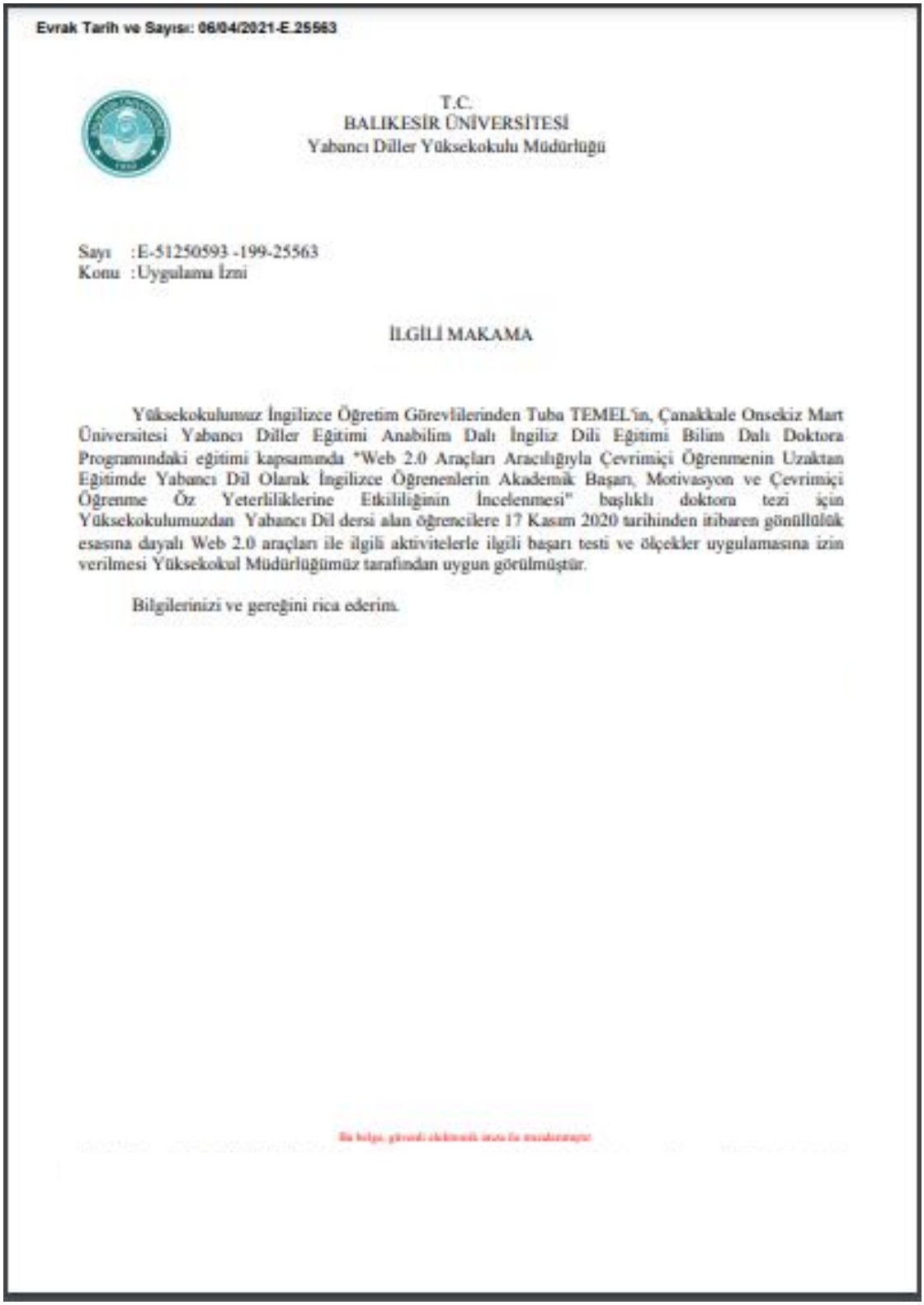
Yürütücülüğünüzü yapmış olduğunuz 2020-YÖNP-0008 nolu projeniz ile ilgili olarak Bilimsel Araştırmalar Etik Kurulu'nun almış olduğu 04/12/2020 tarih ve 06/08 sayılı kararı aşağıdadır.

Bilgilerinize rica ederim.

KARAR:8- Dr. Öğr. Üyesi Kürşat CESUR'un sorumlu yürütücülüğünü yaptığı "Web 2.0 Araçları Aracılığıyla Çevrimiçi Öğrenmenin Uzaktan Eğitimde Yabancı Dil Olarak İngilizce Öğrenenlerin Akademik Başarı, Motivasyon ve Çevrimiçi Öğrenme Öz Yeterliklerine Etkililiğinin İncelenmesi" başlıklı araştırma projesinin, Bilimsel Araştırma Etik Kurul ilkelerine **uygun olduğuna** oy birliği ile karar verilmiştir.

APPENDIX 13

OFFICIAL PERMISSION DOCUMENT ONE



Evrak Tarih ve Sayısı: 06/04/2021-E.25563

T.C.
BALIKESİR ÜNİVERSİTESİ
Yabancı Diller Yüksekokulu Müdürlüğü

Sayı : E-51250593 -199-25563
Konu : Uygulama İzni

İLGİLİ MAKAMA

Yüksekokulumuz İngilizce Öğretim Görevlilerinden Tuba TEMEL'in, Çanakkale Onsekiz Mart Üniversitesi Yabancı Diller Eğitimi Anabilim Dalı İngiliz Dili Eğitimi Bilim Dalı Doktora Programındaki eğitimi kapsamında "Web 2.0 Araçları Aracılığıyla Çevrimiçi Öğrenmenin Uzaktan Eğitimde Yabancı Dil Olarak İngilizce Öğrenenlerin Akademik Başarı, Motivasyon ve Çevrimiçi Öğrenme Öz Yeterliliklerine Etkililiğinin İncelenmesi" başlıklı doktora tezi için Yüksekokulumuzdan Yabancı Dil dersi alan öğrencilere 17 Kasım 2020 tarihinden itibaren gönüllülük esasına dayalı Web 2.0 araçları ile ilgili aktivitelerle ilgili başarı testi ve ölçekler uygulamasına izin verilmesi Yüksekokul Müdürlüğümüz tarafından uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Bu belge güvenli elektronik imza ile imzalanmıştır

APPENDIX 14

OFFICIAL PERMISSION DOCUMENT TWO

Evrak Tarih ve Sayısı: 09.07.2021-E.48070

T.C.
BALIKESİR ÜNİVERSİTESİ
Yabancı Diller Yüksekokulu Müdürlüğü

Sayı : E-51250593 -199-48070 09.07.2021
Konu : İzin

İLGİLİ MAKAMA

Yüksekokulumuz İngilizce Öğretim Görevlilerinden Tuba TEMEL'in, Çanakkale Onsekiz Mart Üniversitesi Lisanstüstü Eğitim Enstitüsü İngiliz Dili Eğitimi Bilim Dalı'nda yürütmekte olduğu "Exploring the Effects of Gamification with Web 2.0 Tools on EFL Learners' Academic Achievement Motivation and Learning Self-Efficacy in Online Learning Environments" başlıklı Doktora tezi kapsamında ve daha önce gerçekleştirdiği uygulamalar kapsamında Yüksekokulumuzdan Yabancı Dil dersi alan öğrencilerle gönüllülük esasına dayalı Web 2.0 araçları ile oyunlaştırma etkinlikleri ile ilgili ekte yer alan açık uçlu sorular kapsamında görüşmeler gerçekleştirmesine izin verilmesi Yüksekokul Müdürlüğümüz tarafından uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Bu belge, güvenli elektronik imza ile imzalanmıştır

CURRICULUM VITAE

PERSONAL INFORMATION

Name SURNAME : Tuba TEMEL

Place of Birth :

Date of Birth :

EDUCATIONAL BACKGROUND

Undergraduate Education :

Graduate Education :

PhD Education :

Foreign Languages :

WORK EXPERIENCE

Institutions and Years :

CONTACT ADDRESS

E-mail Address :

ORCID :