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INSTITUTE OF EDUCATIONAL SCIENCES**



The Department of Foreign Language Education
English Language Teaching Program

Master Thesis

**INVESTIGATING THE IMPACT OF DIGITAL ONLINE GAMES IN
WORDWALL ON ENGLISH LANGUAGE VOCABULARY DEVELOPMENT
AMONG HIGH SCHOOL STUDENTS**

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TEZ ÇALIŞMASI ORJİNALLİK RAPORU

Investigating the Impact of Digital Online Games in Wordwall on English Language Vocabulary Development among High School Students başlıklı tez çalışmamın toplam 97 sayfalık kısmına ilişkin, 14/07/2024 tarihinde tez danışmanım tarafından **Turnitin** adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı **%12** olarak belirlenmiştir.

Uygulanan filtrelemeler:

1. Tez çalışması orijinallik raporu sayfası hariç
2. Bilimsel etik beyannamesi sayfası hariç
3. Önsöz hariç
4. İçindekiler hariç
5. Simgeler ve kısaltmalar hariç
6. Kaynaklar hariç
7. Alıntılar dahil
8. 7 kelimedenden daha az örtüşme içeren metin kısımları hariç

Necmettin Erbakan Üniversitesi Tez Çalışması Orijinallik Raporu Uygulama Esaslarını inceledim ve tez çalışmamın, bu uygulama esaslarında belirtilen azami benzerlik oranının (%30) altında olduğunu ve intihal içermediğini; aksinin tespit edileceği muhtemel durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

18/07/2024

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Doç. Dr. Galip KARTAL

BİLİMSEL ETİK BEYANNAMESİ

Bu tezin tamamının kendi çalışmam olduğunu, planlanmasından yazımına kadar tüm aşamalarında bilimsel etiğe ve akademik kurallara özenle riayet edildiğini, tez içindeki bütün bilgilerin etik davranış ve akademik kurallar çerçevesinde elde edilerek sunulduğunu, ayrıca tez hazırlama kurallarına uygun olarak hazırlanan bu çalışmada başkalarının eserlerinden yararlanılması durumunda bilimsel kurallara uygun olarak atıf yapıldığını ve bu kaynakların kaynaklar listesine eklendiğini beyan ederim.

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LIST OF ABBREVIATIONS

AI: Artificial Intelligence

ANCOVA: Analysis of Covariance

AR: Augmented Reality

BDDÖ: Bilgisayar Destekli Dil Öğretimi

CA: Content Analysis

CALL: Computer-assisted Language Learning

CBL: Computer-based Learning

CT: Critical Thinking

EFL: English as a Foreign Language

EIN: Education Informatics Network

EL: English Language

ESL: English as a Second Language

FL: Foreign Language

FLCAS: Foreign Language Classroom Anxiety Scale

ITGC: Information Technologies Guidance Counselor

KDE: Kernel Density Estimate

L2: Second Language

MBL: Mobile-based Learning

MALL: Mobile-assisted Language Learning

MDDÖ: Mobil Destekli Dil Öğretimi

MWO: Microsoft Word Office

PDF: Portable Document Format

SMS: Short Message Service

VR: Virtual Reality

WTC: Willingness to Communicate



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ÖZET

Necmettin Erbakan Üniversitesi, Eğitim Bilimleri Enstitüsü
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Yüksek Lisans Tezi

WORDWALL'DAKİ DİJİTAL ÇEVİRİMİÇİ OYUNLARIN LİSE ÖĞRENCİLERİNİN İNGİLİZCE KELİME BİLGİSİ GELİŞİMİNE ETKİSİNİN İNCELENMESİ

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Son yıllarda, eğitim alanında teknoloji çağına doğmuş öğrencilerin ihtiyaçlarını karşılamak için dijital oyunlar gibi çok sayıda yenilikçi araç ortaya çıkmıştır. Bu nedenle, bu çalışmada Wordwall platformundaki dijital çevrimiçi oyunların lise öğrencilerinin İngilizce kelime dağarcığı gelişimi üzerindeki etkilerini incelemeye odaklanılmıştır. Ayrıca, lise öğrencilerinin İngilizce'ye karşı tutumlarındaki değişim ve Wordwall hakkındaki düşünceleri araştırılmıştır. Çalışma, Konya'da devlet okulu olan bir lisede, deney grubu (S=17) ve diğeri ise kontrol grubu (S=20) olan 9. sınıf öğrencilerinin sınıflarında yürütülmüştür. Araştırma, nicel ve nitel veri toplama araçlarından yararlanan karma yöntem kullanılarak gerçekleştirilmiştir. Her iki grup da aynı ünitelerin aynı hedef kelimelerini öğrenmişlerdir. Deney grubu, İngilizce kelimeleri Wordwall'daki dijital çevrimiçi oyunlarla öğrenirken, kontrol grubu ise sadece etkileşimli kitap ile geleneksel yöntem kullanarak derse devam etmiştir. Çalışma öncesinde ve sonrasında, kelime başarı testi ve İngilizce ye karşı tutum ölçeği hem deney grubu hem de kontrol grubuna ön test ve son test olarak uygulanmıştır. Bunlara ek olarak, çalışma sonrasında sadece deney grubu öğrencileri öğrenci görüş formuyla Wordwall hakkındaki düşüncelerini ifade etmişlerdir. Bu araştırmanın bulguları, Wordwall kullanan (dijital çevrimiçi oyunlarla kelime öğrenen) deney grubu öğrencilerinin kelime testi öncesi ve sonrası puanları arasında istatistiksel olarak büyük bir fark olduğunu göstermiştir. Ancak deney grubunun İngilizce'ye karşı tutum ölçeği ön test ve son test değerleri arasında istatistiksel olarak kayda değer bir artış olmamıştır. Kontrol grubunun kelime başarı testi ve İngilizce'ye karşı tutum ölçeği puanlarında belirgin bir artış yoktur. Son olarak, deney grubunun Wordwall hakkındaki görüşleri de büyük oranda olumludur. Bu çalışmada, Wordwall dijital çevrimiçi oyunlarının İngilizce kelime öğrenimi için teknolojik bir öğrenme aracı olarak kullanılmasının öğrenme sürecine büyük katkı sağlayacağı sonucuna varılmıştır.

Anahtar Kelimeler: Dijital oyunlar, Wordwall, İngilizce kelime öğretme, Mobil destekli dil öğretimi (MDDÖ), Bilgisayar destekli dil öğretimi (BDDÖ)

ABSTRACT

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INVESTIGATING THE IMPACT OF DIGITAL ONLINE GAMES IN WORDWALL ON ENGLISH LANGUAGE VOCABULARY DEVELOPMENT AMONG HIGH SCHOOL STUDENTS

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In recent years, numerous innovative tools such as digital games have emerged in the field of education to meet the needs of students born into the technological age. Therefore, this study focused on examining the effects of digital online games on high school students' English vocabulary development on the Wordwall platform. Also, the change in high school students' attitudes toward English and their opinions about Wordwall were investigated. The study was implemented in a public high school in Konya in the classrooms of 9th-grade students, one of which was the experimental group (S=17) and the other was the control group (S=20). The research was conducted using a mixed method that utilizes quantitative and qualitative data collection tools. Both groups learned the same target words of the same units. The experimental group learned English vocabulary with digital online games on Wordwall, while the control group continued the lesson using the conventional method with the interactive book only. Before and after the study, the vocabulary achievement test and the attitude scale toward English were administered to both the experimental group and the control group as pre-tests and post-tests. In addition, after the study, only the experimental group students expressed their opinions about Wordwall through the student opinion form. The findings of this study showed that there was a statistically significant difference between the pre and post-vocabulary test scores of the experimental group students using Wordwall (learning vocabulary through digital online games). However, there was no statistically significant increase between the pre-test and post-test values of the experimental group on the attitude scale toward English. There was no important increase in the scores on the vocabulary achievement test and attitude scale toward English of the control group. Lastly, the experimental group's views about Wordwall were significantly positive. In this research, it was concluded that the use of Wordwall digital online games as a technological learning tool for learning English vocabulary will make a great contribution to the learning process.

Keywords: Digital games, Wordwall, Teaching English vocabulary, Mobile-assisted language learning (MALL), Computer-assisted language learning (CALL)

CHAPTER I

1. INTRODUCTION

Statement of the problem, purpose of the study, importance of the study, assumptions, limitations, and definition of key terms are described in this chapter of that study.

1.1. Statement of the Problem

Communication can be described as the process of sharing ideas, feelings, and information between individuals and groups. The Latin verb “communicare”, which means "to share" or "to make common," is the origin of the English word communication (Cobley, 2008). Baguley (1994) identifies communication as the act of communicating thoughts, facts, and emotions amongst individuals or groups with specific goals. According to Bogdashina (2022), communication is a thing that information is sent and received during contact with forms such as verbal, non-verbal, visual, mass, and digital. Also, Baldwin et al. (2023) add that it is the act of producing, conveying, and interpreting symbolic behavior between individuals.

Communication can be defined as a period that is constantly necessary from birth to death and has a very important role in human life. Genç (2017) states that from home to work, communication is crucial in practically every aspect of life. It has been commonly accepted that communication serves the formation of social activities, the initiation of human relations, and the exchange of information. The ability to communicate and connect with people from diverse cultures effectively depends increasingly on intercultural communication (Makhmudov, 2023). Here are some other possible aspects to make communication more important in our lives: globalization, economic transactions, healthcare, social interaction, conveying feelings and thoughts to the other party, sharing knowledge, personal development, learning, and education. For all these things to be realized in the world, a common language is likely needed. Rao (2019) supports that idea by saying it is evident that a common language is necessary for communication with the current expansion of global trade and education between countries all over the world. As a result of both globalization and developments in information technology, it is clear that there is a need for a recognized language, English, in which most people in the world communicate with each other and with people in other geographies. English might be one of the most widespread and powerful languages in most parts of the world.

It is obvious that English is not the official language but it is the most widely used as a foreign language (FL) in Türkiye. People prefer to use English mostly in some needed areas.

First, Türkiye is one of the countries frequented by tourism. English language (EL) is crucial to have the ability to offer tourists services, information, and support to communicate. Understanding FLs, such as English, is important for people working in the tourism and hospitality sectors because it allows for interaction with tourists and an enthusiastic understanding of cultural differences (Leslie & Russell, 2006). Second, in business and trade, English is essential to interact with foreign partners, establish contracts, and get access to international markets. Karimova (2019) asserts that the language of commerce and business is English. Third, it plays an important role in technology and science. The language of technology is English and most technological documents, scientific journals, and articles are published in English. Drubin & Kellogg (2012) posit that the language of science today is nearly exclusively English. Next, for exchanging culture or having an international relation, EL is again required. The target culture (s) must be referenced in the teaching and learning of English (Espinár & Rodríguez, 2019). Learning English may open the door for Turkish individuals to easily access English culture, songs, movies, and other cultural products. In addition to all these reasons, to be able to catch career opportunities, English is learned in Türkiye. Having an adequate command of the EL can increase the chances of finding career opportunities both within Türkiye and internationally. Most multinational companies in our country require their employees to speak English fluently. Thus, it can increase the job opportunities and career progression of the person. Kawsar (2023) proposes that there are countless options on the employment market for someone who can express themselves, communicate, and comprehend English well, and candidates with great EL abilities are highly valued by employers in a variety of industries. Lastly, in the education area, it is clear that English is the first language taught and learned as an FL. In Turkish schools, English is frequently an obligatory or highly recommended class. Fluency in English is essential for students wishing to go on to higher education, especially in disciplines such as international relations, business, and engineering.

Learning EL in schools can be seen as a challenging process, and it is not at the desired level. Some well-known common problems may be sourced from environment, method, educator, and learner at every level (primary, secondary, and high school) of school life. One of the most important reasons in the environment, why it is not easily learned, may be limited exposure. The weekly hours allocated to English in schools are not sufficient. Güçlü & Uçar (2019) suggest that in FL learning, the individual should be exposed to the FL as much as possible and the individual efforts of the foreign language learner, the class hours allocated to FL in schools should be sufficient in the language learning process. Additionally, the resources

used in the course should be appropriate to the curriculum, student level, and interest. It can be said that one of the other reasons is method. According to Çelik et al. (2022), the change and renewal of language teaching approaches also change the language teaching methods or the emergence of different methods. Beyond the traditional courses based on translation, EL teaching is accepted by taking into account multiple intelligences with communication and interaction. There can also be problems arising from the educator. Interaction between teacher and student is important. Borg (2019) states that language teachers are often expected to foster communicative interactions between students and enhance active student participation in the classroom, which can demand a great deal of effort and ingenuity from educators employing a variety of time-consuming, energy-intensive approaches. As the last problem, it can be said that it originates from the learner. Important factors such as the learner's lack of motivation, fear of making mistakes, low competence in the subject, and age are among the learner-related factors in EL learning. For Tunç & Kozikoğlu (2022), language learners in a teaching-learning environment feel psychologically anxious and uncomfortable, and that can be one of the factors that negatively affect the process.

English is a subject that is offered in many schools, and students frequently take it as part of their curriculum in their schools. The number of hours of English lessons per week can vary according to the type of school and the department of the students in schools. In the school part of the students' education life, it is commonly known that English is one of the lessons that they have difficulty in learning, even in the first place. Many mentioned factors can affect the English level of students not being at the desired level. The lack of sufficient resources might be one of these factors. It is possible that there are not enough teachers, resources, and hours at weekly schedules in some schools. Kasap (2019) says that a teacher who establishes a meaningful connection with his/her students and creates a caring environment for language development is effective in the language learning process. Regarding resources, Yurtsever Bodur & Arıkan (2017) express that it is crucial to use modern and supplemental materials in addition to lesson texts to grab students' attention. Also, differences in region and culture can be another factor affecting the importance required. In Türkiye, some regions where students live give more importance to English, while in other regions it is not given the necessary importance. Further, whether or not to give the necessary importance to English may also vary according to the ability and interests of students. It can be difficult for teachers to meet the varied requirements of all the students in schools because the students often have a wide range of skills and interests. On the other hand, it is believed that the more individualized education,

the more learning opportunities. Crowded classrooms might make it hard to learn English, which is more suitable for individualized education. In addition to all these factors, students can see English only as a subject in the curriculum and they are exam-orientated in schools. Özmat & Seneoğlu (2022) assert that students do not attach enough importance to learning EL, that students only study to get a passing grade in the lesson, and that learning English remains in the background since their main goal is the university entrance exam. The most important factor why English is not learned at the desired level in school may be the lack of motivation among students. High levels of motivation enable students to overcome poor learning environments and can help them achieve despite all potential problems that the learner may have (Dörnyei, 2001). Some factors can prevent motivation. Since the spoken language is Turkish, students cannot find a suitable environment to use the FL while they are trying to learn in daily life. This may make it difficult to develop the ability to understand and speak English.

English is included in the curriculum starting from primary school and including high school during compulsory education in the Turkish education system. In Türkiye, the compulsory education is 12 years. Students who follow the standard national education procedures enter high school at 13 or 14 and graduate at 17 or 18 (Ayaz et al., 2019). The following is how the English class is organized in the Turkish education system: Firstly, in primary school in the 2nd-grade, students often start learning English, which is a compulsory class. At this stage, it is aimed to develop basic vocabulary, build simple sentences, and lay the foundation for language learning, while at the same time promoting the second language (L2). The lessons have been structured around interactive, communicatively supported, and game-like activities (Dinçer & Koç, 2022). Secondly, in secondary education, English becomes one of the main subjects taught. Reading, writing, speaking, and listening skills are all covered in a vocabulary and grammar-supported curriculum. English class appears with 10 questions in the high school entrance exam. Lastly, English is again an important class in high school and is included in the curriculum in different numbers depending on the type of high school. In addition to the four main skills, the teaching of vocabulary and grammar can change according to the type of high school. EL is encountered in the preparatory classes of the preferred universities or according to the field of education.

The Turkish curriculum focuses on four basic skills in English class; reading, listening (receptive skills), speaking, and writing (productive skills) together with grammar, pronunciation, and vocabulary (sub-skills) in high schools. Potentially, students experience

different problems and challenges in each skill in the process of learning EL. Here is related to reading skills. Despite the well-known importance of reading abilities in teaching foreign languages, reading comprehension is a skill that many foreign language learners struggle with (Ahmadi & Gilakjani, 2012). Common issues that students struggle with reading skills are vocabulary, working memory, spelling and decoding, absence of extensive reading, and the kind of text (Shehu, 2015). Then, the high school students have the same challenges in listening skills. Underwood (1989), taking into account different aspects of listening comprehension, groups the main listening issues into the following categories: the listener's limited vocabulary, inability to control the speed at which speakers speak, inability to get things repeated, problems with interpretation, being unable to focus, and embedded learning habits. Next, high school students also have some difficulties while trying to speak English. According to Yahaya & Madzlan (2021), two main reasons are identified as obstacles to English speaking among ESL learners: social anxiety and related issues, and learning-related issues, and also those barriers that stem from the learner's inner self, such as self-assurance, enthusiasm, and personal esteem, were anxiety and social problems; learning-related difficulties on the other hand, included elements like pronunciation, grammar, phrases, teacher instruction method/approach, and learners' demands. In conclusion, writing proficiency is an essential component of education, and high school students frequently struggle with writing. Taking into account the difficulties pupils encounter when writing, coming up with ideas, formatting writing problems, being lazy, and figuring out the writing flow (Adiwijaya et al., 2019). In addition to all of those, Sari (2021) asserts that three sub-skills factors are crucial to learning the EL, particularly for developing the four English skills; pronunciation, grammar, and vocabulary. Katawazai et al. (2019) add that the foundation for the four primary skills is made up of these sub-skills and a specific vocabulary must be acquired by language learners for them to be able to grasp the language.

Vocabulary acquisition is an essential component of learning a foreign language (Susanto, 2017). It is a crucial aspect of language and has a central role in communicative competence. Its importance can be seen in a variety of aspects of life, including communication and education. Increasing the high school students' vocabulary knowledge might be a good way to improve their language skills and intellectual growth as a whole. The foundation of language skills, including speaking, listening, reading, and writing, is vocabulary and it is challenging to achieve any level of language fluency without understanding the vocabulary (Afzal, 2019). Like learning any other language, learning vocabulary in English can sometimes be difficult. Students of younger ages prefer vocabulary acquisition through more enjoyable activities since

they find traditional methods of instruction dull. Various ages of the students and their skill levels may be affected by these difficulties. The following are some acceptable common challenges in learning vocabulary among the high school students:

- **Motivation:** Trying to maintain motivation to learn vocabulary and improve vocabulary can sometimes be challenging. Students' motivation must rise for them to master English vocabulary and students are more successful in memorizing words when they are more motivated (Setiawan & Wiedarti, 2020).

- **Retention:** Without regular repetition, the newly learned vocabulary may not be permanent and it may be difficult to remember the known vocabulary. It might be difficult for students to retain language; even once they acquire it, they might not be able to use it (Ali et al., 2022).

- **Pronunciation:** It can be difficult for students to learn correct vocabulary pronunciation, particularly if they do not frequently interact with native speakers. Understanding can be impacted by pronunciation errors. This is one of the issues that most students experience when acquiring English vocabulary, specifically concerning word pronunciation and word hearing (Aji et al., 2023).

- **Limited exposure:** Vocabulary acquisition may become tough because students do not have appropriate environments to repeat and use vocabulary and are exposed to a limited number of learned vocabulary. It is anticipated that students will become more proficient in the target words as they are exposed to them more (Sheela & Ravikumar, 2016).

- **Spelling:** English is a language that is not read as it is written and not written as it is read. Many words in English do not always have the same phonetic standards, and English spelling may not always be simple. It can be challenging to understand the meaning of English words because they are pronounced differently than they are written (Masykuri, 2016).

- **The use in a context:** Since words have many meanings and uses, it can take time to understand how the vocabulary is used in different contexts. The factors include difficulties distinguishing between words with various meanings but similar pronunciations or difficulties when utilizing terms with multiple meanings. (Tsuraya & Awaliah, 2022).

- **Cultural differences:** Idioms and some expressions have cultural context, which non-native speakers may not immediately recognize. One of the biggest challenges to learning a vocabulary is the influence of culture (Hai-bo, 2007).

- **The lack of appropriate methods:** High school students might not always be familiar with efficient methods for learning and remembering a word. For instance, memorization might not be the best strategy. For students to become proficient in English vocabulary, they must employ particular learning methodologies (Le Van Tuyen, 2019).

1.2. Purpose of the Study

It is known that technology has a significant impact on almost every aspect of human life, and it continues to grow at a tremendous pace. Wali & Popal (2020) assert that people nowadays find it impossible to imagine their lives without the latest technological advancements since technology influences everything we do in everyday life. It can provide facilities for people to contribute more positively in areas such as health, economy, transport, social life, and education. As a result of technological advancements, nations must stay close to social, political, economic, educational, and cultural trends globally to interact with other people (Işık & Semerci, 2016). While technology provides benefits in every field, its contribution to education, which keeps societies ahead, is undeniable. It can be said that in the majority of developed countries in the world, education is at a high level and progresses with the combination of technology. According to Sayan (2016), education has been impacted by technological advancements, and technology is now a necessary component of education.

It is clear that technology has completely changed education and made knowledge and educational opportunities available for students all over the world with the development of digital materials, interactive tools, online learning platforms, and the Internet. Technology can mostly support education through a variety of instruments, including computers, laptops, smartphones, interactive whiteboards, and educational software and applications. At this point games, which are typically entertainment goods built on software, can be used in each of these tools to come to the stage in the teaching and learning process. One resource used to teach the development of technology is games, which are vital for the experience and process of learning (Castillo-Cuesta, 2020). The field of digital games in technology has grown significantly in importance and speed in recent years.

Today, it is accepted that digital games as a part of technology play an important role in fundamental components of education and offer various benefits in education. Technology-assisted methods and strategies have been demonstrated to have a positive effect on language learners' creation of ideas, interpersonal management, and interaction attitude (Zarei & Amani, 2018). Digital games as a supporter of technology may now also be used in teaching and learning subjects such as mathematics, geography, history, biology, religious culture and morals, and English in schools. Based on this fact, the use of modern technological facilities to assist as a motivational and incentive tool in the task of EL teaching cannot be ignored. On the other hand, digital games tend to be useful resources for enhancing skills in English. Yusny (2013) affirms that how English is used as an FL could affect students' speaking, listening, writing, and reading skills are becoming increasingly important.

The EFL teaching and learning process, which is tried to be taught through four basic skills as receptive and productive and two supporting skills as grammar and vocabulary in schools, is mostly supported by digital games. Ostiz-Blanco et al. (2021) claim that digital games or applications should be employed to enhance reading comprehension, and they appear to be a viable educational substitute. Students can improve their reading comprehension and vocabulary through in-game activities, instructional videos, and stories. Ağaoğlu & Şad (2020) note that thanks to digital games, people are unintentionally learning an FL, particularly those who improve their vocabulary and listening comprehension. Digital games frequently involve character conversation. This can help students listen to a variety of dialects, intonations, and speech rates, which enhances their listening comprehension in general. Online communities and forums are continually included in certain digital games, so students can share their ideas and converse in writing here, which may let them improve their writing abilities. Hibbard (2015) supports this idea by saying that connecting digital games to writing fosters student engagement and increases creativity in the classroom. Role-playing games or multiplayer digital games can permit students to speak with various roles and characters. This might allow students to express themselves and use appropriate language for different situations. Chen (2005) says that games encourage spontaneous and creative language use as well as communicative ability. In addition to developing reading, listening, speaking, and writing skills; digital games can also contribute to the development of grammar and vocabulary acquisition. Language games improve grammar instruction and learning, but it's even more crucial to employ digital games to support students in improving their grammatical proficiency (Syafiqah Yaccob & Md Yunus, 2019). Grammar rules can be learned, understood, and used

by students using digital games. Students' grammatical accuracy may also be assessed or checked by elements in digital games. These checks might provide them feedback while illustrating adherence to grammar norms. Jassim & Dzakiria (2019) express that digital games are an effective tool for vocabulary instruction because they offer an appropriate environment for vocabulary learning and bring entertainment value into the classroom. Words are typically presented with context in digital games. It is accepted that activities, in-game materials, and character interactions all aid in students' comprehension of vocabulary usage. This enables them to use the vocabulary as needed in the game and illustrate how they are used in daily life.

Vocabulary can be seen as essential for EL since it is the foundation for writing, reading, listening, communication, and comprehension skills. As vocabulary acquisition is accepted by many as a necessary part of language learning, the amount of vocabulary that students know has a significant impact on their ability to communicate. It would be impossible to produce or comprehend language without vocabulary knowledge (Hazar, 2020). Knowing vocabulary is significant but learning them is also a very challenging process. According to Rasti-Behbahani (2021), to teach vocabulary and get past the difficulties associated with vocabulary acquisition, a comprehensive method is required. Since technology is a constant in students' lives, this circumstance should be used as a tool to make vocabulary learning long-lasting and effective (Bozkurt Türk, 2019). It would be wise to integrate digital games into the process of teaching and learning vocabulary to make this challenging process easier and more fun for students. Digital games can provide language learners with an interactive and captivating environment for teaching and learning English vocabulary in many ways. Zou et al. (2021) emphasize that digital games are among the most popular and have been shown to have a good impact on a variety of learning outcomes, including the development of short- and long-term vocabulary, reading, and listening comprehension, motivation, and engagement, anxiety reduction, and student interaction. The subsequent items are some of the most important functions that digital games may play in the process of vocabulary acquisition in English.

- **Engagement and motivation:** Because digital games are naturally captivating, students are drawn to them and become more motivated. These characteristics of digital games can boost participation and foster a favorable mindset toward acquiring vocabulary in English. Students can be engaged and motivated through the use of digital games in the classroom, which will help them put in more effort and produce more favorable outcomes (Nadeem et al., 2023).

• **Real-life learning:** Digital games frequently show vocabulary in authentic settings, which aids in students' understanding of vocabulary usage in real contexts. Through contextualized learning, students can comprehend the practical uses of vocabulary better. Virtual worlds and audio-visual elements in digital games can establish an authentic learning environment (Gilmore, 2007).

• **Instant feedback:** A lot of digital games offer immediate feedback regarding right or wrong answers. This feedback might support correct word usage and help students learn from their mistakes. Students can learn the outcomes and modify their mistakes quickly because digital games can give feedback regarding their answers right away (Wang & Dostál, 2018).

• **Reinforcement and repetition:** It is obvious that repetition is crucial to help students retain newly learned vocabulary and make it permanent. With the use of digital games that incorporate repetition without becoming boring, students can likely attempt to retain and recall vocabulary by expanding the range of their vocabulary. Regular exposure to the new English language in educational digital games facilitates vocabulary learning for EFL students by giving them the chance to review previously taught items (Rasti-Behbahani, 2021).

• **Collaboration and competition:** Adding interaction and competitiveness into digital games can enhance vocabulary learning and make it more engaging for students. This might promote constructive competition among students and create an exciting learning atmosphere. In addition to being entertaining and challenging, games encourage collaboration and competition among players (Anastasiow et al., 2012).

• **Accessibility and flexibility:** Students can study vocabulary more freely when they have access to digital games from anywhere at any time. This is especially helpful for those who like to learn alone or remotely. With the use of digital tools, students can access information whenever it's convenient for them, scheduling study sessions around their schedules because of this flexibility, the students can study wherever and whenever they choose, whether they have a few minutes during their commute or a focused study session at home (Nosirova, 2023).

• **Interest keeping:** Digital games may keep students' enthusiasm for learning vocabulary fresh and help them maintain their gradually declining interest in vocabulary acquisition. Utilizing games to teach vocabulary is advantageous since they generate interest and enjoyment in related content (Bakhsh, 2016).

- **Monitoring progress:** The majority of digital games have tools for monitoring players' progress. This enables both teachers and students to track vocabulary growth and find areas that might need further study. Games may effectively modify lessons, and formative evaluations can include students directly in the learning process by giving them feedback that will help them see where they can make improvements (Shute et al., 2008).

When used effectively with all these features, digital games can enhance the shortcomings of conventional teaching techniques by adding another aspect of engagement and participation to the vocabulary-learning process. Compared to conventional methods of teaching, using digital games greatly increases the vocabulary knowledge of EFL learners (Esfahani et al., 2019). Due to these factors mentioned above, this study aims at the differences in vocabulary development between a class using digital games and a class using conventional teaching techniques. The research focuses on investigating the effects of digital online games in the Wordwall platform on vocabulary development in English among high school students.

Research questions;

RQ1: Is there a significant difference between the vocabulary achievement pre-test and post-test scores of the experimental and control groups?

RQ2: Is there a significant difference between the pre-test and post-test scores of the attitude toward English lessons of the experimental and control groups?

RQ3: Is there a significant difference between the experimental and control groups in terms of students' vocabulary learning achievement?

RQ4: Is there a significant difference between the experimental and control groups regarding students' attitudes toward English lessons?

RQ5: What are the opinions of the experimental group students about digital games in Wordwall?

1.3. Importance of the Study

Along with the developing and changing technological tools, students' attitudes toward education and training are also changing. Students' expectations in the 21st-century classroom have changed as a result of changing economic circumstances, interpersonal relationships, and technological advancements. Today, students, who are born into technology, likely demand a

learning environment in which technological tools are included in the education and training process. This generation has certain expectations for the educational system because they have grown up in a period marked by rapid technological advancement, globalization, and information availability. Students' approaches to learning and obtaining information might be shaped by the huge amount of material accessible through technology. For this group of students, technology is an essential element of their everyday life. They can expect the advantages of digital and interactive learning resources. Given that every student has unique learning needs, they can anticipate individualized learning experiences. They might seek flexible, interactive, collaborative learning environments outside of the conventional classroom setting, as well as educational materials and techniques appropriate to their learning style and speed. Students might wait for a greater emphasis on issues of diversity and cultural sensitivity in lessons and learning environments. The expectations of students in the 21st-century may be different from those of conventional teaching methods. To meet the needs of each student and the demands of our times, one must now shift from conventional teaching methods and techniques to those that incorporate numerous Internet technologies (Hatunoğlu et al., 2023).

First and foremost, students who wish to study English as a second language (ESL) should work on expanding their vocabulary. Acquiring vocabulary is seen as one of the starting points of acquiring a language (Pratiwi et al., 2022). Although it is possible to teach English vocabulary using traditional approaches, it may not be preferred for some boring reasons. The most popular of some conventional techniques include studying straight from a dictionary, utilizing a pen paper, and notebook for vocabulary, studying via reading written materials, reviewing with classic vocabulary cards, and taking conventional examinations and tests. Zichermann & Cunningham (2011) assert that employing conventional teaching methods could have several disadvantages. EL vocabulary using traditional techniques can present some challenges, which further complicate the learning process. Students in schools may struggle to understand terms in context when they are taught in isolation because students cannot actively participate in the learning process and can only acquire the vocabulary by reading and writing. Since they become passive, the learned vocabulary is not possibly retained. When conventional methods are used repeatedly, it can become monotonous and boring for high school students to learn and also lower their motivation levels, which might lead to distraction. As there are few opportunities for practice and communication, exams, and written assessments are used for evaluating student achievement, and students may lose the chance to apply what they have learned in their daily lives. Comparing digital games to traditional methods of acquiring English

vocabulary, the learning experience is enhanced; also, as gaming has become more popular, the seriousness of knowledge acquisition has been deliberately lowered, making word memorization enjoyable (Wu et al., 2020). The traditional approach is neither considered the only one to teach nor is it accepted by students as an effective strategy (Nejati et al., 2018). Though each student has a unique learning style, a combination of both conventional and technological approaches can improve the effectiveness of vocabulary acquisition. Learning vocabulary by standard methods is likely tedious and uninteresting for students, particularly those who have grown up in the digital era. The Internet and the limitless resources accessible in technology might make vocabulary development for students more engaging, simple, long-lasting, and enjoyable. In light of the above, this study is so significant that students in high schools can acquire EL vocabulary more successfully by practicing their language skills daily, employing active learning strategies, and learning vocabulary in context in a more enjoyable, engaging learning environment via digital platforms.

Due to the increasing integration of digital technologies into our daily lives, children nowadays spend more time playing digital games than their previous generations, and as a result, education is changing (Fang et al., 2022). Digital games are mostly a perfect complement to teaching and learning English vocabulary at a time when technology is rapidly evolving, and where traditional methods are lacking. Digital games can be an indispensable teaching and learning tool for both teachers and students in English vocabulary acquisition, thanks to the many features they have. By combining entertaining components with the vocabulary learning process, digital games might prevent vocabulary acquisition from becoming uninteresting for all students in the education system. Among all levels especially high school, students may be more willing to study more and maintain their focus for longer periods as a consequence. It appears that digital games have the potential to increase the students' involvement and enjoyment of language by appealing to their innate interest in technology. Thus, it can motivate the students to put in more time to improve their skills in the language. Students can also acquire vocabulary in an interactive learning environment by playing digital games, which likewise motivates them to actively engage in the class. Vocabulary meaning and context can be included in digital games. This allows the students to comprehend the meaning of the vocabulary as well as how it can be used in practice in daily life. It might be said that having the capacity to modify some digital games to a student's level and receive instant feedback lets them go at their speed and correct mistakes by observing their answers. Some digital games may allow the students to play cooperatively or competitively. This may facilitate the use of newly taught vocabulary in

practice and enhance social interaction between students in schools. Notably, these factors are accepted as very influential in the view of digital games as a dynamic and effective learning tool in the English vocabulary learning process for students.

1.4. Assumptions

- During the implementation, it was foreseen that the students in the experimental group did not use any supportive tools other than digital online games as a vocabulary learning tool.
- During the study process, it was assumed that the experimental and the control groups did not affect each other outside the classroom.
- It was presumed that the students in both the experimental group and the control group attended the lessons continuously during the implementation process.
- It was considered that all students who participated in the study gave sincere and unbiased answers to the data collection tools used.
- It was thought that the uncontrollable variables affected the experimental and control groups in the same way.

1.5. Limitations

The study expected some limitations while trying to understand how digital online games affect high school students' vocabulary learning. During the analysis of the data, the following limitations were taken into account:

- This research was limited to the autumn term of the first semester of the 2023-2024 academic year.
- The study group was limited to 37 students taking English lessons in the control (20) and the experimental (17) classes at İsmail Kaya Anatolian Imam Hatip High School in Selçuklu district of Konya. However, due to the consideration of the students attending the course, the number has sometimes decreased.
- The research was limited to the target words expected to be taught in the 2nd and 3rd units of the 9th-grade English coursebook (Uplift).
- The research was limited to a total of 14 lesson hours, one class a day, and two classes per week.

- The implementation, the computers used as Web 2.0 tools, and the content diversity of the games were limited to the online games prepared by the researcher.
- The student opinion form applied after the research was limited only to the opinions of 17 students in the experimental group.
- The researcher has been a teacher at a male-only high school in the center of the city. There was no opportunity to compare achievement to gender at this school because there were only male students.
- The researcher studied only EL receptive vocabulary. Aspects of vocabulary development like pronunciation were not addressed.
- While the implementation with the students was carried out in the computer room at the school, there was rarely an Internet disconnection and hardware problems in some computers.
- The students entered this high school after completing various secondary schools, and they did not all have the same background or levels of vocabulary knowledge in English.
- The difficulty levels of the questions in the parts of the vocabulary achievement test used in the study were prepared differently from each other.

1.6. Definitions of Key Terms

Computer-assisted language learning (CALL): It is the use of technology and computers to help teach and learn a new language by giving learners captivating and interactive resources that assist with language competency growth and acquisition.

Digital games: They are interactive electronic games that come in a wide range of genres and forms and require players to interact with a computer, smartphone, tablet, or gaming console via a digital interface.

Mobile-assisted language learning (MALL): It is a subset of CALL, which is the use of portable electronics, like tablets and smartphones, to facilitate and improve language learning.

Digital online games: Games that are played over the Internet and allow players to connect and interact with each other in a digital environment such as a computer, smartphone, tablet, or gaming console.

Student opinion form: It is a form prepared by the researcher to get input, feedback, and assessment from students regarding their experience in a certain course, class, or training program.

The vocabulary achievement test: A test prepared by the researcher and measures pre-test and post-test vocabulary acquisition achievements of the students

Wordwall: It is an online/offline platform that allows users to create and customize interactive exercises, games, quizzes, etc. with resources and tools specifically designed for different course contents and language learning.

CHAPTER II

2. LITERATURE REVIEW

This chapter is focused on the literature review on the use of digital games to teach high school students vocabulary in English. Under each title, first, general information about the title is provided and then, the studies related to each title are written.

2.1. Technology in Education

Technology has been involved in education in many aspects of our lives and it has undeniably changed the field of education in many ways. For Raja & Nagasubramani (2018), the use of technology in education includes its integration into curriculum, its application as a delivery system for education, its assistance in teaching, and its employment as a tool to improve the learning process as a whole. By creating learning environments that are more dynamic and engaging, educational technology substances such as interactive whiteboards, instructional applications, and simulations can cater to a variety of learning styles. It is known that educational websites, applications, and software provide dynamic and interesting learning opportunities thus it may take place to prepare a ground for interactive learning. Students have an interesting learning experience when technology is incorporated into a learning environment, which keeps them focused and engaged in the material (Haleem et al., 2022). Also, through virtual exchanges, online partnerships, and foreign educational resources, technology can expand the perspectives of students by offering global learning opportunities. By using online classes, seminars, and collaboration platforms, technology may support individuals to stay fresh and better themselves. Yuldashevna (2021) adds that knowledge may now be acquired from anywhere in the globe through e-learning, which increases accessibility to education. Students with disabilities can find the school environment more accessible and also they can now learn from anywhere in the globe without especially physically attending the lessons thanks to technology. It can be said that this is so important and valuable for people who can't move to school. Oliveira & Pereira (2018) assert that this trend was required to satisfy a significant but unfilled need from individuals who, for a variety of reasons, including lack of time, were unable to attend the in-person or virtual courses. Furthermore, the diversity that interactive presentations, instructional videos, and educational software bring to the teaching and learning process might be another advantage of technology. Thanks to technology, information can be now easily accessible and the cost of education and training is slightly reduced with the importance given to online education. Books and other learning materials continue to be

digitized and it may provide students with unlimited resources. Additionally, teachers can employ technology to develop dynamic, multimedia-rich course materials that simplify difficult ideas. Teachers may also catch the opportunity to enhance their teaching skills by using online courses, webinars, and professional development opportunities offered by technology. To Amhag & Stigmar (2019), researching, creating, and talking about how teachers use digital tools in the classroom and how their professional development goes is always important. In conclusion, if technology is intelligently and professionally integrated for purposes of enhancing learning, encouraging creativity, and better preparing students for the needs of a technologically advanced environment, everything mentioned above can be reached.

2.1.1. The Internet in language teaching

In the 21st-century, it is known that the Internet is very much involved in every aspect of human life. Its primary function is to link individuals worldwide through social networks, which expand globally for purposes like idea sharing, friendship-building, emailing, data sharing, and becoming a business, educational, and political potential (Younesi & Khan, 2020). In general, people's communication, shopping, photography, travel, and other activities have changed as a result of the Internet and modern computer technologies, and it has also affected how students perceive and learn from the teaching and process of learning (Delibegović & Hasanspahić, 2020). It can be said that in many ways, the Internet has opened a new page in education, especially in language education. The Internet has increased the diversity, accessibility, and interactivity of language teaching and learning. According to Kazak et al. (2021), it is hard to picture a modern educational institution without its website, internal business network, and continual connection to the Internet in the conditions of intensifying activities. Further, online courses have started to take place in our lives by providing access to unlimited resources with the use of the Internet in education. It is undeniable that indirectly contributes to language learning in education with the increasing participation in social media forums, the importance given to FLs to communicate with people in different countries has increased.

The study conducted by Rifiyanti (2020) draws attention to 108 students' perceptions of online English lessons via the Internet due to the COVID-19 pandemic in Institut Bisnis & Informatika, Kosgoro. The effectiveness of learning English online, the Internet's accessibility during the process, the technical proficiency of lecturers teaching English online, and the degree of difficulty of language skills online were among the variables gathered through

questionnaires. The study's findings demonstrated that offering in-person English classes online during the pandemic is a successful strategy, but having access to the Internet is the most crucial component of this process.

2.1.2. Technology in language teaching

Technology has a probable tremendous impact on language learning, changing both the teaching and learning processes. In our constantly changing environment, it can be said that technology is an effective tool that improves language learning and multicultural communication. The use of technology in language learning has completely changed how people acquire new languages. Chun et al. (2016) posit that teachers must employ to use of technology because, rather than being a benefit or a threat, it always has an impact on how language is handled. Overall, the benefits of technology in language education included practices and interactions being facilitated, instructional information being provided, and teaching methodologies being reorganized (Chen et al., 2021). It is commonly seen that language learning is now easier to access, more dynamic, and entertaining thanks to technology. It has improved accessibility, interactivity, and enjoyment of language learning while providing a wide range of possibilities and resources to students from different backgrounds and skill levels. Shadieff & Yang (2020) add that language learners' learning performance was enhanced by technology in terms of output, interaction, feedback, affect, motivation, and moderately increased metalinguistic comprehension.

Ahmadi (2018) clarified what was defined by "technology" and "technology integration," as well as how it is used in language classes. The researcher examined earlier research on the use of technology to enhance language learning abilities and offered some suggestions for more effective use of these tools, which help students advance their language learning capabilities. The results of this review of the literature demonstrated that technology facilitates communication between educators and students as well as clear input and output. Technology promotes critical thinking (CT), improves student autonomy and confidence, changes the focus of learning and teaching toward the needs of the individual student, and also motivates students to learn an FL.

2.1.3. Computer-assisted language learning

Using computers with preprogrammed learning materials, students engage in computer programs to realize, monitor, and assess their learning, and this approach is known as computer-based learning (CBL) (Senemoğlu, 1997). It can be used as a teaching tool in activities such as

direct presentation of the subject, repeating what has been taught by other methods, and doing various exercises in the learning environment. Students' attitudes and feelings toward learning are changing as a result of technological innovations, and computers have become vital resources for success in a variety of sectors, including education (Lodhi, 2019). CBL education has a dynamic structure and develops in parallel with the development of technology. With the growing affordability, portability, and ease of use of computers, this function is becoming increasingly significant (Sedaghatkar, 2018). Besides CBL, the term "computer-assisted language learning" (CALL) can mostly cover the use of technology and computers to promote language learning. CALL supports and transforms language instruction in a variety of ways, going beyond only using technology to aid in language acquisition (Deutschmann & Vu, 2015). CALL is known as a crucial element of current language teaching in today's digital world, helping students to learn new languages quickly and effortlessly. CALL can easily support language learning and teaching by offering an extensive variety of methods, techniques, and applications. Delavari Khalifehkari & Pourhosein (2022) say that CALL offers possibilities for language practice through a variety of exercises, making it more successful than traditional teaching approaches. Moreover, CALL tools selected by students' learning goals and preferences may support their language learning process by providing realistic environments. Integrated language learning experiences could be developed via modern tools like augmented reality (AR), and virtual reality (VR), allowing students to interact with virtual characters and scenarios while developing their language skills. For AR and VR, Abdelazim et al. (2021) say that through various applications, they are introducing a far-off environment that is hard for learners to access, where learners' safety may be impacted by their distance from risks and their search for knowledge. Symonenko et al. (2020) add that the VR application helps students become more immersed in the language environment, prepares them psychologically to apply their prior knowledge and skills, and inspires them to put in more effort. The materials used in CALL could be specific ones for language learning and they can adapt to computer-based material such as text, video, sound, and animation (Manda & Indri, 2017). It appears that CALL commonly makes use of programs and software that aim to help students develop a variety of language abilities.

Zaini & Mazdayasna (2014) studied 44 Iranian EL students randomly selected in the control and experimental groups in a quasi-experimental design. The purpose of this study was to investigate how CALL affects the growth of EL learners' writing skills. The control group carried on with the course's usual writing assignments, which direct grammar teaching and one-

on-one feedback from the teacher. However, the experimental group's students had computer-based education for developing their writing. With the help of the instructor's suggestions as well as the automated feedback they got from Microsoft Word Office (MWO), the students were able to fix their own mistakes using logic, common sense, and language proficiency. The results confirmed that computer-based training promotes students' writing abilities.

2.1.4. Mobile-assisted language learning

The phrase "mobile-based learning" (MBL) can be defined as how mobile devices, including tablets and smartphones, are used to improve and support learning in a variety of academic fields. Thanks to these devices' mobility, accessibility, and the abundance of educational programs and reachable resources for learning, they have grown in popularity to help learners. With the introduction of mobile devices and smartphones into our lives, there have been revolutionary positive developments in education. Cakmak (2019) affirms that through hand-held mobile devices, learning overcomes the traditional boundaries of fixed educational environments like classrooms and becomes widespread, changing the nature of mobility. It can offer unlimited possibilities to easily access educational resources and content and to carry them with you. On the other hand, Dağdelen et al. (2020) state that mobile-assisted language learning (MALL) is commonly seen as a subset of MBL and CALL. Integrating smartphones and similar tools into education has greatly contributed to and facilitated the language learning process in particular. With an increasingly digitally linked world, MALL can be especially helpful in satisfying the varied needs of today's learners while minimizing barriers to learning such as time and location. Arvanitis & Krystalli (2021) support that, with MALL, educators and students may access learning materials at any time and from any location, as well as engage in new educational experiences outside of traditional classroom settings. It is undeniable that through interactive activities, multimedia content, and language learning tools, MALL might provide the flexibility to practice language skills anytime, anywhere even sometimes offline learning. With the development of artificial intelligence (AI), technological tools commonly allow to creation of a realistic educational environment. Nalbant (2021) shares that teachers and students have both been impacted by AI and it makes individualized instruction possible by giving students a better educational experience. It enables users to utilize the language through reading, speaking, listening, and writing tasks via such as VR and AR, allowing learning styles and preferences. According to Wong (2012), they could contribute to the building of an atmosphere that fosters both formal and informal learning settings. Innovative

mobile technology features and a wide range of mobile applications are available to help learners improve the students' various skills (Kamasak et al., 2021).

Katamba (2021) carried out a study to determine whether using MALL in rural schools in Bandung, Indonesia, increased the vocabulary of students. This study was conducted quantitatively and experimentally by forming an experimental group and a control group with 8th-grade 79 students. One day earlier to the class, the students in the experimental group received 15 to 20 words via short message service (SMS). The task assigned to the students was to read the words, understand them, look up their definitions, and identify synonyms. The study's findings demonstrated that the experimental group's students outperformed the control group in their performance. It also demonstrated how much technology affects vocabulary acquisition in the classroom.

2.2. Web 2.0 Tools in Education

With the emergence of Web 2.0 tools, there has been a great change in every field concerning society, including education. Web 2.0 tools are now commonly utilized in supplementary learning and are an essential component of students' daily and academic lives (Firat & Köksal, 2019). It is evident that education and training, as socially engaged processes, stand to gain a great deal from the integration of Web 2.0 tools and resources (Kompen et al., 2019). Because Web 2.0 has the potential to be used at all educational levels, in teaching and learning processes, and as the essential tool for school administration, its significance in the educational process is only going to increase (Bogdan, 2019). Today, there can be seen numerous Web 2.0 tools such as social media platforms, virtual classroom tools, platforms for sharing videos and pictures, and gamification platforms. It is believed that these tools are in high demand by both teachers and students thanks to the rich content they offer in the participation of learners in the learning process. Web 2.0 tools can facilitate access to information, being active in the learning process, and more person-centered learning. With the use of these tools, engagement, individualized learning, and collaboration with authentic learning experiences have all become more possible. These tools may allow students to take charge of their learning. Additionally, Web 2.0 resources have the potential to encourage CT, teamwork, and a more communicative learning environment in the classroom when used properly. Ozcinar et al. (2020) posit that Web 2.0 tools are utilized in the classroom to help students become deeply engaged in the material, to give them opportunities to socially connect with their peers as part of the learning process, and to help them understand it at a more

fundamental level. The features found in social networking sites made possible by Web 2.0 technology permit information sharing, which encourages conversation among online learners because they may connect as well as create a community within a network that is gathered socially and educationally (Halim & Hashim, 2019). On the other hand, it can be said that the cost of students and educational institutions is further decreased by online textbooks, open educational resources, and freely available educational materials. Also, Tarik & Karim (2012) discovered that combining an E-learning management system with appropriate Web 2.0 tools provides an appealing, user-friendly, simple, and inexpensive online learning environment.

2.2.1. Web 2.0 tools in English language teaching

It appears that Web 2 tools offer new and indispensable opportunities both for teachers and students in education especially in EL teaching and learning process. Interactive, multimedia, and game-based Web 2.0 tools could make language learning more attractive for students. This can increase the students' participation and motivation in the lesson. Jimoyiannis et al. (2013) think that by encouraging student participation and motivation, casual conversation, and reflective dialogue, as well as providing access to a variety of ideas and images, interactive content creation, lifelong competency, and the development of an online learning identity, Web 2.0 tools have the potential to improve language learning opportunities. Additionally, Web 2.0 resources may allow the students access to real English-language content via blogs, social media, podcasts, videos, etc. Through exposure to language use in everyday situations, the students can strengthen their reading, writing, speaking, and listening abilities near grammar, and vocabulary knowledge, in a more authentic setting with the culture of the target language. Above all, students can practice their speaking abilities and improve their pronunciation and listening comprehension by using Web 2.0 tools that include content that has the integration of all skills. Yıldırım & Karahan (2023) support these by saying that speaking in the target language is necessary when teaching these four main skills to students using digital tools, and it is challenging to get students to places where the target language is spoken, so Web 2.0 tools provide the most effortless virtual means of achieving this goal. A lot of Web 2.0 technologies can facilitate group work, permit students to discuss subjects, collaborate on projects, and give feedback to one another. Web 2.0 tools build an environment for cooperative learning, therefore integrating Web 2.0 tools with standard methods of teaching can greatly improve retention (Celik et al., 2022). It might encourage teamwork and communication which are crucial for the EL acquisition process. On the other hand, the use of the Internet with Web 2.0 tools has clearly facilitated access to educational content such as online courses,

videos, e-books, or language learning applications. It can be said that they are so significant for students who like individualized education in EL acquisition. Çeçen (2020) posits that this is made practical by the self-directed aspect of Web 2.0 enhanced language learning, which gives students the freedom to design their educational journey. Web 2.0 offers flexibility for time and place, so the students can reach the materials whenever and wherever they want. In addition to these, various online resources supply immediate feedback and automated evaluation for tasks and projects, so the students can use them to track their development and concentrate on their weak areas. They may facilitate and speed up the process of providing and assessing feedback, saving time and effort. Web 2.0 tools likely make easier teacher and learner communication and provide a language learning process in which the learner is more autonomous. Further, Web 2.0 tools may be accepted as a good guide for teachers and learners to follow innovations in the language acquisition process.

To illustrate, Mahmud et al. (2023) carried out a study about Padlet, one of Web 2.0 tools, to investigate whether the students of English as a foreign language (EFL) in Pakistan in the 21st-century develop their teamwork and communication abilities in a fun and cooperative way. A quasi-experiment is carried out with 80 students to assess how well Padlet versus regular language-learning techniques can help EFL learners become more proficient communicators and collaborators. The results showed that the students' cooperation and communication abilities are significantly and favorably impacted by Padlet and that they have a positive view of Web 2.0 tools when used in a collaborative learning environment. The study also predicted that it would continue to be used by students in language learning in the future.

2.3. Games in Education

It is commonly known that educational games aim mainly to entertain players while simultaneously teaching them new information or strengthening particular abilities. These games have been intentionally created to support academic goals, cognitive ability growth, problem-solving skills improvement, CT encouragement, and more. Games in education can cover many subjects and areas such as language acquisition, social studies, maths, history, science, and social studies. They may take numerous different forms, such as board games, card games, video games, smartphone apps, and interactive models, and they are often aimed at different age groups, ranging from young children to adults. It is clear that games are of considerable importance in education. Games can be incorporated into the lesson at any point: to identify the students' abilities at the start, to practice language during the course, or as

a "reward" and reinforcement at the conclusion (Zhu, 2012). Games could actively contribute to the mastery of particular concepts or abilities as well as the achievement of well-defined educational goals or objectives. Wulanjani (2016) emphasizes that it is advantageous for teachers to take into account the number of students, cognitive level, context, time, and learning topics that connect with the curriculum and learning objectives while using games. According to Hashemi (2021), educational games are student-centered rather than teacher-centered, provide students with responsibilities and the opportunity to participate both physically and mentally, readily grab students' interest, encourage their engagement, are enjoyable to play during the structured academic phase, and help students socialize. In a classroom that has been gamified, students can work together with their peers in a system designed to take them out of the traditional classroom setting rather than sitting through lessons and completing tests, they get to experience something new and stimulating that inspires them to learn and grow (Hanus & Cruz, 2018). Also, games may create realistic problem situations for students, skillfully combine knowledge, inspire learning enthusiasm, and successfully support students' learning (Zeng et al., 2020). Engaging and fun games can support the student to maintain interest and learning motivation in education. The ability to keep a learner's motivation and interest by tailoring the learning and gaming experience to each learner's needs, preferences, goals, and goals is one of the most important characteristics of effective educational games (Kickmeier-Rust et al., 2011). Educational games often involve active participation and problem-solving, thus they can develop students' decision-making and challenge-solving skills. On the other hand, games adjusted to students' level may help them comprehend their performance, fix errors, and reinforce learning by providing immediate feedback. Pfahl et al. (2001) assert that games should be relaxing and safe settings where students can try new things and observe the results, capturing the lessons from their errors and real-life experiences. Thanks to all these positive contributions, it is possible that educational games offer to both the teacher and the student and occupy a great place in education.

Sun et al. (2023) did a study using educational games. The researcher aims to evaluate the overall effect of educational games on students' CT skills in the area of programming and look into whether game-based design elements will influence how well students acquire their CT skills. This meta-analysis study was obtained from 22 studies using the quantitative literature review method. According to the findings, games in education can help the students' CT abilities improve, and using practical designs, educational games are an efficient technique to help students become more proficient in CT.

2.3.1. Games in language teaching

Language learning and teaching can be said a challenging process in which individualized instruction is more important. There have been various ways to make this process easier and more bearable, and it has been wise to include games in the language acquisition process. They are a great way for teachers to engage students in engaging activities and help the students acquire language (Bakhsh, 2016). The use of games in the educational environment is one effective teaching method that incorporates elements of play and enjoyment for language instruction and acquisition (El Moudden, 2021). It is acceptable that games offer an engaging and dynamic means of practicing and reinforcing language abilities, making them beneficial tools in the language teaching and learning process. It's crucial to combine games into specific language learning objectives when using them in language instruction. They can supply an opportunity for assessment and reinforcement of whatever was learned. Games can also give a chance for useful language practice, vocabulary and grammar reinforcement, and meaningful conversation. In addition to aiming to teach language elements, games may contribute positively to students' socialization aspects such as communication, cooperative work, and courage. Games need to encourage communication in the target language and be demanding without being too severe. When properly designed, games can increase socialization, encourage people to compete and win, and create an atmosphere where learning is primarily learner-centered (Levent, 2009). As a result, games likely have a great place in the language acquisition process of the student both in terms of socialization and cognitive development.

In language classes, it can be said that there are several types of games such as video, serious, and simulation, under the title of digital games played on computers and mobile phones. Some games of these kinds can aim to teach vocabulary, others to improve comprehension and expression, others to help reinforce the use of language in real scenarios, and still others to support the correct use of grammar rules, etc. Among the games, video games have likely been involved in the educational process ever since computers began to be a part of language acquisition. Video games are becoming more common among educators because they have engaging and interactive forms of real-world learning materials (Kirriemuir & McFarlane, 2004). Camacho Vásquez & Ovalle (2019) think that video games have the innate potential to draw in players and seem to be quite addictive, and a lot of people find them appealing because of their characters, gameplay, storyline, visuals, and music. About another type of game, serious games, Papanastasiou et al. (2017) say that offering users a safe, secure environment for active, critical, and creative learning, serious games also let players experience pleasure, emotion,

motivation, gratification, and exploration of concepts, techniques, and abilities. It is possible that the purpose of building serious games is to educate, practice, strengthen skills, or support educational goals. The other genre is simulation games, Meihami et al. (2013) posit that a simulation game is an attempt to model different aspects of "real life" in a gaming format for teaching, analysis, or prediction, among other uses. Since they supply immersive, interactive dimensions that engage students in meaningful contexts, simulation games mostly have the potential to be quite effective teaching supports for languages. With the use of technology, games like video, serious simulation, etc. provide lively, dynamic spaces where students might improve their abilities in language.

Liu et al. (2021) implemented a study. The objective is to figure out how games contribute to the willingness of pupils to communicate and how their teachers feel about it. Pre- and post-tests, an attitude questionnaire, and 10 instructional games were used to gather data from the experimental and control groups. The findings demonstrated that the majority of the study's teachers thought that games had a favorable effect on students' attitudes about learning English and that using them in the classroom offered a variety of goals for learning. Furthermore, games greatly improved EFL learners' openness to communication.

2.4. Digital Games in Language Teaching

The term "digital games" in language teaching may refer to the use of computer-based or electronic games as tools for education to improve language acquisition. The formats of digital games used in teaching languages can be extremely varied. According to Reinhardt & Thorne (2020), both casual and educationally created games can be used in game-based and game-enhanced L2 learning in a range of contexts (such as informally in the wild, in experimental settings, and in more formal classroom environments). Wang & Dostál (2018) claim that digital educational games are created especially with teaching and learning in mind, and they are thoughtfully crafted to match learning objectives with appropriate materials.

The following are some essential features of digital games used in language teaching. Playing digital games might support fostering a helpful and encouraging learning atmosphere in the language learning and teaching process. Above all, digital games can provide a well-rounded language learning experience covering a variety of language skills, including reading, writing, listening, speaking, etc. Buckley & Doyle (2017) say that currently, games are being used in education to encourage student participation in a variety of subject areas, like as taking classes in FLs. Numerous digital games simulate real-world scenarios, making

language practice possible. This may aid students in using their linguistic abilities in real-world situations. Also, culturally relevant digital games may help students become more aware of other cultures by giving them the chance to study and comprehend language from their own culture. With digital games, students at different stages can find the opportunity to practice the language according to their needs and at different competence levels. Thus, it mostly serves language learning, which is more suited to individualized learning. Additionally, the flexibility of digital games enables students to participate in language learning activities at different times and locations, which can facilitate their integration into a variety of learning situations. It is inevitable that instant feedback from digital games also helps students quickly reinforce the linguistic subject matters, and correct their mistakes during learning and teaching the language process. Kapp (2012) supports this by saying learners can experience the aspect of disagreements, feel as though they have won or lost, and get immediate feedback. It is commonly seen that students actively engage in the language learning process in a lively and enjoyable way by playing digital games, which offer an immersive and interactive learning environment. It is claimed that playing well-designed games forces players to engage in increasingly challenging interactive tasks, many of which call for solo or group problem-solving (Peterson et al., 2022). Furthermore, the students can be accepted to be inspired to dedicate time and energy to language acquisition through the natural enjoyment and challenges of gaming. Engaging students with challenging yet achievable games keeps them interested for extended lengths of time, and even with repetitious tasks, students do not quickly grow bored (Ghazal & Singh, 2016). Thanks to online and multiplayer language learning, digital games commonly let learners communicate, cooperate, and participate, allowing them to utilize the target language in a social setting. It is a good way that the drawbacks of conventional approaches can be compensated for by incorporating digital games into language teaching, giving students a more engaging and customized learning experience.

The purpose of the study implemented by Wichadee & Pattanapichet (2018) was to determine the effect that a digital game had on students' motivation and performance in the classroom. The experimental group used Kahoot while the control group continued with the traditional method. The instruments utilized in this quasi-experimental study included pre- and post-tests as well as questionnaires on the students' motivation and views toward gamification in language learning. The motivation of the experimental group was better than the control group's motivation. According to study results, students felt favorably about using digital games to help them learn languages.

2.4.1. Digital games for vocabulary teaching

Each individual who learns a language acquires a vocabulary, or sets of words with their meanings (Carter, 2012). It is obvious that knowing vocabulary is an integral part of teaching language, and a broad and varied vocabulary is necessary for proficient communication in any language. One of the most important aspects of learning a language is likely expanding one's vocabulary, which is essential to overall language proficiency. In addition to being a key element of language learning, it can be said that vocabulary is a significant factor in assessing language ability. It may affect all linguistic abilities, including speaking, writing, listening, and reading. Deris & Shukor (2019) add that vocabulary knowledge is commonly regarded as the foundation of language acquisition since students' ability to communicate typically depends on what amount of vocabulary they know. Given the importance of vocabulary in language learning, it is wise to include games in this process. It is believed that employing digital games to teach vocabulary may be seen as a new way to improve vocabulary acquisition and improve the students' skills in English (AlNatour & Hijazi, 2018).

With their interactive and captivating learning environment, digital games might be a big supporter when teaching vocabulary. By imitating real-life settings, digital games can frequently provide language in specific contexts and stimulate vocabulary application in practical situations, so students may find the opportunity to see taught vocabulary utilized in meaningful circumstances. Repetition is needed for the words learned in the target language to be permanent. Digital games can serve repetition and allow students to receive immediate feedback. Thanks to digital games, the students can be active participants in the vocabulary learning process, and being active can help students to be motivated, to easily remember the learned vocabulary, to improve their decision-making skills, and to improve their problem-solving skills. Yang et al. (2012) state that because they present a task and a desire, digital games are a sort of teaching tool that can inspire students' interest, and the feedback they receive while playing the game can help students advance their understanding. Besides all these, sounds and images may enhance comprehension as most digital games are visually and auditorily supported to communicate. Azar (2012) affirms that they give students the chance to use the target language and enhance their communication abilities. Thus, digital games, which might allow the learner to progress at his/her own pace, prevent students' word pronunciation errors. On the other hand, students can be encouraged to actively study and master language via the use of game elements like awards, marks, and badges. These components might give students a

feeling of accomplishment and advancement whenever and wherever they want. Competitive and cooperative digital games can provide a dynamic learning environment and make students eager to learn vocabulary. They are inspiring because they frequently feature fair competition and foster a cooperative learning atmosphere, giving students the chance to collaborate (Derakhshan & Khatir, 2015). Some digital games possibly contain real-world language usage and cultural references that integrate into the game's scenario by including authentic elements. They may help students to make sense of the target word in the context of their own culture. In short, incorporating digital games into vocabulary teaching possibly makes the learning process more dynamic, effective, collaborative, and fun.

Based on the difficulty of teaching FLs to children at an early age in the Turkish education system, Hazar (2020) conducted a study to see the role of digital games in the vocabulary acquisition process. While 20 students in the experimental group learned vocabulary with digital games in the Education Informatics Network (EIN), 17 students in the control group learned with pen and paper. The data were collected using pre-tests and post-tests during the study. The findings showed that students who played digital games in EIN had better vocabulary knowledge.

2.4.2. Wordwall

It is inarguable that technology offers countless conveniences in education, making the process easier and more efficient for both teachers and students. Knowing how to use technology used in education to achieve the desired goal fills a big gap. Technology serves as a tool for educational activities by including media as an essential part. To integrate technology into the education process, various ways such as digital platforms and applications can be utilized. One of these digital platforms is Wordwall which may be adapted for all subjects such as English, social studies, and maths in a learning environment. It is a software platform that can allow many innovations and possibilities designed for students and educators. Wordwall offers games and activities that can be played on any web-connected device, including computers, tablets, phones, and interactive whiteboards. It may promote a flexible and interesting approach to determining knowledge, reinforcing ideas, and encouraging student interaction. Also, it enables educators to design engaging games and learning exercises that use text, math, or other instructional materials by adapting these activities to fit different grade levels and subjects. Wordwall lets instructors make interactive games for their students by selecting a variety of themes and templates that fit the subjects (Widhiatama & Brameswari,

2024). Besides this, on the Wordwall platform, teachers can create their teaching resources, enabling them to create customized activities for their classrooms. To replace paper word cards, Wordwall was created as a platform for producing digital vocabulary cards (Moorhouse ve Kohnke, 2022). Us & Özcan (2023) express that Wordwall enables vocabulary teaching using templates such as selective tests, matching, word hunting, and puzzles. Hidayaty et al. (2022) affirm that students only need to click on the link that the teacher sends to access the many educational game elements; they are not required to download the application and Wordwall can also be printed in portable document format (PDF), which is easy to use for students who are limited by the Internet. The platform can also save teachers time while creating curriculum by offering a collection of pre-made resources by other educators. Similarly, teachers can promote cooperation and resource sharing by sharing their work prepared before with the larger education community. Novalia et. al (2019) state that Wordwall is a fantastic tool for adding interest and enjoyment to the teaching and learning process. To keep students actively engaged in the learning process, interactive elements can include clickable sections, drag-and-drop functionality, and other dynamic features. Students will be more eager to participate in class and happier to study thanks to this digital game (Haq et al., 2021). Students can work together on issues using Wordwall, which fosters communication and teamwork. With the aid of media and the implementation of gamification, Wordwall will help them comprehend the subject better without becoming bored (Rahmasari et al., 2022). The instructive game, Wordwall, combines music and boosts enthusiasm with visuals or images provided in full color so students' focus on learning can be increased and they might feel more comforted during the learning process. The combination of games with music might boost the desire of the students and the colorful visuals used have a positive effect on the learning process. All things considered, it can be said that Wordwall is a flexible tool that encourages group projects, active learning, and evaluation in the classroom. It is an invaluable tool for teachers looking to design dynamic and fascinating educational lessons not only for English classes but also the other classes for their students because of its interactive and adjustable features.

Lestari et al. (2022) used the Wordwall platform for maths lessons. The purpose of this study is to create and assess the efficacy of an online test and educational game utilizing Wordwall that will teach 31 students in 10th-grade about rational and irrational thinking as well as quadratic inequality. This study employed a questionnaire with a validation questionnaire and a student response questionnaire as its method of data collection. The results of the study

showed that because learning may be made simpler, more enjoyable, and more motivating, students are drawn to the learning materials that have been designed.

2.4.3. The use of Wordwall for English vocabulary teaching

Wordwall is seen as an excellent resource for teaching and learning English. It can propose a range of interactive games and activities to make learning English interesting and productive, and it functions similarly to a digital tool for teachers. Under their lesson plans, teachers can design unique exercises including word search, gameshow quiz, missing word, group sort, match up, open the box, find the match, and many more games and activities. Wordwall offers numerous templates or bulletin words with a variety of gaming activities, including word searches, maze chase, match-up games, quizzes, missing word games, etc (Pradini & Adnyayanti, 2022). These exercises can allow concentration on listening, grammar, vocabulary, or any other area of language acquisition. Especially, it can be accepted that Wordwall is a great tool for developing and enhancing vocabulary. It is a full-of-feature web program that offers vocabulary-learning support in the form of bulletin boards including different themes and activities, including a game (Uspa, 2020). Timumun (2020) supports this expression Wordwall is for a word or group of words that are used to teach spelling, vocabulary, letter-sound correspondence, and other subjects. Moreover, with the help of the platform, teachers may design word-based exercises that make learning new terms more engaging and memorable for students. Students can observe their performance in an activity right away with Wordwall because it gives them feedback in real-time. Giving immediate feedback may help to quickly clear up mistakes and emphasize the right answers. Its activities are interactive, which can add dynamism to lessons and let students take an active role in their education. Additionally, it may bring a bit of fun into the learning environment, which is extremely helpful for the process of vocabulary acquisition. Ramadhan and Zaharani (2021) state that Wordwall media is the ideal tool for decreasing student boredom and improving vocabulary comprehension. It can help to overcome the difficulties in learning English vocabulary by making the learning environment more fun and attractive with interactive activities and games. Overall, Wordwall possibly makes learning more dynamic and productive, making it more pleasurable and fertile for students studying languages in general and vocabulary acquisition in particular.

In this study, the researchers Hasram et al. (2021) wanted to look at the degree of improvement in the vocabulary performance of Malaysian students via Wordwall. A

quantitative and experimental study was conducted in a public primary school with 5-year-old 40 students with similar English levels. Data were obtained through a 30-question questionnaire. The survey was divided into two sections: Part A included multiple-choice questions referring to various lifestyles, and Part B included questions designed to find out how students felt about using Wordwall online games to acquire vocabulary. In addition to these, a 30-question vocabulary test containing the vocabulary of a total of six units was used as a pre-test and post-test to make comparisons. According to the results, the students expressed strong motivation for importance, enjoyment, and interest and as an external stimulus, the Wordwall interactive vocabulary game helps explain the rise in scores between the pre-and post-test series.

Another study carried out by Rosydiyah et al. (2022) is to determine how well junior high school students perceive Wordwall online games as a technology-based learning tool for grammar instruction. The data in this experimental study were collected with 60 students through a grammar multiple-choice test. As a result of the pre-test and post-test of the experimental and control groups consisting of 30 students each, it was effective in increasing the grammar knowledge of the students in the experimental group. In addition, a questionnaire was administered to the experimental group to look at student perception of the implementation of the Wordwall online games and it has given positive results.

2.5. The Impacts of Digital Games on Affective Factors

Today, thanks to the developing technology, the use of digital games is becoming more and more common among FL learners. They are irreplaceable elements for students and teachers in both academic and educational processes. They are also a great psychological support and effective for the students. Factors of human behavior and experiences connected with feelings, attitudes, and moods can be referred to as affective aspects. It is known that these elements have an essential effect on how someone feels emotionally in general reacts to different stimuli, and interacts with other people. Emotional components can cover a variety of emotional experiences, including both positive and negative feelings. Some of the effective factors that support the language teaching and learning process positively are building motivation, willingness, self-confidence, and reducing anxiety. Digital games can effectively facilitate this process if teachers aim to minimize the negative sides and emphasize the positive ones by considering the levels of students and ages. Lee & Hammer (2011) think that when it comes to the FL teaching process, students' motivation levels and degrees of interest and attention have a big impact on their educational performance. Students learn many things in the

language acquisition process, which turns into a relaxed, active, motivation-boosting atmosphere while at the same time, the learning-teaching environment helps to get rid of students' anxiety about learning an FL (Aydın, 2014).

In their study, Lee & Drajati (2019) examined the relationship between informal digital game activities and affective changes (mostly on self-assurance, motivation, and anxiousness) when communicating in an L2. Data were collected using a questionnaire with 183 public university students of EFL in Indonesia. The results showed that there is a positive relationship between students' willingness to communicate (WTC) and digital game activities and affective factors. The results suggest that effective factors and students' digital games activities involvement are important factors in L2 communication.

2.5.1. Motivation

The Latin verb "movere," which means "to move," is the source of the English vocabulary "motivation.", and psychological motivation describes the emotional forces that compel humans and other psychological individuals to act or move (Lens & Vansteenkiste, 2020). It is obvious that to teach and learn a language, motivation is essential. Students are more likely to become familiar with the language, overcome obstacles, and reach better skill levels when they are motivated. Two types of motivation are frequently encountered in the process of language teaching and learning. The innate desire or request to acquire a language for one's satisfaction or pleasure can be referred to as intrinsic motivation. According to Legault (2020), engaging in activities that are innately satisfying or joyful is known as intrinsic motivation and people are naturally motivated to perform the things they find fascinating or delightful. The other type of motivation, extrinsic motivation, is possible if language learners are also motivated by external variables such as grades, rewards, or social acceptance. Extrinsic motivation refers to a broad range of actions taken as a means to an objective rather than for themselves (Deci, 1975). An individual with intrinsic motivation is driven by their inner desires and in contrast, extrinsic motivation is a desire that is focused on external or environmental variables (Karsudianto, 2020). For extrinsic and intrinsic motivation, Kuo & Chuang (2016) say that playing digital games can boost the desire to replay content both internally and externally. Tunçel (2014) emphasizes that students who start FL learning with high motivation, who are free from prejudices towards language learning, and who do not have a negative judgment that they can learn the target language are more advantageous than individuals with negative motivation towards language learning. To provide both intrinsic and extrinsic

motivation, the contribution of digital games, have charming activities that can attract students in every aspect. Digital games may encourage motivation, autonomy, and language competency when carefully incorporated into language teaching.

Game-based learning has been used for many years to maintain the continuity of learning for educational purposes and to provide the motivation that possibly keeps it alive. By making studying fun and interesting, well-made language learning games can appeal to students' motivation. Playing digital games might make students feel challenged, accomplished, and satisfied with themselves. Donmuş (2012) asserts that educational digital games, as a computer teaching application, have recently attracted the attention of educators and researchers as a powerful tool to motivate students towards learning with their engaging features and fun aspects. An environment for learning that is game-based aids in raising a person's level of motivation (Ebrahimzadeh & Alavi, 2017). In addition to the advantage that digital games provide immediate feedback, they may increase motivation in terms of being more individual-centered and providing convenience in terms of time and space. Authentic content supported by audio, visual, and gestural elements can motivate and engage students better. The motivated person has goals, and expectations, makes an effort, pays attention, shows good effects, exhibits self-efficacy (confidence), and is aroused and persistent (Gardner, 2007). Through engagement, motivation for students, and more meaningful learning, digital games aid in fostering the enjoyment of vocabulary learning and more straightforward retention of vocabulary (Shakhmalova & Zotova, 2023). It can be said that it is also a source of motivation in terms of the development of the social aspect of students since digital games are competitive and cooperative. To guarantee long-term motivation and competence, it is essential to assist students in transferring their abilities from the gaming environment to real-life language use and to offer advice and support that emphasizes the positive aspects of digital games.

Ebrahimzadeh & Alavi (2017) researched to examine the impact of a commercial online video game on high school students' motivation to study an FL. 241 male students were divided into three groups readers, watchers, and players. A pre-and post-test language learning motivation scale was administered to the participants, and field notes were also recorded. The findings demonstrated a considerable rise in motivation for language acquisition over time. It was recommended that commercial digital games can increase high school students' motivation to learn languages.

2.5.2. Anxiety

It is believed that attitude and anxiety play major roles in the process of learning an L2 (Alemi et al., 2015). The emotions that a person has before or during an examination in connection with the task of finishing the assessment, the danger and anxiety of failing, and anything else connected with uncomfortable situations (Bonaccio & Reeve, 2010). Feeling anxious for some reason might be a big set in achieving the student's goal in the learning environment. To provide a happy and productive learning environment for students who learn languages, it can be important to recognize and minimize anxiety.

The complex and multidimensional question of how digital games affect anxiety in FL instruction has been investigated in educational research. A more comprehensive teaching and learning environment that carefully incorporates digital games can improve language learning experiences and perhaps help reduce anxiety. Students might play with language in digital games because they enable an ideal and regulated learning area free from the worry of being judged. This can lessen anxiety and motivate students to take risks with language. However, digital games can increase anxiety among students if they are overly difficult or if they feel powerless. Achieving a suitable balance between difficulty and aptitude is essential to sustaining a positive result. Digital games with good design may strengthen students' motivation and participation. Since students view digital games as enjoyable reason and interesting, they typically foster low-anxiety situations. Students may be more likely to take the opportunity to overcome the anxiety associated with learning a language when they take an active role in a gaming environment. Hwang & Huang (2010) share that it has been demonstrated that using an interactive setting helps students feel less anxious. Some students may experience performance anxiety as a result of feeling under pressure to perform well in the context of the game. Instead of concentrating only on results, teachers need to value the process of learning and establish a supportive learning environment. Also, a lot of digital games enable to supply immediate feedback. It is key to design systems for feedback that are supportive and encouraging. In multiplayer environments, students who tend to be shy or find social interactions discomforting may feel more anxious. Digital games should be designed with the needs of the player in mind, offering alternatives for individual play as well as different social activities. On the other side, the teacher's lack of improving himself/herself, failure in the teaching process, and fear of technology might also affect this process negatively. Teachers can create a warm and welcoming learning atmosphere that supports language learning and general well-being by managing anxiety in the classroom.

According to Pitoyo (2019), digital games help students overcome the anxiety that they will not be able to do the exam. Additionally, the study looks into how test-anxious kids are, how they feel about Quizizz, and what aspects of the game they like best about Quizizz. In this case study, information was gathered through questionnaires, interviews, and observation. In this study, 14 students who attended Solo's English course participated. It indicates that Quizizz, with its integration of gaming features, effectively reduces exam anxiety for students. For this reason, using Quizizz throughout the exam is a wise choice for teachers.

2.5.3. Willingness

Willingness can be mentioned as an aspect of being prepared or eager to take action. It likely consists of having a positive outlook and being interested in voluntarily participating without force or pressure in a specific activity or behavior. A study by Zeng (2010) has examined a variety of factors that can affect willingness, including the impact of a calm classroom, support from teachers, personality, self-confidence, fear of making mistakes and becoming embarrassed, fear of making a poor impression and losing face, one's perception of their speaking ability, familiarity with the topic, and degree of familiarity with the other person. On the other side, willingness can be the most basic source of motivation and the motivated student actively participates in the learning process. The willing individual may make him/herself physically and psychologically ready for learning. Those who say that wanting to do something means doing half of that job are right in a way.

No matter how much experience a student has with the language, they will never become fluent in it if they are not willing to interact with it and use it (MacIntyre et al., 1998). Digital games can be useful instruments for increasing language learning enthusiasm and engagement in other words willingness when used properly. The way digital games are designed, how well they integrate with other teaching strategies, and personal preferences all affect how willing students can be accepted to learn an FL. Digital games are not replaceable tools to make students eager to learn a language because they are interactive, their content is dynamic, visual, and auditory, and they are fun, not boring. The language learning and teaching process might be challenging, and setbacks and changes are a natural part of the process. Students who are eager to learn may tend to be more resilient in the face of challenges and adapt more easily to change thanks to digital games. To improve their fluency and get over their nervousness, ESL learners need to be willing to use their target language (Horowitz, 2019). Since digital games allow autonomous learning, students can spend extra time learning outside the formal learning

environment and continue the learning process voluntarily. Moreover, language learning is also a process that can be left behind if not supported throughout life. In this process, it would be wise to make digital games a part of the language-learning process. Reinders & Wattana (2015a) remind us that as mentioned in the WTC theory, in digital game-based learning, involvement in a safe setting that supports real-world language use will boost self-assurance, reduce anxiety, raise affect, readiness to communicate, and willingness to use and practice the L2. Willingness through digital games can promote flexibility, perseverance, determination, and active engagement, all of which are valuable for both academic achievement and personal growth.

The researchers, Babakhani & Tabatabaee-Yazdi (2022) set out to find out how gamification, one of the motivating strategies, affected the cooperation and communication willingness of Iranian EFL students. In the study, 50 students participated in the process as an experimental group and control group. The experimental group used two gamification websites (Wordwall & Flippity) while the control group continued the lesson with the traditional method. The findings demonstrate the effectiveness of gamification and the significant impact that implementing gamified exercises has on Iranian intermediate EFL learners' communication willingness and collaboration. But in terms of men and women, there was no apparent difference in the willingness to use gamification to collaborate and communicate.

2.5.4. Self-confidence

From elementary school through higher education, it is obvious that self-confidence is crucial to every subject in the curriculum. In the educational process, self-assurance is important and can significantly influence students' capacity to comprehend and use the knowledge they have acquired. Self-confidence is believed to stem from self-belief. The optimistic belief that one can typically achieve their goals in life is known as self-confidence (Zellner, 1970). Students who believe in themselves, possibly know their abilities, set goals for themselves, and aim to be academically successful by overcoming difficulties. Students who are actively involved and motivated in the learning process can be confident and know how to overcome academic challenges. Self-confident students can take risks and are thus better at asking questions, sharing ideas, and solving problems. It is known that self-confidence is important for students both in academic skills and in social relationships. Confident students might be ahead in group work, class discussions, and communication with teachers. Self-assurance is likely a strong motivator for successful language acquisition. According to Abdallah & Ahmed (2015),

there is a significant correlation between academic achievement and self-confidence in EFL learning, most especially when it deals with oral communication success. It may affect many different types of learning processes, including motivation, dedication, and communication skills. Thus, it can be expressed that a key component of efficient language acquisition is helping students strengthen their confidence.

It would be good to use digital games, which have many features for students to be self-confident and take the step to learn a language, in the language learning and teaching process. Digital games can make a big impact on how confident students feel when learning a language. They, when used well, may create a stimulating and uplifting climate that enhances language proficiency and increases learners' self-esteem. Through direct engagement offered by digital games, students can develop self-confidence and information-sharing skills. The majority of digital games designed for language instruction provide instant feedback. Students can track their personal growth and boost their confidence with the feedback provided. Playing digital games gives a risk-free setting for studying a language. Without worrying about being criticized, students are allowed to take risks with new words and expressions, make mistakes, and grow from them. This safe atmosphere might encourage a positive outlook on language acquisition and increase linguistic self-confidence. Competitive, cooperative games, which are prepared as a simulation of real life, may allow students to gain self-confidence for correct language use in real life and develop them socially. Together with the other affective factors, digital games now possibly have a significant positive impact on building confidence and self-confidence. In conclusion, by presenting an interactive, feedback-rich, and captivating learning environment, digital games can positively influence self-confidence in language learning.

Li (2021) carried out a study to observe how Chinese EFL students' vocabulary learning achievement, motivation, and self-confidence were affected by game-based vocabulary learning applications. During the application, the experimental group used game-based vocabulary learning while the control group used traditional paper-based vocabulary list learning. Pre-post questionnaires on learning motivation and learning self-confidence, as well as a pre-post test of vocabulary acquisition achievement, were used to collect the data with 70 students in a quasi-experiment. The outcomes demonstrated the positive effects of the game-based vocabulary learning application on students' vocabulary, academic performance, motivation, and self-confidence. Nevertheless, learning achievement was not predicted by motivation or self-confidence.

2.6. The Impacts of Digital Games on Cognitive Skill

Aral et al. (2011) identify that cognitive development is a type of developmental stage for kids that begins at birth and includes all mental functions and activities that encourage interactions with others, consciousness of the environment, and the gathering and using of knowledge. At the beginning of the 21st-century, with the developing technology, cognitive development is tried to be developed by supporting it with different formats such as media, digital books, digital games, smartphones, and the Internet. Students' cognitive activity should be formed through the efficient organization of their use of new technology items (Zonova et al., 2019). Using technology may require some cognitive skills such as creativity, thinking, and problem-solving. It is acceptable that digital games are fundamental tools that consist of these cognitive skills in the process of language teaching and learning to support the cognitive development of students. Since digital games are meant to be enjoyable to play, they are great tools for cognitive and physical training (Zhang & Kaufman, 2016). Students mostly need to employ CT, strategy, and problem-solving skills to achieve success in many digital games. By encouraging the player to memorize and recall information, certain digital games can raise working memory capacity. Also, sequences, as well as patterns, are frequently presented in digital games, which helps players recognize and retain structures. Chuang & Chen (2007) support all these by saying that playing digital games helps enhance players' fact/recall abilities and improves their capacities to identify multiple solutions to challenges. However, some digital games, particularly those with periodic rewards and stimuli, might cause attentional prejudice, distraction, and reduced attention duration. A balanced lifestyle that incorporates digital games, sports, interaction with others, and other cognitive activities, together with responsible and aware gaming, might help minimize any potential negative impacts.

How students studying EFL in a Vietnamese higher education institution may improve their EFL learning by growing their cognitive abilities using digital game-based learning was focused on by Nguyen (2020). The study was a quantitative study with a pre-test and post-test design with 16 students. It was conducted with three digital games with selected cognitive content. The results showed that all three chosen digital games might have provided an application platform for the EFL students to use the chosen cognitive abilities of assessment, creation, and analysis. The purpose of this study's findings is to further understand the relationship between cognitive skills and digital games to improve teaching and learning in the field of EFL.

2.6.1. Problem-solving

It might be said that problem-solving is a skill that can enable students to make decisions, get beyond challenges, and accomplish their objectives. It is known that the cognitive process of problem-solving includes identifying, evaluating, and resolving issues. Problem-solving skills can be required in many different situations, from everyday scenarios in the classroom to complicated issues in professional settings. Shih et al. (2010) emphasize that teachers try to create a sophisticated virtual world that fosters students' ability to solve problems, and digital games can be a useful tool for providing the opportunity for students to investigate, reason through, make decisions, and apply relevant skills to real-world scenarios. They possibly have the aim of developing students' creativity, problem-solving skills, and diverse and fast thinking. Digital games can be acceptable as an effective tool in the classroom for problem-solving and instructional development. Playing digital games may give students an excellent platform on which to build and develop their problem-solving abilities. Digital games might provide difficult problems with chances for routineizing and automating solutions (Sun, 2011). A lot of digital games, particularly those with strategic components, might demand players to use their reasoning and CT skills to get over obstacles. Eseryel et al. (2014) assert that educational games should be made complicated enough for students to engage in the problem-solving process to enhance their competency in tackling complex problems. This can increase students' capacity for problem-solving. It is common for games to feature dynamic and changing scenarios that force students to adjust their strategies and approaches to problem-solving in real-time, even while experiencing realistic content. That can also help students apply the solutions they learn in the online environment to real-world scenarios. Besides, gaming can have good cognitive and social effects when it's incorporated into a comprehensive lifestyle. However, excessive or unrestrained play might have unfavorable effects. Playing time and its possible effects on various aspects of life should be understood by teachers, parents, and individuals themselves.

To determine how game-based learning affects the growth of problem-solving abilities, Kailani et al. (2019) carried out a thorough review of studies on the subject published between 2009 and 2016. 1448 game-based articles were found on the Internet and then the data were obtained by selecting 14 articles related to problem-solving skills and digital games. According to the research, students of all ages and academic backgrounds benefit from game-based learning when it comes to problem-solving. Increased motivation leads to persistence in searching for solutions to the problems identified in the training, and the research found that

interaction through cooperation and feedback influenced problem-solving skills by encouraging motivation and engagement.

2.6.2. Creativity

The ability to come up with original ideas, link seemingly unconnected ideas, and take a fresh perspective to problems or challenges can be referred to as creative thinking. For Green & Kaufman (2015), creativity is a critical ability required for people to achieve success and find solutions to many of society's major issues, from creative problem-solving to successful product development and economic prosperity. The idea of teaching with digital technology is vital for helping students become more creative (Behnamnia & Ismail, 2020). Currently, there are several methods available for strengthening creative thinking, including software, digital games, and programs (Runco & Jaeger, 2012). Playing digital games helps students expand their minds, which calls for a higher order of thinking and offers an enjoyable learning experience without neglecting the significance of the lessons being learned (Ahmad et al., 2021).

Integrating digital games into the language acquisition process might indirectly increase creativity. They can influence the development of creativity in different ways depending on the type of games. Well-made games are challenging yet extremely captivating; they frequently trigger players' imaginations outside of the game, offering chances to develop creativity at all levels (Kim & Shute, 2015). Digital games that require players to overcome obstacles and solve difficulties can develop students' CT abilities and creativity as they come up with creative ways to play the game. In addition to allowing students to utilize language in certain circumstances, interactive digital games also challenge them to use language creatively. Storytelling and narrative components appear in a lot of language-learning digital games. This might stimulate creativity in language expression and use by encouraging students to write their own stories, scenarios, or conversations. Playing role-playing games can force students to adopt various characters and interact in many different kinds of contexts. This can support forward-thinking expression and creative thinking in addition to improving linguistic proficiency. Besides these, students might need to utilize their creative talents to use the language correctly following the feedback they receive on their mistakes in language pronunciation, use, and understanding in light of the rapid feedback characteristic of digital games. At the same time, digital games automatically can inspire students, entertain them, and make them pleased while establishing the ideal atmosphere for them to express their creative thoughts and opinions.

To help young children develop their creativity, Ott & Pozzi (2012) researched the topic of creativity and how it could be addressed in technology-assisted learning. The study lasted for three years with thirty-nine students in two classes in a primary school, from the beginning of the 3rd-grade to the end of the 5th-grade. A member of the research team observed each student personally during the gaming sessions. As a result, over three years, students played forty-five mind games, which considerably improved their creative abilities and attitudes in general.

2.6.3. Retention

Students' vocabulary retention and acquisition abilities may improve when technology is used to teach and reinforce language (Huang, 2015). Retention of information in the teaching of languages may be influenced by the effectiveness of the teacher, the learners' interest, or the significance of the materials (Ebeed, 2022). One of the interesting and needed materials can be digital games. Digital games are naturally captivating, grab students' interest, and inspire them to take an active role in their language education. As a result, students likely invest a lot of time and energy into their language-learning process through digital games. These may have a significant role in memory recall and retention. Also, Saleh & Ahmed Althaqafi (2022) reveal that using games as a teaching tool with students enhanced their engagement, helped them retain and absorb the material better, and allowed them to see real-world applications. Through the creation of immersive settings that offer context for language use, digital games can assist students in connecting vocabulary and phrases to real-world events. Students can reinforce their information by playing educational digital games, which provide them with a more comfortable environment in which to repeat previous knowledge (AlShaiji, 2016). Better retention and comprehension of vocabulary and linguistic structures can be achieved through contextualized learning. These games support vocabulary learning and retention because they provide an engaging and collaborative environment in which students can readily and unconsciously communicate their knowledge, especially due to the duties and expectations given to students during their participation (Mohamed, (2021). Due to the repetitious tasks and obstacles included in many digital games, students can practice their language abilities repeatedly in a variety of scenarios. Repetition might help people remember things better and make language stronger by exposing them to it regularly. Additionally, instant feedback is a common feature of digital games, enabling players to fix errors right away. As a result, students can recall and reinforce appropriate language use through instant feedback. By implementing players' natural motivation, digital games frequently offer a fun way to learn languages. Intrinsically motivated

students may be better able to recall and apply what they have learned. Furthermore, digital games that are multiplayer and playing online can promote collaboration and social interaction in the EL between participants. Social contact may assist in increasing recall by reinforcing language use.

Patra et al. (2022) carried out this research to determine how playing digital games affected the retention and recall of language among Bangladeshi EFL students. A sample of 78 students learning English from 50 primary schools was chosen. Pretest, posttest, and delayed posttest methods were used to gather the data. While the control group learned ninety English words through the conventional approach, the experimental group learned the words through digital games on computers. When it came to determining how digital games affected vocabulary recall after the study, the experimental group did better on the post-test. Three weeks following the experiment, the experimental group outperformed the control group in the post-delayed test to assess the impact of digital games on English vocabulary retention. To take full advantage of the benefits of digital games for EL retention, it is necessary to incorporate them into a language learning process that fosters comprehensive recall through a range of learning activities, real-world language usage, and opportunities for EL social interaction.

2.7. The Impacts of Digital Games on Social Skills

The capacity to recognize and respond to the emotions, ideas, and actions of both oneself and other members of the community in social situations is known as social skills (Çubukçu & Gültekin, 2006). Giving and receiving information, as well as expressing and exchanging attitudes, opinions, and feelings, are examples of social skills (Lieberman, 1982). Social skills can cover an individual's capacity to communicate with others, convey messages, collaborate with others, and manage different social circumstances. In the education and training environment, the socialization of students as well as their emotional and cognitive development are all greatly aided by the integration of technology into the learning and teaching process. It could be a good idea to use digital games that aid in language acquisition in the classroom to enhance the emergence and development of these social skills. Throughout the EL acquisition process via digital games, social skills development can help students become more socially adaptive, build stronger relationships, and succeed in the variety of social settings they will come across throughout their education and real lives.

There are many different kinds of circumstances in which social skills can be developed, and they are not only one direction. Several factors, such as the kind of games participated

in, the duration of time spent gaming, and the player's general environment in society, might affect how digital games affect social skills. According to Modafferi (2016), games, especially multiplayer digital games, possibly provide students with an engaging way to practice and improve essential abilities in life. A lot of digital games require students to cooperate to accomplish shared objectives. As students develop their ability to plan, organize, and communicate clearly, this may enable them to become better collaborators and teammates. Digital games let them play online and unite people from all cultures and backgrounds. Cultural knowledge and understanding can be enhanced by connecting and communicating with other players from around the globe. Students have the chance to interact with people who have similar interests through games on digital platforms. A feeling of belonging may result from the establishment of friendships and other interpersonal connections as a result. Social relationships are developed when playing digital games through interactions with others that happen outside of gaming and competition (Trepte et al., 2012). Digital multiplayer games usually demand interaction between players and rival teams so students can coordinate their strategies, put them into use, or just interact with one another via written or spoken chat. This may aid in the growth of proficient communication abilities in a social environment. It is commonly believed that digital games have a variety of effects on social skills. It is crucial for good social development that students should play games sensibly and moderately, balancing them with real-world interactions with other people.

In this study, Wu et al. (2014) examined how playing the game and seeing the relevant context could enhance communication abilities and intrinsic motivation. This study analyzed language learning strategies using a digital learning game intended for classroom instruction, a digital board game in a task collaboration platform. Ninety-six Taiwanese high school students took part in a 50-minute English session after being randomly allocated to one of three groups: regular training, board game language learning, or digital board game language learning. Pre-test, post-test, and questionnaire data were obtained. While the digital learning game appeared to have a better learning performance, qualitative data indicated that the game's digital material was useful in fostering communication and EFL language acquisition.

2.7.1. Collaboration

In the modern learning environment, collaboration refers to the process by which a group of students cooperate to solve an issue, finish a task, or produce a product (Laal & Laal, 2012). Also, Johnson et al. (1990) identify collaborative learning in that small groups are used

in the classroom to assist students in collaborating to enhance both their own and each other's learning. The process of individuals or groups cooperating to accomplish a shared objective can be referred to as collaboration. It may encourage the practice of sharing resources, ideas, and duties to produce a result more effectively than might be accomplished by working alone. Kukulska Hulme & Viberg (2018) posit that in environments where there are no classrooms but alternative meeting spaces or cooperative activities, collaboration may help students learn new skills, acquire new knowledge, and create new connections in as well as out of the classroom. In all areas of a student's life, including their education and daily activities, cooperation is thought of as crucial.

A few tools have been created to facilitate language learning in collaboration (Culbertson et al., 2016). Digital games with a wide variety of learning can be seen as one of these educational cooperating tools. Playing digital online games while studying language enhances collaboration abilities (Tuan, 2012). Interactivity and collaborative learning are critical components of the language acquisition process for students, and digital games combine these elements to provide some benefits for students who are learning a language. Digital games that promote participation can help students' linguistic skills. By collaborating with other players or working together to complete in-game activities, students may enhance their language skills. Group cooperation gives students chances to grow in self-assurance and intrinsic motivation while also providing a supportive learning environment (Van Leeuwen & Janssen, 2019). Additionally, a significant number of digital games have cooperative gaming elements. Students can collaborate and communicate with one another in this way, building cooperation as well as collaboration. Thus, besides communication skills, students can improve their teamwork skills while working with others (Rafiq et al., 2019). Digital games frequently have challenging tasks that call for teamwork to achieve success. To overcome challenges and advance in the game, students can play collaboratively, bringing together their resources, knowledge, and talents. When it comes to real-time collaboration in digital games, successful communication can be extremely important. To apply what they have learned in the classroom to real-world situations, students must be able to work together with others in both the community and in the EL environment. Cooperation is often considered essential for success, even in competitive digital games. It may be necessary for students on the same team to coordinate their efforts to defeat the team that is against them, emphasizing the need for collaboration in reaching agreed-upon goals. Digital games can facilitate global player connectivity, which allows students to collaborate with players from other cultural

backgrounds. When adopted thoughtfully, digital games may be fun instruments for fostering collaboration in a range of contexts, such as training and educational environments.

Bado & Franklin (2014) initiated a study since it is necessary to comprehend how digital games reinforce or challenge established ideas of collaborative learning in the classroom given the recent advancements in information and communication technologies. Using an instructional video game to help students learn EFL, the researcher wanted to understand the nature of high school students' cooperation in this study. Finding out how digital video games are considered to affect EFL learning results was another goal. During four weeks, forty-seven high school students engaged with an instructional video game intended for EFL acquisition and took part in focus group interviews to share their experiences. The study's findings demonstrated that along the game, many teams developed effective cooperation. Most of the students stated that playing the game in small groups helped them become more motivated and improved their EFL vocabulary and writing skills.

2.7.2. Interaction

Interaction has long been seen to be significant in the area of second and FL learning (Hall, 2001). Şanal (2023) says that without conversation, language cannot survive and continue to exist, and interactions between individual systems are the most important and efficient language development resources. Being willing to learn, participating in the process of language learning, and reflecting on what one has learned can all be achieved through interaction. Reinhardt & Sykes (2012) assert that digital game-based learning is seen to be a novel kind of teaching that has the potential to improve language acquisition since it promotes interactions among students. Due to their many interaction-enhancing features, digital games can have the potential to be the most effective instruments for revolutionizing the study of FLs. Through the building of interactive platforms that demand active engagement and communication in the FL being learned, these games might promote the practical application of language. Particularly multiplayer digital games can promote social interaction among students by boosting cooperation and communication in reaching for shared objectives. These games are regarded as crucial since they allow students to immediately improve their language skills due to their participatory character. Digital games for language learning also increase motivation and engagement in the classroom because students might be generally more ready to put in the time and effort to learn something new if they find it entertaining and interesting. Since many digital games facilitate interaction and employ real language and cultural

references, students can improve both their language skills and cultural awareness through these interactive learning experiences. Overall, digital games often have an essential effect on interaction in language learning, which can contribute to the dynamic, engaging, enjoyable, long-lasting, and productive aspects of language acquisition.

Reinders & Wattana (2015b) conducted research in Thailand to figure out how playing digital games affects EFL students' interactions with one another. 30 EFL enrolled in a 15-week university language course participated in six sessions of the study, which involved 18 in-person classroom classes and the widely played online role-playing game called Ragnarok Online. A set of assignments for students to finish has been added to the game. Data was acquired by recording and examining the language used by participants in text and voice chats. The research's findings indicate that playing digital games remarkably and significantly increased students' interaction with English. Furthermore, when opposed to English interaction in the classroom, produced noticeably better engagement.

2.7.3. Competition

The environment for teaching and learning languages has been profoundly altered by the rise of digital games. It has introduced fresh and captivating methods that use the natural competitiveness of games. Competition has long been thought of as a useful tool for generating obstacles and promoting advancement (Yang et al., 2020). Playing digital games can be an effective way to create a dynamic learning environment where learning a language is motivated by competitiveness. With dynamic content, real-time assessments, and multiplayer capabilities, gamified language learning platforms may frequently foster a competitive environment that encourages students to actively engage with the language. This competitive aspect can increase motivation while also building a sense of advancement and accomplishment. Chen & Chiu (2016) emphasize that positive outcomes can also be obtained through competition, which may accelerate student achievement, encourage creativity, and increase student involvement. In addition, due to the fact digital games are interactive, they can be customized to suit the needs of each student and accommodate a variety of learning preferences. By fostering competition among students, digital games may encourage greater student participation in educational settings. For Yang et al. (2021), by creating a competitive environment in digital games, students may be inspired to learn more actively and purposefully, which could result in better performance. In conclusion, it would be a really smart idea to harness the power of competition

to reach linguistic brilliance, as digital games can transform language learning and teaching into an entertaining and effective endeavor.

In this study, Liu et al. (2022) examined the role that competition plays in gamified learning and aimed to determine how various competition styles affected students' willingness to learn and their ability to acquire a new language. In this study, 79 Chinese 6th-graders were divided into groups at random and placed in non-competitive, individual competition, and intergroup competition classes. The gaming platform utilized in the experiment was the Quizlet Live competition. A questionnaire, interviews, and a vocabulary achievement exam were used to gather the data. The findings showed that students in the competitive classroom (individual and intergroup competition) had higher motivation levels and a greater influence on vocabulary learning than students in the non-competitive group. Additionally, students in the intergroup competitive group demonstrated a higher learning effect than those in the individual competitive group; nevertheless, no noticeable distinction was observed in their enthusiasm to study. The findings of qualitative analyses also showed that there might be a connection between the intergroup competition outcomes and the students' perceptions of learning and emotional support.

2.7.4. Funny learning environment

The process of learning EL can be seen as a challenging and long-lasting acquisition. Students may be biased, ignorant, and reluctant to participate in the EL process when they first start. Several techniques can be used to address these challenges and improve the quality of the learning environment such as utilizing student-motivating tools, tailoring the course material to the students' level of understanding, and concluding the lesson with amusing activities. Humor, joy, and pleasure tasks that can make learning the language interesting and captivating are characteristics of a funny English learning atmosphere. On the other hand, humor serves as more than just a source of laughter and entertainment, and not only serves as a student motivator but also fosters a more comfortable and cheerful classroom environment that is favorable for learning (Wahyuni, 2017). The use of humor in the classroom can help students feel less anxious and more relaxed, as well as strengthen relationships, and more motivation (Wagner & Urios-Aparisi, 2011). Askildson (2005) adds that the most often cited reasons for using amusement in the classroom were maintaining or boosting student engagement and fun; also humanizing the teacher and acting as a pleasant, relaxing, and tension-relieving tool. It is possible to argue that digital games close the gap by offering a variety of techniques to foster

an amusing and engaging learning environment for language acquisition. Incorporating funny games and activities into lessons not only keeps students interested and stimulates their imaginations, but also helps them retain new information better because of the interaction and hands-on experiences, and also motivates students to study more to succeed (Alamdard, 2016). To motivate students, digital games might be entertaining and beneficial to create a fun learning atmosphere for EL acquisition. Digital games that feature amusing content, including funny movies, cartoons, or comics about the EL, can draw in students and make studying the language more enjoyable. With humorous games, especially digital vocabulary games, students can learn the language and pick up new vocabulary by connecting it to amusing and memorable situations, making learning enjoyable. Digital games that combine enjoyable language exercises with movement, gestures, or group activities can break up the monotony and place some fun into language learning. Besides, digital games that incorporate surprises or unexpected changes might provide excitement to language learning, maintaining learners' curiosity and attention. Digital games that are cooperative or multiplayer may create a feeling of community and social connection, which improves the quality of enjoyable educational settings. Socially, digital games can foster a happier and more enjoyable learning atmosphere in the classroom. It is an effective means of building friendships between students and teachers. The key can be to make sure that the amusing parts enhance the learning process while maintaining a healthy balance between humorous and educational materials. The goal can be to establish a setting where students are motivated, relaxed, and motivated to interact with English.

Stoimcheva-Kolarska (2020) aimed to investigate and assess the effects of a relaxing and enjoyable environment on the acquisition of an L2. Data were gathered through didactic assessment examinations and observation in a mixed-method research study involving 16 students divided into experimental and control groups. The control group received lessons from books and worksheets, while the experimental group learned through digital games. Upon analysis and comparison of the experiment's outcomes involving the two child groups, it was found that the experimental group's students who gained through digital games outperformed the students who studied through books and worksheets. The results show that creating a pleasant and relaxing learning environment is mostly dependent on the gaming environment. Higher and more effective teaching and learning results can be attained through gameplay.

CHAPTER III

3. METHOD

The research methodology section included a detailed explanation of the research design, participants, data collection instruments, data collection processes, and data analysis.

3.1. Research Design

This study used an experimental design with a pretest-posttest control group to examine the impact of the Wordwall platform, one of the Web 2.0 tools and digital game categories, on high school students' attitudes about English lessons and their success in learning vocabulary. Aydoğdu et al. (2017) say that in an experimental study, a conclusion about the cause-and-effect relationships between the variables under investigation is the method used to conclude. This research can be said to be an example of an experimental study as it was conducted to determine the cause-and-effect relationships between variables and to understand the connections between variables. Konrath (2013) mentions that in experimental studies, individuals are randomly assigned to various groups (experimental, control, etc.) intending to identify the causal relationship between an independent variable (a condition) and a dependent variable (an outcome). In that design, there is a control group and at least one experimental group (Rutberg & Bouikidis, 2018). In this study, among the previously formed classes in the school, two classes in which the researcher taught and which were suitable for the implementation of the research were utilized. The experimental and control groups were determined randomly before the implementation regardless of the pre-test results, and whether or not the groups were equal in terms of English vocabulary success. As a result of the research subjects being assigned at random, the design of the study can be accepted as a true experimental design. Sirisilla (2023) asserts that these three requirements must be completed by a researcher conducting a true experiment: a variable that the researcher can edit, a random distribution of the variables, and a control group that is not exposed to changes while the experimental group experiences the altered variables.

In the pretest-posttest control group model, there are experimental and control groups formed by random assignment. Karasar (2012) shares that in both groups, pre- and post-experimental measurements were conducted, and according to the pre-test, the pre-experimental similarities are found and these results are ensured to correct according to the post-test. In light of this, the current study used a pre-test and a post-test to investigate the

impact of the independent variable—the Wordwall digital game platform—on students' effectiveness in acquiring vocabulary. Because of that, this study can be grouped as a pre-test-post-test control group model.

The process of representing and modifying observations numerically to characterize and explain the phenomena that the findings reflect is known as quantitative research (Sukamolson, 2007). On the other hand, the goal of qualitative research is to address how and why questions rather than how many or how much by exploring and offering deeper insights into real-world issues and gathering participant experiences, perceptions, and behaviors (Tenny et al., 2017). The current study employed a combination of quantitative and qualitative methodologies. The success of students in acquiring vocabulary and their level of EL attitude was assessed in the quantitative aspect. Also, students' perceptions of the digital gaming platform Wordwall were assessed in the qualitative dimension.

In the view of Creswell (1999), a study that uses both qualitative and quantitative techniques for data gathering and analysis is known as a mixed-methods study, and also through this kind of research, an administrative researcher can both objectively comprehend complicated occurrences and provide a basic statistical analysis, graph, and numerical explanation for the phenomenon. In mixed methods research, a researcher gathers textual data (from visual descriptions, in-person interviews, and other sources) in addition to numerical data (for instance from questionnaires with closed-ended questions) to better address the research questions of the study (Ivankova & Creswell, 2009). Therefore, the research approach is likely regarded as a mixed method since both qualitative and quantitative approaches are employed together to gather data in this study.

3.2. Participants

The research was conducted with 9th-grade students in an Imam Hatip Anadolu High School in Selçuklu, the central district of Konya province located in the Central Anatolia Region of Türkiye, in the 1st term of the 2023-2024 academic year. In this school, 9th-grade students study 13 different subjects for a total of 40 hours per week. English lessons are five hours in total in their weekly curriculum. Students were enrolled in the school through the address-based system. Students have graduated from either regular secondary school or Imam-Hatip secondary school before attending that high school. The number of English lessons in the students' previous schools was not equal and they had English lessons from different teachers. In general, students come from different families with different educational and socio-economic

levels, as well as different cultures and languages. In particular, Syrian students are among the students in the control group. However, these students have started their educational life in the Turkish educational system in Türkiye.

The research process was carried out with two groups (37 students) at the 9th-grade level in which the researcher attended English lessons. Their ages were ranging from 14 to 16. At the time of this study, there were three 9th-grade groups in the school. The selection of students for these classes was made by the school administration before the start of the academic year. The principal of the school randomly assigned the teacher, who was also the researcher, to any two of the 9th-grade classes at the beginning of the term. The researcher determined the control group and the experimental group from the groups assigned to her without starting the lesson at school, without meeting the students, and without having information about their levels. While there were 20 students in the control group, there were 17 students in the experimental group. Additionally, all of the students in the control and experimental groups were male because this was a male-only high school. Students who were absent a lot and did not come regularly during the study period were not included in these numbers.

3.3. Data Collecting Tools

Data for this study were gathered using an English vocabulary achievement test, an attitude scale toward English, and a student opinion form. Below, detailed information about these data-collecting tools is given.

3.3.1. The English Vocabulary Achievement Test

The English vocabulary achievement test was utilized as a pre-test and post-test measuring instrument in the experimental and control groups. The test was created by the researcher to ascertain whether there is a significant difference in English vocabulary acquisition success between the groups in the study. This test was a kind of exam consisting of one hundred items created from the words targeted to be learned in units 2 and 3 of the students' English coursebook (Uplift), which was used by high school 9th-grade students in the 2023-2024 academic year. The students' actual academic English achievement was taken into account when preparing for the vocabulary test. The English vocabulary achievement test consists of 12 separate sections in total. Sections A, B, C, D, E, and F in the test include the target words from unit 2 of the 9th-grade English coursebook, while sections G, H, I, J, K, and L ask for the target words from unit 3 of the English coursebook. The test consists of various parts such as selecting and placing words from the box, word grouping, multiple choice, and matching. In this test

prepared by the researcher, each question was evaluated as 1 point and mistakes were evaluated as 0 point. Students answered the test in two consecutive lessons in 40 + 40 minutes, totaling 80 minutes. The English Vocabulary Achievement Test is presented in Appendix A.

3.3.2. The Attitude Scale toward English Lessons

In the study, to measure experimental and control group students' attitudes toward English lessons, the Attitude Scale toward English Lessons prepared by Takkaç Tulgar (2018) was used as a data collection tool. The other purpose of applying this to the control group was to find out whether something other than the intervention would change their attitudes. This scale includes 26 items to measure attitudes toward English lessons. For each of these articles, five options are given points, namely, "I strongly agree", (5), "I agree", (4), "I partially agree", (3), "I disagree", (2), and "I totally disagree", (1). To investigate high school students' attitudes toward English lessons, Takkaç Tulgar (2018) carried out a validity and reliability research of the Attitude Scale toward English Lessons. 370 high school students who participated in classes in Erzurum during the 2016–2017 school year were chosen for the study group using a practical sampling technique. Exploratory Factor Analysis was used to examine the factor structure of the scale. Four dimensions (significance, interest, knowledge, avoidance) were revealed to account for 64.55 percent of the total variance, and the indices for model fitting were at an acceptable level. A sufficient number of scores was obtained for scale reliability after the analyses of internal consistency, test-retest, and half-split reliability were performed. Cronbach's alpha value is 87. After evaluating the data, Takkaç Tulgar (2018) concluded that this scale is a viable and accurate way of assessing how high school students feel about taking English lessons. The Attitude Scale toward English Lessons is presented in Appendix B.

3.3.3. The Student Opinion Form

An opinion form (interview) is the activity of understanding the feelings and thoughts of individuals involved in a study about a subject or situation (Karataş, 2017). The items in the student opinion form in the study were prepared by the researcher inspired by the form used in the study of İncekar (2023) to explain the qualitative data of the research. The student opinion form consists of two parts. The first part contains six items about the Wordwall digital platform, and students are asked to answer them as "I agree", "I partially agree", and "I do not agree". Additionally, in the second part of the student opinion form, there are four open-ended questions about the Wordwall digital platform that students should answer with their thoughts. Patton (2018) affirms that open-ended questions are essentially ones that let participants express their

ideas, emotions, and experiences on their own terms. For autonomous thought, open-ended questions were favored (Uysal, 2015). The prepared questions were also checked by four English teachers. The items and questions were also examined by a university professor. The Student Opinion Form is presented in Appendix C.

3.4. Data Collecting Procedures

This research was conducted in the 1st term of the 2023-2024 academic year with 9th-grade students in a public school with five hours of English lessons per week. Three different data collection tools were used to investigate the effectiveness of vocabulary games on the Wordwall platform on students' vocabulary learning achievements and attitudes. The English vocabulary accomplishment test, the attitude scale about English lessons, and the student opinion form regarding the procedure are these tools. The experimental group learned the target words through digital online games on Wordwall in the computer room instead of doing the vocabulary activities in the English coursebook, while the control group learned the target words through the vocabulary activities from the English coursebook in their classroom. For a total of seven weeks, the research was done one hour each day, two hours per week with the experimental group students, whereas the control group students conventionally had English lessons in their classes while the researcher carried out the implementation.

The steps for the data gathering process are listed below, covering the pre-application, application process, and post-application procedures.

Pre-application process

- Firstly, the grade level and content of the implementation were decided and determined by the researcher with the advisor of the thesis. In the experimental group, it was decided to carry out the lessons by playing the games in Wordwall for one hour on two different days a week, and in the control group, it was decided to carry out the lessons by sticking to the English coursebook.

- The target words to be taught in the English coursebook were 50 words from unit 2 and 50 words from unit 3. In line with the target words to be learned, 14 games were prepared by the researcher to be used two games per week within the Wordwall platform. Games were selected in the appropriate format for the target words and their content was prepared by using visuals, taking into account the student levels.

- After the target words were determined and the game content was prepared, a vocabulary achievement test was prepared by the researcher. In the test, 50 questions for unit 1 and another 50 questions for unit 3 were prepared. The questions were designed as fill-in-the-blank, matching, multiple-choice, finding Turkish equivalents, grouping, and so on, taking into account the student levels. The vocabulary achievement test was checked and revised by four English teachers and the university professor.

- Next, permission was received from Takkaç Tulgar (2018) to use the Attitude Scale toward English Lessons prepared by her in the research.

- The student opinion form for students in the experimental group was prepared by the researcher and also took into account the recommendations of four English teachers and the university professor.

- The necessary permissions were received from the Directorate of National Education to conduct this study in a public school.

- The students in the experimental and control groups and their parents were informed about the process. In addition, documents indicating their voluntary participation were signed by the parents of the students.

- Finally, during the week immediately preceding the seven-week intervention, students in the experimental and control groups were administered both a vocabulary achievement test and an attitude scale toward English lessons as pretests.

Application process

The students in the experimental and control groups were given English lessons on Mondays, Tuesdays, and Wednesdays by the researcher, who was an English teacher at the school where the study was conducted. The researcher taught English lessons, which were five hours in the weekly syllabus, for seven weeks with the students in the control group through the interactive book on the smart board according to the English annual plan prepared at the beginning of the year. The students in the control group tried to learn the target words used in the study in their own classrooms through vocabulary learning activities in the English coursebook. On the other hand, for the students in the experimental group, the researcher taught the lesson in three hours using interactive books on the smart board from the English annual plan prepared at the beginning of the year. However, on Tuesday and Wednesday, the 8th hour,

the researcher took the students to the computer room located in a separate part of the school. There was one computer for each student in the computer room. A maths teacher at the school who is also an information technology guidance counselor (ITGC), helped the researcher to share the Wordwall game link on the students' computers in the application process. The teacher shared the game link on the main computer using a computer monitoring and classroom management program called "Veyon". During the research, the process of vocabulary acquisition with online word games through the Wordwall platform in the computer room with the experimental group is explained below weekly.

The first week

In the first week of the implementation, the researcher informed the students about the process, and the Wordwall platform was chosen to carry out the process before starting the research. On 10 October 2023, the researcher and ITGC went to the computer room with their students. Since two students did not come to school that day, 15 students enrolled in the first week of the program. Students sat down so that every student had a computer. On the main screen in the computer classroom, the researcher opened Wordwall, where he had previously recorded and produced the game content. The researcher opened the "Flip Tiles" game, which had been prepared for the first week by the researcher. ITGC shared the game link on students' computers via "Veyon". This game contained the words "bedroom, study room, dining room, bathroom, living room, kitchen, garden" under the heading "the parts of a house" in unit 2. During the time that was adjusted to the content and difficulty of each game, students played the game and were able to see their rows and time to finish the game in the leadership ranking table. After playing this game for a while, they played the other games on Wordwall for a given minute of the same words (Wordwall can change one game into other templates.) The Wordwall platform's leadership ranking was very much enjoyed by the students. During one lesson, the students played the same vocabulary in different games. On 11 October 2023, the class went to the computer room again. The lesson started with the "Group Sort" game with 14 students. This game focused on "the parts of a house and the things" in unit 2. The content of the game was prepared using the words "fireplace, chandelier, armchair, coffee table, sofa, microwave, dishwasher, cupboard, fridge, oven, towel, bath mat, shower, washing machine, bath, bedside table, chest of drawers, desk, wardrobe, bed". Students also played word games in different templates on Wordwall. The problems that arose during the implementation were fixed by the ITGC. The students left the class very happily.

The second week

On 17 October 2023, the game was played with 16 students during the lesson. Each student used a single computer. The researcher opened the game on Wordwall on the main screen, and the ITGC shared the link and helped to solve the problems. This week, in the game called "Labelled Diagram", the target words "in, on, in front of, between, near, under, behind" under the title of "prepositions of placement" in unit 2 were presented to the students in the content of the games. Students were able to play the word games in other templates in Wordwall. In the 8th class on 18 October 2023, 16 students started the lesson with the "Crossword" game. The researcher prepared this game by using the words "chemist's, mosque, butcher's, hospital, stationer's, greengrocer's, furniture shop, baker's" under the title "the places in the neighborhood" in unit 2. They had the opportunity to play the word games in other templates during the class. The students liked to compete for leadership among themselves and never wanted the lesson to end.

The third week

On 24 October 2023, 14 students participated in the English lesson in the computer room. The students, accompanied by the researcher and the ITGC, engaged in vocabulary learning through games. First, they began the "Quiz" game with the target words "city, town, village, river, lake, forest, mountain, beach, waterfall, sea" about the "names of the places" topic in unit 2. The students loved this game very much. At the same time, seeing the target words in other games would also increase retention, so they played other templates in Wordwall. On 25 October 2023, all 17 students in the class attended the lesson in the computer room. A link for the game "Missing Word" was shared by ITGC. The target words "safe, noisy, peaceful, crowded, lively, quiet" related to the topic "adjectives about a place" were used. But this game did not attract the attention of the students at all and they did not like it. The researcher did not waste much time and shared the links to other templates in the content of the Wordwall platform. Positive feedback regarding their vocabulary development was given to the students at the end of the week.

The fourth week

On 31 October 2023, 16 students attended the lesson in the computer room. The class started with the "Flash Cards" game accompanied by the researcher and the other teacher. In this game, the target words from unit 3 "collecting stamps, doing archery, cycling, horse riding,

skydiving, caving, climbing, playing chess, blogging, ice skating, swimming, jogging" under the title "free time activities" were focused on. Students were able to practice these target words through other templates in the Wordwall platform. All students in the experimental group attended the class on 1 November 2023. ITGC addressed the emerging Internet and link-sharing issues. About free time activities in unit 3 "collecting stamps, doing archery, cycling, horse riding, skydiving, caving, climbing, playing chess, blogging, ice skating, swimming, jogging" have been repeated many times thanks to the game "Random Wheel" and other templates in Wordwall. Playing these games to become a leader greatly boosted the motivation of the students.

The fifth week

15 students attended on 7 November 2023. "Match Up" was played to reinforce the "scuba-diving, pottery, hiking, paintballing, geocaching, robotics" in unit 3 under the title of "adjectives about free time activities". The students loved this game very much. The same words were repeated through other templates in Wordwall. On 8 November 2023, 16 students joined in the lesson. "Gameshow Quiz" was played to learn and repeat the target words "boring, fascinating, exciting, amusing, interesting, relaxing" in unit 3. ITGC solved the problems with link sharing on the computer. The students liked this game and wanted to play it over and over again to be first in the leadership race. Thanks to other templates that the students liked, all these words were learned and repeated with much enthusiasm.

The sixth week

During the sixth week of the implementation, the target words were "historical drama, biography, animation, horror, sci-fi, action, romance, comedy" about "the types of movies" in unit 3. 14 students attended the computer classroom for the English lesson on 21 November 2023. "Hangman" was used to learn target words that week. The students had a little trouble playing the game. Then the same words were practiced through other templates in Wordwall. The next day, on 22 November 2023, 16 students played "Wordsearch" about the title "words about movies" in unit 3, the target words "dull, ordinary, must-see, cliché-ridden, fast-paced, unrealistic" were reinforced through the other games in Wordwall. Although the students found it difficult to learn vocabulary, they were pleased that the images in the games helped them learn the vocabulary. The problems with computers and the Internet were again solved by ITGC.

The seventh week

In the last week of the implementation, the English class started on 8 November 2023 with a "Find the Match" game with 13 students. This week's target words are used in a reading piece of unit 3 in the English coursebook. Words "breathtaking, entertaining, inspiring, heartbreaking, heartwarming, thrilling" were also used in the game and other templates in Wordwall. Although the similar structure of the vocabulary confused the students a little, they expressed that learning through games was more durable. The words "opinion, audience, plot, tell, on the edge of somebody's seat, keen on" were revealed in the last week's "Matching Pairs" on 29 November 2023. These were the target words in the reading section of the students' English coursebook. The fact that there were fewer words made learning easier for the students. These words were repeated by the students through other templates that the students in Wordwall enjoyed until the class lasted. The researcher helped find games in Wordwall on the main screen of the computer classroom, while the ITGC supported sharing digital online game links on the students' computer screens.

Post-application process

- Unit 2 (My Environment) and unit 3 (Movies) were taught for seven weeks with the students in the experimental and control groups. In the following week, the vocabulary achievement post-test and attitude scale toward English post-test were administered to the students in both groups. In addition, a student opinion form was also applied to learn the opinions of the students in the experimental group about the Wordwall platform.

3.5. Data Analysis

Within the current part of the research, explanations were provided for the analysis of the results derived from the studies that were carried out with the experimental and control groups. The data collected from 37 students was transformed into statistical information.

3.5.1. Quantitative data analysis

The study included a multi-step statistical analysis to assess the quantitative research questions, which tried to find a way to clarify the influence on English vocabulary achievement and attitudes toward English. The assumption of normality was first addressed because it is essential to the use of parametric tests for the obtained data. Skewness and kurtosis measures, as well as distributional properties of the data, were ascertained through the use of normality tests. The histogram, together with the skewness and kurtosis values, were analyzed to evaluate

the ExPOST variable's normality. Next, to look into within-group changes in the analysis from the pre-test to the post-test, paired sample t-tests were concentrated. It also enabled it to investigate independently whether the experimental and control groups saw significant differences over time by answering the first and second research topics. For the third and fourth research questions, which examined the variations between the groups, an analysis of covariance (ANCOVA) was applied. To preserve the integrity of the inferential procedures, great care is taken at every stage of this analytical journey.

3.5.2. Qualitative data analysis

In this study, content analysis (CA) was used to examine the fifth research topic about the student opinion form that the researcher created to find out what the students thought about the Wordwall digital platform. Namely, qualitative data in the study were analyzed using CA to answer the research question. A research technique called CA is used to interpret messages' (which is frequently free of structure) text, picture, symbol, or audio content (Gheyle & Jacobs, 2017). Krippendorff (1989) advocates that according to the content analyst, data are representations of words, images, and expressions rather than actual events; as such, they must be examined with these purposes in mind, and these representations are meant to be viewed, read, interpreted, and used for their intended purposes.

CHAPTER IV

4. FINDINGS

To rigorously assess the research questions aimed at understanding the impact of an educational intervention on vocabulary achievement and attitudes toward English lessons, a multi-step statistical analysis was employed ensuring adherence to key assumptions and methodological protocols consistent with academic standards. Initially, the assumption of normality for the collected data was addressed, which is pivotal in the application of parametric tests. Normality tests, accompanied by skewness and kurtosis metrics (Table 1), were utilized to determine the distributional properties of the data. To assess the normality of the exPOST variable, the skewness and kurtosis values, as well as the histogram, were examined. The skewness and kurtosis values were found to be within the acceptable range of -1.5 to +1.5, as suggested by numerous researchers (e.g., Tabachnick & Fidell, 2013; Kline, 2015). Additionally, the visual inspection of the histogram supported the assumption of normality. Based on these skewness and kurtosis values, which fell within the recommended range, and the graphical representation, it was determined that the exPOST variable could be considered as normally distributed. These preliminary tests are essential to validate the use of further statistical analyses that presume normally distributed data (George & Mallery, 2010).

Table 4.1. Normality tests for pre-test and post-test vocabulary achievement and attitude measures

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
controlPRE_VA	,158	20	,200*	,942	20	,256
controlPOST_VA	,162	20	,179	,923	20	,112
exPRE_VA	,168	17	,200*	,941	17	,325
exPOST_VA	,191	17	,101	,851	17	,011
controlPRE_sum_attitude	,146	20	,200*	,966	20	,672
controlPOST_sum_attitude	,107	20	,200*	,962	20	,580
exPRE_sum_attitude	,133	17	,200*	,965	17	,721
exPOST_sum_attitude	,258	17	,004	,921	17	,154

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

a. Lilliefors Significance Correction

Subsequently, the analysis focused on paired samples t-tests to explore within-group changes from pre-test to post-test. This method allowed the examination of significant developments that occurred over time within the experimental and control groups separately, addressing the first and second research questions. The paired samples t-test is particularly effective in measuring the impact of interventions by comparing the mean scores of the same participants at two different times (Field, 2013).

For the third and fourth research questions, which probed the between-group differences in vocabulary learning achievement and attitudes toward English lessons, ANCOVA was applied. This analysis extends beyond the scope of t-tests by adjusting for potential covariates and controlling for initial differences, thereby isolating the effect of the experimental treatment on the outcome measures (Tabachnick & Fidell, 2013).

Each step of this analytical journey was carefully calibrated to uphold the integrity of the inferential processes. As a result, the findings derived from this structured approach offer a reliable elucidation of the intervention's effectiveness, contributing to the literature on educational practices and their influence on student learning and attitudes.

4.1. Findings Related to the First Research Question

RQ1. Is there a significant difference between the vocabulary achievement pre-test and post-test scores of the experimental and control groups?

To determine whether the implementation of digital game-based learning significantly influenced vocabulary acquisition, a statistical examination was conducted on the pre-test and post-test scores of students in both experimental and control groups. Given that the data involved repeated measures on the same subjects—students' vocabulary scores before and after the intervention—a paired samples t-test was deemed most appropriate for this analysis.

The paired samples t-test is commonly employed to assess the mean differences between two related measurements on the same subjects (Kim, 2015). In this context, it allows for the evaluation of the instructional impact by comparing the vocabulary scores of students at two different times: before and after the intervention. The assumption of normality, a prerequisite for the application of a paired t-test, was verified through the Shapiro-Wilk test. Results indicated that the differences in scores for both groups were normally distributed ($p > 0.05$), satisfying the requirement for this parametric test.

Table 4.2. Paired samples t-test results for vocabulary achievement scores before and after intervention in control and experimental groups

		statistic	df	p	Mean difference	SE difference	Effect Size
controlPRE	controlPOST	0.184	19.0	0.856	0.350	1.90	0.0411
exPRE	exPOST	-3.88	16.0	0.001	-16.1	4.14	-0.941

Note. $H_a: \mu \text{ Measure 1} - \text{Measure 2} \neq 0$

In assessing the impact of traditional teaching methods on vocabulary acquisition among control group participants, a paired samples t-test was utilized to compare pre-test and post-test scores. This group did not experience the intervention with digital games, thus serving as a baseline for traditional instructional impacts. The test produced a t-statistic of 0.184 with 19 degrees of freedom, yielding a p-value of 0.856. This indicates that the change in vocabulary scores, with a mean difference of 0.35 (SE = 1.90), was not statistically significant. The effect size, measured as Cohen's d, was 0.0411, suggesting a negligible practical significance of the traditional methods on vocabulary learning outcomes over the period studied. Descriptive analysis revealed that the average pre-test score was 48.9 (SD = 12.5, SE = 2.79) and the post-test score averaged 48.5 (SD = 16.6, SE = 3.72). The median scores were 46.5 for the pre-test and 43.5 for the post-test, further illustrating a slight decrease in vocabulary performance.

Table 4.3. Descriptives for vocabulary achievement scores before and after intervention in control and experimental groups

	N	Mean	Median	SD	SE
controlPRE	20	48.9	46.5	12.5	2.79
controlPOST	20	48.5	43.5	16.6	3.72
exPRE	17	62.7	57.0	16.0	3.89
exPOST	17	78.8	86.0	17.4	4.22

For the experimental group, the paired samples t-test provided a robust framework to ascertain the significance of changes observed in the vocabulary scores. The calculated t-statistic of -3.88 with 16 degrees of freedom strongly indicates a significant difference in the scores from the pre-test to the post-test, with a p-value of 0.001. This p-value, being well below the standard alpha level of 0.05, confirms the statistical significance of the results. The mean difference of -16.1 (with a standard error of 4.14) clearly demonstrates a substantial improvement in the vocabulary scores post-intervention. Furthermore, the effect size, represented by Cohen's d of -0.941, indicates a large effect, suggesting that the digital game-

based learning intervention had a profound and practical impact on students' vocabulary development. The descriptive statistics further illustrate the efficacy of the intervention. The mean score increased from 62.7 at the pre-test to 78.8 at the post-test, while the median score rose from 57.0 to 86.0. The increase in both mean and median scores underscores the significant enhancement in vocabulary acquisition as a result of the digital game-based learning methods employed.

These findings, characterized by the absence of a significant improvement in vocabulary scores, imply that traditional educational methods did not markedly enhance vocabulary acquisition within the control group during the study period. This aligns with research suggesting that conventional educational strategies might lack the engagement or effectiveness of more interactive and modern educational technologies as the use of digital games in educational settings to promote engagement and learning outcomes (Clark et al., 2016; Mayer, 2014). Digital games are recognized for their ability to provide interactive and stimulating learning environments, which can significantly enhance learning motivation and outcome retention (Plass et al., 2013).

Findings contribute to the growing body of literature supporting the integration of interactive digital tools in educational settings to foster better learning outcomes (Johnson & Christensen, 2014). Moreover, they provide empirical evidence backing the deployment of game-based learning platforms like Wordwall for vocabulary instruction, thereby offering a viable pedagogical strategy to enhance language learning.

4.2. Findings Related to the Second Research Question

RQ2. Is there a significant difference between the pre-test and post-test scores of the attitude toward English lessons of the experimental and control groups?

The paired samples t-test was utilized to determine if there were statistically significant changes in the students' attitudes toward English lessons from the pre-test to the post-test within each group. This test is sensitive to changes in paired observations and is ideal for pre-post measurement designs where each subject serves as their own control, minimizing the variability caused by differences between subjects. The below tables present the results of a study that measured the attitudes toward English lessons of participants in the control and experimental groups, before and after an intervention.

Table 4.4. Paired samples t-test results for attitude toward English lessons scores before and after intervention in control and experimental groups

		statistic	df	p	Mean difference	SE difference	Effect Size
controlPRE	controlPOST	-1.71	19.0	0.103	-5.40	3.16	-0.383
exPRE	exPOST	-1.59	16.0	0.132	-6.18	3.89	-0.385

Note. $H_a: \mu \text{ Measure 1} - \text{Measure 2} \neq 0$

Table 4 shows the paired samples t-test results for each group. For the control group, the difference between pre and post-intervention attitude scores was not statistically significant ($t(19) = -1.71, p = 0.103$). Similarly, in the experimental group, the difference between pre and post-intervention attitude scores was also not statistically significant ($t(16) = -1.59, p = 0.132$). These results indicate that the intervention did not lead to a significant change in attitudes toward English lessons for participants in either the control or experimental group.

Table 4.5. Descriptives for attitude toward English lessons before and after intervention in control and experimental groups

	N	Mean	Median	SD	SE
controlPRE	20	85.8	84.0	15.1	3.39
controlPOST	20	91.2	90.5	17.6	3.93
exPRE	17	79.8	77.0	16.3	3.96
exPOST	17	86.0	80.0	17.8	4.32

Table 5 provides the descriptive statistics for the pre and post-intervention attitude scores in each group. In the control group, the mean attitude score was 85.8 before the intervention and 91.2 after. In the experimental group, the mean pre-intervention attitude score was 79.8, increasing to 86.0 post-intervention. Although the mean attitude scores increased in both groups, the t-test results showed that these increases were not statistically significant.

The findings from this study suggest that while there may be observable positive trends in attitude changes towards English lessons as a result of the interventions, these changes are not statistically significant. This outcome underscores the complexity of influencing educational attitudes and the potential need for more robust or longer-duration interventions to effect meaningful change. It also highlights the importance of considering both statistical significance and practical significance when evaluating the outcomes of educational interventions (Thompson, 1992).

Despite these increases, the lack of statistical significance in the t-tests suggests that while the intervention might have had a positive effect, it was not strong enough to constitute a significant shift as per the statistical criteria. This phenomenon can be discussed in the light of Ryan and Deci's (2000) Self-Determination Theory, which posits that intrinsic motivation factors, which are likely influential in attitude changes, might require more intensive or prolonged intervention to be affected significantly. Findings also align with Eccles and Wigfield's (2002) framework, which suggests that short-term interventions may not be sufficient to enact significant changes in academic attitudes due to the deeply entrenched nature of these attitudes formed over time.

4.3. Findings Related to the Third Research Question

RQ3. Is there a significant difference between the experimental and control groups in terms of students' vocabulary learning achievement?

This research question can be addressed using an ANCOVA. ANCOVA is a statistical technique that combines features of ANOVA and regression analysis and is used to evaluate the effects of one or more independent variables on a dependent variable while controlling for the effects of one or more covariates (Field, 2013).

In this case, the independent variable is the "Group" (experimental and control), the dependent variable is the post-intervention visual acuity scores ("VA_Post"), and the pre-intervention visual acuity scores ("VA_Pre") serve as the covariate. By including "VA_Pre" as a covariate, ANCOVA adjusts the post-intervention scores ("VA_Post") for any initial differences in visual acuity between the groups, thus providing a more precise assessment of the treatment effect (Dancey & Reidy, 2017).

To conduct an ANCOVA, several assumptions must be met:

1. There should be a linear relationship between the covariate and the dependent variable.
2. The assumption of homogeneity of regression slopes should be satisfied, meaning that the relationship between the covariate and the dependent variable is consistent across groups.
3. The assumptions of normality and homogeneity of variance for the dependent variable should be met within each group (Lund & Lund, 2018).

Assumption check for ANCOVA regarding RQ3

1. Relationship between the covariate and the dependent variable

The scatter plot displays the relationship between the pre-test visual acuity scores (VA_Pre, the covariate) on the x-axis and the post-test visual acuity scores (VA_Post, the dependent variable) on the y-axis, separated by groups (Group 1: control and Group 2: experimental). Upon visual inspection, the data points for both groups appear to exhibit a positive linear relationship between the covariate (VA_Pre) and the dependent variable (VA_Post). As the pre-test visual acuity scores increase, the post-test visual acuity scores tend to increase as well, suggesting a linear trend.

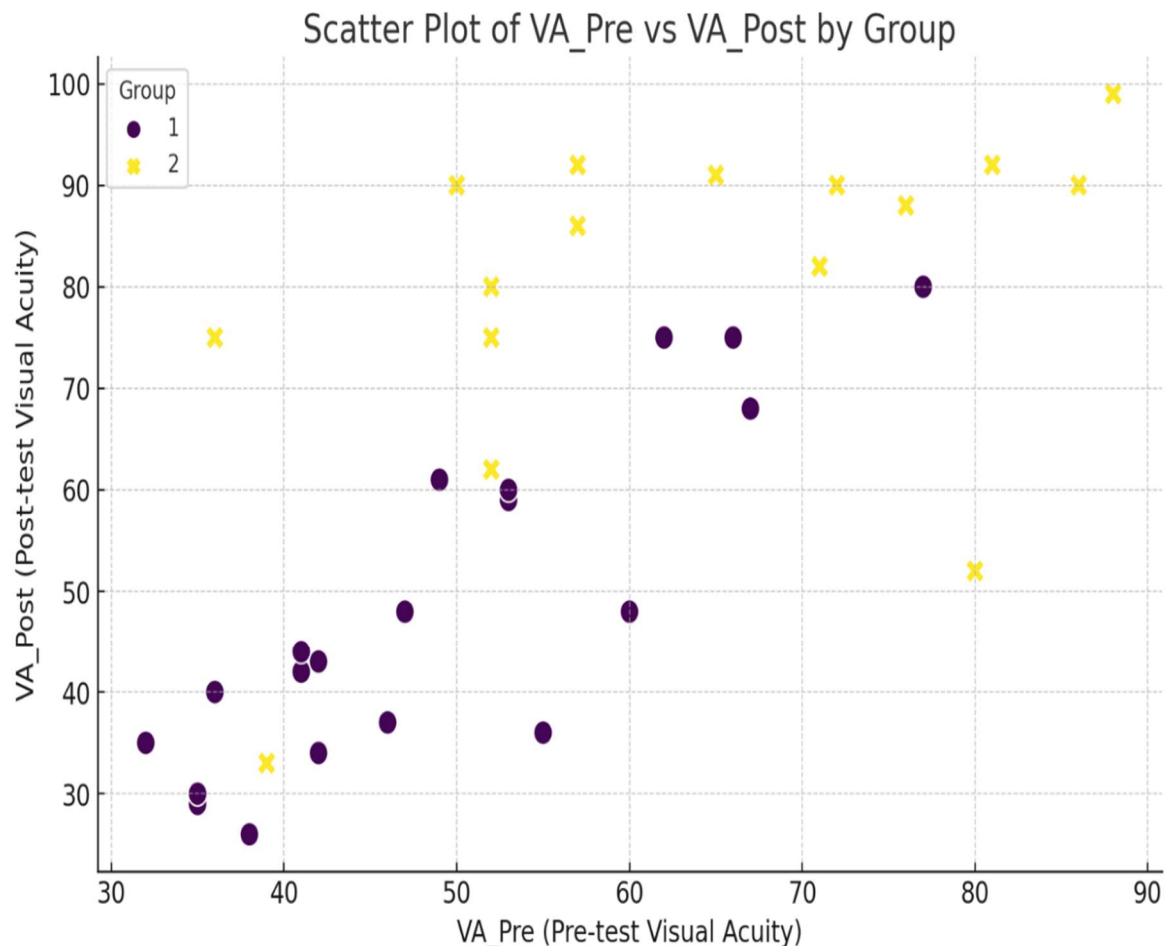


Figure 4.1. The scatter plot for the relationship between the covariate and the dependent variable regarding RQ3.

Overall, the scatter plot provides initial evidence that the linearity assumption for an ANCOVA is met.

1. The assumption of homogeneity of regression slopes

To assess the assumption of homogeneity of variances across independent variable groups, the distribution of residuals should be approximately normal and centered around zero. If this assumption holds, the residuals should be randomly and symmetrically distributed around zero, without any significant deviations or patterns.

The histogram and kernel density estimate (KDE) of the residuals suggest that the residuals approximately follow a normal distribution. This visual assessment is supported by the Shapiro-Wilk normality test, which yielded a p-value of 0.062. Generally, when the p-value is greater than 0.05, the assumption of normality is not considered violated.

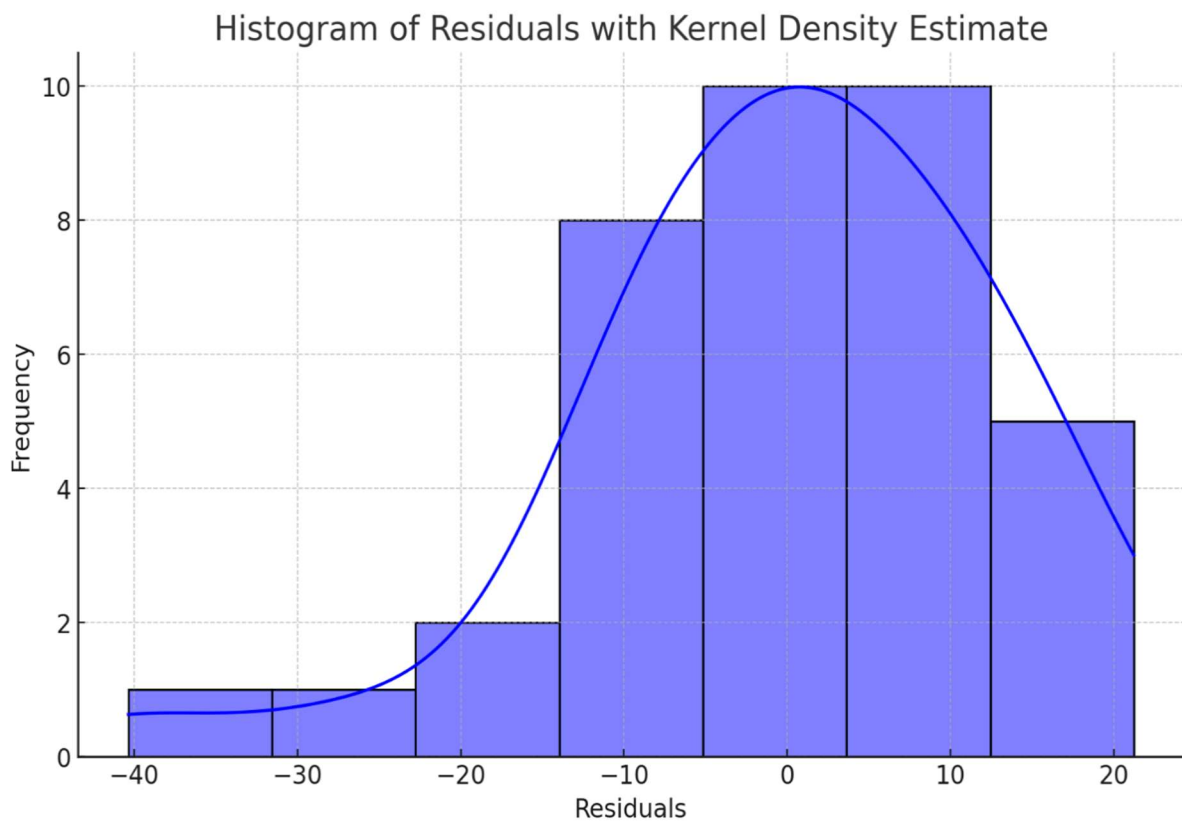


Figure 4.2. Histogram of residuals with KDE

In this case, with a p-value of 0.062, we can reasonably assume that the residuals are normally distributed. The histogram and kernel density estimate of the residuals appear relatively symmetric and bell-shaped, with the bulk of the residuals concentrated around zero. This visual pattern, combined with the Shapiro-Wilk test result, provides evidence that the assumption of homogeneity of variances is reasonably met.

2. The assumptions of normality and homogeneity of variance for the dependent variable

The table presents the results of Levene's test for homogeneity of variances, which is a crucial assumption for conducting an ANCOVA. This assumption requires that the variances of the dependent variable (in this case, post-test visual acuity scores) are equal across the independent variable groups (e.g., control and experimental groups).

Levene's test is a statistical procedure that examines the null hypothesis of equal variances across groups. In the table, the test statistic (F) is reported as 1.99, with degrees of freedom (df1) of 1 and (df2) of 35. The corresponding p-value is 0.167.

Table 4.6. Homogeneity of variances test (Levene's) for RQ3

F	df1	df2	p
1.99	1	35	0.167

Therefore, based on the results of Levene's test, the assumption of homogeneity of variances for the dependent variable across the independent variable groups appears to be met. This finding, in combination with the assessment of the assumptions of normality and linearity, supports the appropriateness of using ANCOVA for analyzing the data.

ANCOVA results regarding the RQ3

Based on the ANCOVA results provided, the analysis decisively indicates a significant difference in vocabulary learning achievements between the experimental and control groups. The ANCOVA, employing 'VA_Pre' as a covariate, revealed distinct impacts from both the pre-existing conditions (covariate effect) and the group interventions (treatment effect). Statistically, 'VA_Pre' was significantly associated with post-test scores, $F(1, 34) = 26.0$, $p < 0.001$, indicating that the initial vocabulary levels were a strong predictor of the learning outcomes. More critically, the group effect itself was substantial, $F(1, 34) = 16.4$, $p < 0.001$, underscoring that the experimental manipulation notably influenced the vocabulary achievements.

Table 4.7. ANCOVA results for the effects of initial vocabulary levels and group on vocabulary achievement

	Sum of Squares	df	Mean Square	F	p
VA_Pre	4376	1	4376	26.0	< .001
Group	2760	1	2760	16.4	< .001
Residuals	5714	34	168		

These findings are consistent with previous research suggesting that targeted educational interventions can lead to significant improvements in academic outcomes. The evident disparity between the experimental and control groups affirms the effectiveness of the specific pedagogical strategies employed in the experimental group, further corroborating the importance of tailored instructional methods in enhancing vocabulary acquisition (Marzano, R.J., 2004).

In conclusion, the analysis using ANCOVA clearly supports the hypothesis that there is a significant difference in vocabulary learning achievements between the experimental and control groups, with the experimental group demonstrating superior outcomes. This reinforces the value of innovative and specific teaching strategies in the field of language education.

4.4. Findings Related to the Fourth Research Question

RQ4. Is there a significant difference between the experimental and control groups regarding students' attitudes toward English lessons?

In exploring the research question of whether there is a significant difference between experimental and control groups in students' attitudes toward English lessons, a methodical analysis employing ANCOVA was employed. This statistical technique is particularly suited for comparing one or more treatment groups to a control group while statistically controlling for variance associated with pre-existing differences (e.g., baseline attitudes). Having confirmed the following assumptions, ANCOVA was carried out to determine if post-treatment attitudes toward English lessons differed between the groups, adjusting for pre-treatment attitudes.

Assumption check for ANCOVA regarding RQ4

1. Relationship between the covariate and the dependent variable

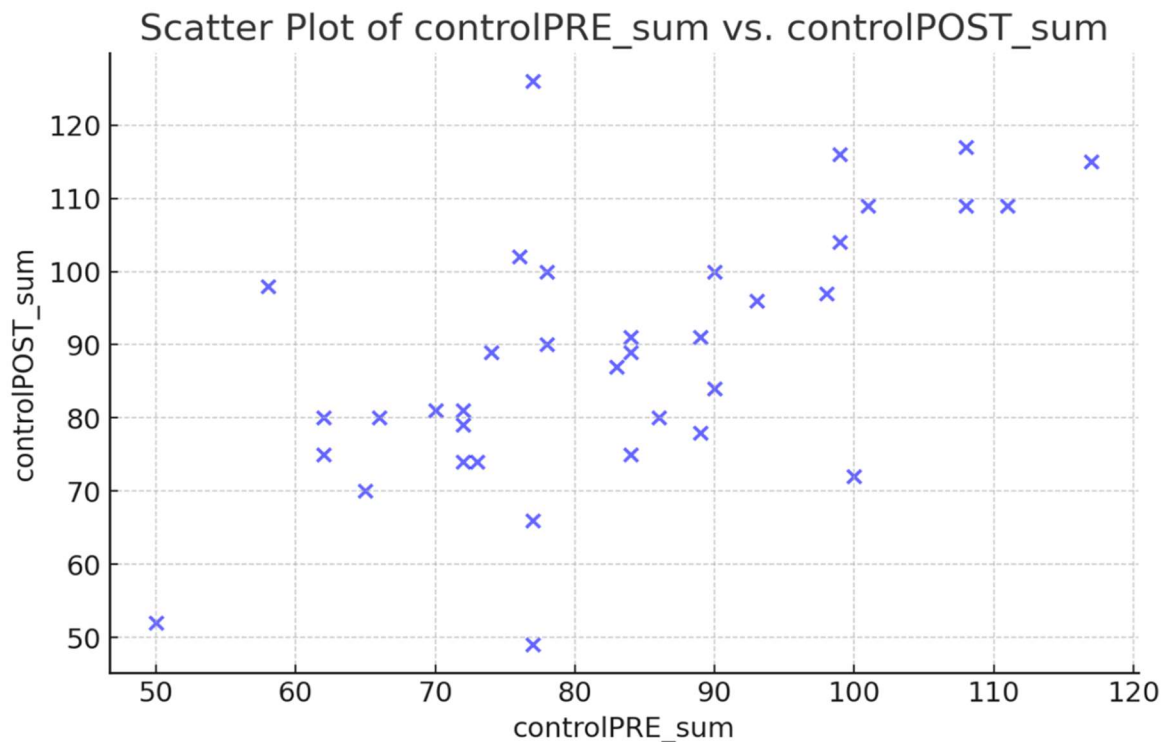


Figure 4.3. The scatter plot for the relationship between the covariate and the dependent variable regarding RQ4.

The scatter plot visually illustrates a positive correlation between 'controlPRE_sum' and 'controlPOST_sum', as evidenced by the general upward trend observed as the values of 'controlPRE_sum' increase. This pattern suggests that higher pre-control sums are associated with higher post-control sums, indicative of a positive linear relationship between these two variables. This relationship is statistically significant, as confirmed by a Pearson correlation analysis, which yielded a correlation coefficient of 0.611 and a p-value of approximately 5.84×10^{-5} , indicating that the correlation is unlikely to have occurred by chance.

Such a plot and statistical analysis are crucial in examining the assumptions underlying ANCOVA, where 'controlPRE_sum' is treated as a covariate to adjust for its influence on the dependent variable, 'controlPOST_sum'. The assumption here is that the covariate and the dependent variable are linearly related, an assumption that seems valid based on the scatter plot and correlation results presented.

2. The assumption of homogeneity of regression slopes

The histogram of residuals, overlaid with a KDE, is a visual tool to assess the assumption of homogeneity of variances of error terms across groups in ANCOVA. This assumption, also known as the assumption of homoscedasticity, requires that the spread of the residuals is roughly equal for all levels of the independent variable(s).

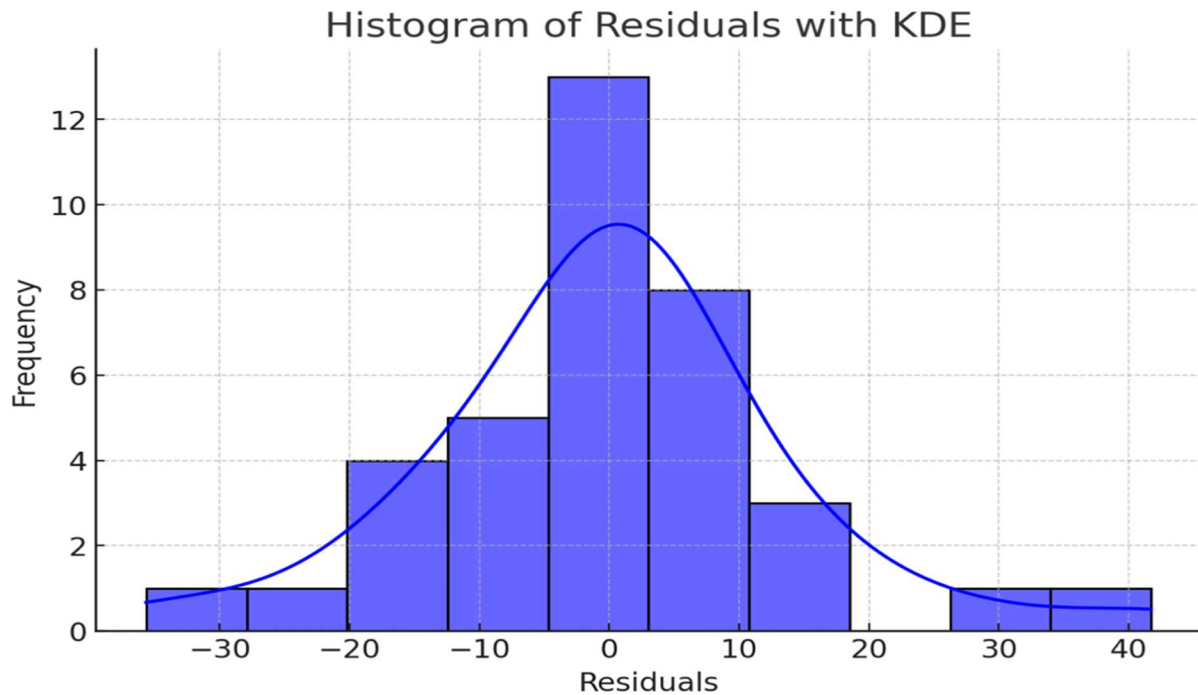


Figure 4.4. Histogram of residuals with KDE

The histogram of residuals from an ANCOVA model exhibits a roughly symmetric distribution around the center, with no apparent patterns that would indicate heteroscedasticity, such as a funnel shape or systematic spread. The KDE curve, which provides a smooth estimate of the distribution, approximates the classic bell shape of a normal distribution. This supports the assumption of homogeneity of variances, suggesting that the variance of the error is constant across the range of the covariate and for each level of the categorical independent variable.

3. The assumptions of normality and homogeneity of variance for the dependent variable

Levene's test on the residuals produces a statistic of approximately 0.0115 with a p-value of approximately 0.915. This high p-value suggests that there is no significant evidence against the null hypothesis of equal variances across the groups. Therefore, the homogeneity of variance assumption is met for the dependent variable across the levels of the independent variable 'Group'.

Table 4.8. Homogeneity of variances test (Levene's) for RQ4

F	df1	df2	p
0.0115	1	35	0.915

In summary, based on the normality and Levene's tests performed, the assumptions of normality and homogeneity of variance for the dependent variable in the context of ANCOVA appear to be satisfied. These assumptions being met lend credibility to the subsequent ANCOVA findings and interpretations.

ANCOVA results regarding the RQ4

In the presented ANCOVA results (Table 8) examining the effects of initial attitudes and group assignment on attitudes toward English lessons, the variable 'VA_Pre' (presumably the pre-intervention attitudes) significantly contributed to the explanation of variance in post-intervention attitudes. With a sum of squares of 3955.2, a mean square of 3955.2, and a substantial F-ratio of 19.1906 ($p < .001$), it indicates that initial attitudes have a potent and statistically significant effect on the attitudes toward English lessons post-intervention

Table 4.9. ANCOVA results for the effects of initial attitudes and group on attitudes toward English lessons

	Sum of Squares	df	Mean Square	F	p
VA_Pre	3955.2	1	3955.2	19.1906	< .001
Group	11.5	1	11.5	0.0556	0.815
Residuals	7007.4	34	206.1		

Conversely, the 'Group' variable, reflecting the different conditions (control vs. experimental), did not have a significant effect. This is evidenced by a relatively low sum of squares (11.5), a mean square of 11.5, and an F-ratio of 0.0556, with a p-value of 0.815. The high p-value suggests that the differences between the experimental and control groups' attitudes toward English lessons are not statistically significant when controlling for initial attitudes.

In conclusion, these results imply that any pre-treatment differences in attitudes toward English lessons are crucial in predicting post-treatment attitudes, while the treatment effect itself—pertaining to the type of group—does not significantly differ from the control condition

when these initial attitudes are accounted for. This suggests that the effectiveness of the intervention may be more pronounced when it builds upon the foundation of students' pre-existing attitudes toward the subject matter (Thompson, 2006).

Highlights

1. For vocabulary achievement (RQ1 and RQ3):

- Digital game-based learning significantly enhanced vocabulary acquisition in the experimental group, as evidenced by a notable increase in post-test scores compared to the control group, establishing the effectiveness of interactive educational technologies ($t(16) = -3.88, p = 0.001$).

- ANCOVA results highlighted a significant difference in vocabulary learning achievements between the experimental and control groups, with pre-test scores being a significant covariate, indicating tailored instructional methods as a driver for superior vocabulary outcomes ($F(1, 34) = 16.4, p < 0.001$).

2. For attitude toward English lessons (RQ2 and RQ4):

- Changes in attitudes toward English lessons, although trending positive, did not reach statistical significance post-intervention in either the experimental or control groups, pointing to the complexity of modifying academic attitudes with short-term interventions.

- Initial attitudes were significant predictors of post-intervention attitudes, as shown in the ANCOVA results, suggesting interventions may be more impactful when they build on existing student attitudes ($F(1, 34) = 19.1906, p < .001$).

- The lack of a significant difference between the experimental and control groups regarding students' attitudes toward English lessons post-intervention underscores the potential need for longer or more targeted attitude-shifting strategies.

3. For statistical assumptions and methodology:

- Normality and homogeneity of variance assumptions were met, providing a strong foundation for the validity of the paired samples t-tests and ANCOVA analyses, ensuring the credibility of the findings.

- The methodical statistical approach, from preliminary tests to advanced modeling, ensured the integrity of the findings, contributing to the evidence-based literature on educational practices.

4. For educational implications:

- The study contributes empirical evidence supporting the integration of game-based learning platforms, demonstrating their potential in enhancing language learning and acquisition.

- Findings highlight the importance of considering both initial knowledge levels and student dispositions when designing and evaluating educational interventions for efficacy.

4.5. Findings Related to the Fifth Research Question

RQ5. What are the opinions of the experimental group students about digital games in Wordwall?

The data collected from a survey with open-ended responses to identify common themes and patterns in students' perceptions and experiences with the Wordwall platform were carefully analyzed. It aimed to provide valuable insights into the potential benefits and drawbacks of using digital games for vocabulary learning in particular and language learning in general. A comprehensive qualitative content analysis was conducted to ascertain student opinions regarding digital games in Wordwall. Students' feedback can be categorized into engagement and motivation, learning effectiveness, changes in attitude toward English vocabulary learning, and suggestions for improvement.

1. Engagement and Motivation

Enjoyment: One common theme found in the responses was the active participation experienced through using the Wordwall platform. Students consistently expressed their delight in the content describing it as "fun" and conveying feelings of happiness and satisfaction as seen in phrases like "felt good." This level of enjoyment is crucial as it directly impacts students' willingness to interact with the content.

Emotional response: The data underscored a significant emotional engagement, with students expressing positive emotions such as excitement ("heyecanlı hissettim") and happiness

("mutlu"). These emotional reactions indicate that Wordwall effectively creates a learning environment that not only benefits students but also brings them joy. Such emotional connection fosters a deeper engagement with the material, which may enhance overall learning outcomes.

2. Learning Effectiveness

Retention and recall: The impact of Wordwall on improving retention and recall was frequently emphasized. Students mentioned that the gamified learning setting helped them better retain vocabulary attributing this to the interactive nature of the games. This active engagement with the content may lead to more effective learning and long-term retention.

Ease of use: Feedback revealed that users found Wordwall easy to navigate which was pivotal in enabling a seamless learning process. This user-friendly interface is crucial as it allows students to concentrate more on learning than struggling with platform navigation. The intuitive design of the platform seems to support students in focusing their cognitive efforts on the learning material itself.

3. Changes in Attitude toward English Vocabulary Learning

Positive shift: There was a notable transformation in students' attitudes towards learning English vocabulary. Initially perceived as mundane or challenging, the introduction of Wordwall transformed these perceptions, making the learning process more interactive and enjoyable. This shift in attitude indicates the potential for Wordwall to revitalize students' interest in language learning. This may foster a more positive learning experience in general.

Motivation to learn: Increased motivation was a recurrent theme, with students expressing a newfound enthusiasm for engaging with vocabulary learning. This shift is significant as it reflects a move from passive to active learning, encouraged by the interactive and enjoyable nature of Wordwall. Such increased motivation can lead to increased effort and persistence in learning tasks, ultimately enhancing learning outcomes.

4. Suggestions for Improvement

Technical adjustments: Some students suggested making technical upgrades to improve the learning process. These suggestions included response times and seamless

transitions between questions, which could keep the learning flow smooth without disruptions. Addressing these technical aspects can further optimize the user experience.

Content enhancement: Many students emphasized the need for a range of games and engaging content. Ideas included adding auditory elements to enhance the learning atmosphere catering to various learning styles and preferences. Diversifying the content offerings can accommodate different learner needs and preferences.

Customization and features: Students also proposed incorporating personalized features like adjustable difficulty levels and enhanced leaderboard functions. These additions could create a motivating learning setting potentially boosting engagement and educational outcomes. Adjusting the platform to individual learner needs may enhance user autonomy and ownership over the learning process, and this may foster a sense of empowerment and motivation.

The student feedback on the use of Wordwall for English vocabulary learning indicates a highly positive reception. The findings reveal that the platform not only improves engagement and motivation but also enhances the effectiveness of learning. It positively shifts student attitudes towards vocabulary acquisition and offers potential for technical and content-related improvements. These findings suggest that digital game-based learning tools like Wordwall can significantly enrich educational experiences, which makes them more engaging and effective. This enhanced engagement is likely to contribute to better learning outcomes, particularly in vocabulary acquisition, which is a foundational element of language learning.

CHAPTER V

5. DISCUSSION, CONCLUSION, AND SUGGESTIONS

This section refers to the findings from the English vocabulary accomplishment exam and attitude scale toward English that were administered to the experimental and control groups both before and after the study as well as the student opinion form conducted following the study for only the experimental group. Future work ideas have included a discussion of the outcomes and implications of these as well.

5.1. Discussion

The study's main goal is to find out how high school students' use of digital online games on the Wordwall platform affects their growth of English vocabulary. Along with discussing how high school students' attitudes toward English classes have changed, concerning the Wordwall platform experience, the researcher additionally inquired about the thoughts of the students in the experimental group. Evaluations can demonstrate that playing digital games helps students improve their vocabulary knowledge in English. Ashraf et al. (2014) indicate in their study that for learners of English as an EFL, digital online games are more successful in helping them acquire vocabulary. The teachers' teaching experience leads to the conclusion that using digital online games to introduce vocabulary to students boosts their understanding, increases their interest in the material, gives them new ideas, and adds variation to the classroom (Bilova, 2023).

A brief overview of the research's objectives and a discussion of the research findings with the current study's research questions are provided in the discussion section. Each study's topic is assessed independently, and the results of that study are contrasted with those of other studies in the relevant field of research. The importance and implications of these discoveries are carefully investigated and stated under this title.

The first research question of the study was *“Is there a significant difference between the vocabulary achievement pre-test and post-test scores of the experimental and control groups?”* Based on this question, within each group, to determine the impact on vocabulary acquisition between the group learning vocabulary with Wordwall games and the group learning vocabulary using the conventional technique, a paired sample t-test was employed to analyze the pre-test and post-test findings. The experimental group using digital online games to learn English vocabulary had an increase in mean score from 62.7 in the pre-test to 78.8 in

the post-test and a rise in median score from 57.0 to 86.0, in line with the results of the paired samples t-test. According to descriptive analysis, the average score of the control group on the pre-test was 48.9, and the average score on the post-test was 48.5. Indicating a minor decline in vocabulary performance, the pre-test median scores were 46.5, whereas the post-test median was 43.5. As a result, following the treatment, the students in the experimental group had far higher vocabulary scores, inversely, the control group's results showed no discernible improvement.

Together with the findings of the conducted research, after the Wordwall platform was put into use in their implementation, Paksi et al. (2023) gathered the teachers' happiness with the Wordwall platform's ability to help increase their students' vocabulary in English. The research of Ismiyati & Saputri (2020) led to the conclusion that Wordwall media can be a useful tool for teaching English vocabulary to students and that teachers may employ Wordwall media in their teaching. On the other hand, the outcomes demonstrated the usefulness of the Wordwall online tool; however, they did not show that it was superior to more conventional methods of teaching vocabulary (Çil, 2021). It was noted that the participants thought the Wordwall was an extremely helpful tool for straying from traditional methodological methods to vocabulary instruction and learning in favor of a more dynamic approach based on gamification (Rodríguez-Escobar et al., 2023). In the light of some research, it may be concluded from many research on this subject that Wordwall helps students learn new English vocabulary.

The second research question of the study was *“Is there a significant difference between the pre-test and post-test scores of the attitude toward English lessons of the experimental and control groups?”* To find out if there were statistically significant changes in each group's views regarding English language instruction from the starting the implementation to the finishing, the paired samples t-test was applied to this research subject matter. In the experimental group, there was no statistically significant difference in the attitude scores before and after the intervention ($t(16) = -1.59$, $p = 0.132$). In the same way, there was no statistically significant difference in the attitude scores of the control group before and after the intervention ($t(19) = -1.71$, $p = 0.103$). The mean attitude score in the experimental group rose from 79.8 before the intervention to 86.0 following it. Before and after the intervention, the control group's mean attitude score was 85.8 and 91.2, respectively. The t-test results show that although the mean attitude ratings rose in both groups, these gains were not statistically important. The conclusions

of this study reveal that although the treatments led to apparent improvements in attitudes regarding English language lessons, these changes were not statistically noteworthy.

In furtherance of the findings of the previous investigations, the interactive Wordwall proved successful in teaching students English vocabulary, according to Akmaz Genç 's study (2018), but its impact on students' attitudes regarding the English class remained unclear. Contrary to that finding, Widyaningsih et al. (2023) came to the view that Wordwall media provides an engaging, interactive learning environment that can boost students' enthusiasm to learn. Along the lines that student motivation to learn is positively impacted by Wordwall and discovery learning (Agustina et al., 2024).

The third research question of the study was *“Is there a significant difference between the experimental and control groups in terms of students' vocabulary learning achievement?”* The experimental group's and the control group's progress in learning English vocabulary was compared under this subject matter. It is evident from the ANCOVA data, which were utilized for assessing the third study question, explicitly reveal that the experimental group outperformed the control group in terms of vocabulary acquisition achievement.

Along with the results of the implementations, the students' vocabulary accomplishment increased once the Wordwall technique was put into practice (Sipayung, 2018). There has been a noticeable increase in vocabulary in English classes, based on research data collected to assess the impact of the Wordwall application utilized by students (Amalia et al., 2023). In addition to these, following their application, Syamsidar et al. (2023) found out that Wordwall is a useful tool for building vocabulary and studying English. Similarly, Mariati's thesis (2019) revealed that Wordwall media enhanced and aided students' vocabulary development. The findings of observations and interviews done following the implementation of Wordwall media demonstrate that vocabulary learning can enhance students' learning enthusiasm and vocabulary proficiency (Afifah, 2023).

The fourth research question of the study was *“Is there a significant difference between the experimental and control groups regarding students' attitudes toward English lessons?”* In this study question, ANCOVA was used to see whether the attitudes of the groups changed after the research on English lessons, and adjustments were made according to the pre-treatment attitudes. When beginning attitudes were taken into account, there was not a statistically significant variation between the attitudes of the experimental and control groups about English.

In keeping with the results of some research, Wordwall. net also has an impact on how students engage with the Internet and the classroom, suggesting that they are more focused on the process of learning (Jannah & Syafryadin, 2022). Students' vocabulary learning was positively impacted by adopting the Wordwall technique, which also strengthened and encouraged students to employ it going forward (Pertiwi et al., 2022). Similarly, Zaen et al. (2022) reached an agreement that Wordwall media makes vocabulary memorization simpler and faster, that students can easily master vocabulary using Wordwall media, and that when they use Wordwall media to learn vocabulary, they feel happy, excited, fun, and not bored. According to the results of the research used the Wordwall platform, applying digital games increases students' willingness to learn since they deliver visually appealing media, and this impact is further reinforced by the way teachers create a comfortable learning environment (Safitri et al., 2022). According to Noftariani's (2023) outcome, the Wordwall game application can be used to incorporate game-based learning to motivate students to learn English.

The fifth research question of the study was *“What are the opinions of the experimental group students about digital games in Wordwall?”* Data from an open-ended questionnaire were carefully evaluated using content analysis to find common themes and patterns in students' perspectives and experiences with the Wordwall platform. Under the “Participation and Motivation” section, it was noted that students were happy, motivated, and excited while learning vocabulary in English through digital games on Wordwall. Students claimed that Wordwall's dynamic structure helped them retain and recall the words in their heads under the heading of "Learning Activity". As far as "Changes in Attitudes toward English Vocabulary Learning" are concerned, Wordwall's digital games were found to have a beneficial impact on students' perceptions of such learning. Lastly, about "Suggestions for Improvement," a few students brought up technological issues. An enhanced number of game options was offered by several students. Moreover, the Wordwall platform should incorporate customizable features, according to student suggestions.

In line with the studies, through the creation of interactive exercises, games, and activities, Wordwall may enhance students' learning experiences and make learning enjoyable (Ezgi & Arslanbaş, 2021). More than half of the students who responded to Listiani's (2024) study questionnaire revealed that they felt that the Wordwall application was motivated and happy, indicating that the students' responses were satisfactory. Also, students in a study by Pradini & Adnyayanti (2022) stated in an interview that they learned the provided words from

Wordwall and could recall English terms with ease, and also the researchers concluded that the students were satisfied and eager, and they even expressed a desire to play the game again and again. Hasan & Habibie's (2023) investigation into the use of Wordwall media in vocabulary instruction for young learners led them to the conclusion that this tool can improve students' vocabulary learning and that Wordwall Media's interactive and visual elements can aid in helping young learners remember and retain new words for extended periods. Furthermore, Hasram et al. (2021) concluded in their study that Wordwall games' healthy competitiveness enhances players' innate motivation and love for achieving rankings and goals. According to the data obtained from the questionnaire during the implementation process, the majority of the students showed a strong interest in studying while using the Wordwall games (Makrub, 2024).

5.2. Conclusion

In this study, throughout the course of seven weeks, 37 students participated, 9th-grade students from İsmail Kaya Anatolian Imam-Hatip High School, a public school in Konya, engaged in an investigation of the effectiveness of digital online games created by the researcher on the Wordwall platform for teaching English vocabulary to high school students. The research study also looked at how high school students felt about taking the English subject, and the experimental group students' perceptions of Wordwall.

This part presents an overview of the research findings, including both quantitative and qualitative findings from the evaluation of the collected data using suitable methodologies. First, the normality assumption for the acquired data was addressed, as was previously discussed in the findings section. To ascertain the distributional properties of the data, skewness and kurtosis measurements were employed in conjunction with normality testing. Further analysis was done on the histogram. The values of skewness and kurtosis were determined to be within the acceptable range of 1.5 to +1.5. Subsequently, paired sample t-tests were employed to examine differences within groups for both the experimental and control groups between the pre-and post-tests. The study's first and second research questions were addressed using this methodology, which looked at whether the experimental and control groups had undergone any appreciable improvements over time. The third and fourth research questions, which looked into how views about English language classes and vocabulary acquisition achievement varied between groups, also employed ANCOVA. Additionally, the process of content analysis was chosen to check out the views of the participating students about the Wordwall platform to look into the fifth research question. As a result, the study's findings add

a reliable description of the intervention's efficacy to the body of knowledge on educational practices and their effects on students' learning and attitudes. The primary research subjects' quantitative and qualitative conclusions, which emerged after the data gathered in this context were assessed, are clarified below.

The first research question of the study was *“Is there a significant difference between the vocabulary achievement pre-test and post-test scores of the experimental and control groups?”* The quantitative data from the pre-test, which was given to the experimental and control groups before the study, and the post-test, which was given after the study, were used to address this research topic. To investigate the impact of digital game-based learning applications on vocabulary acquisition, an experimental study was created and put into action in this research. Digital games were used to help the learning process for the experimental group, whereas standard teaching methods were used for the control group. To calculate the value of the instructional effect, the pre-and post-test results for the two groups were compared in each group.

The experimental group revealed a notable increase in vocabulary as a result of the learning process aided by digital games on the Wordwall platform. Scores increased significantly between the pre-and post-tests, and this difference was determined to be statistically noteworthy. These findings can highlight the substantial and useful effects of digital learning tools based on digital games on vocabulary acquisition. On the other hand, using conventional teaching methods did not result in a statistically significant increase in vocabulary acquisition in the control group. This result can imply that there is little benefit from the conventional teaching methods currently in use for vocabulary acquisition. This study may also emphasize the drawbacks of conventional teaching strategies and urges the significance of more engaging and dynamic learning settings. Digital games are one example of interactive technology that can boost learning motivation and promote retention of learning objectives. This study's findings are likely to affirm the value of digital game-based learning approaches as a pedagogical tool for language acquisition, especially in teaching and learning English vocabulary. These results can motivate teachers to incorporate digital tools to design more productive learning environments.

The second research question of the study was *“Is there a significant difference between the pre-test and post-test scores of the attitude toward English lessons of the experimental and control groups?”* This research subject dealt with using the quantitative data from the pre-test,

which was administered to the experimental and control groups before the study, and the post-test, which was presented after the study. This research question focused on how various interventions, such as digital game-based learning and traditional teaching methods, affected students' views toward English lessons. The pre-and post-intervention attitude scores for both groups did not differ statistically significantly when the comparisons within each group were made, according to analyses utilizing the paired samples t-test.

No discernible improvement in attitude toward English lessons was seen in the experimental group as a result of the learning process aided by digital games. Similarly, the implementation of traditional teaching approaches did not significantly alter the attitude of the control group toward English lessons. These findings may imply that students' perceptions of English lessons were not substantially altered as a result of the study. Though attitude scores were higher, the t-test results indicate that there was no statistically important change. This might underscore the intricacy involved in shaping educational attitudes and the possible requirement for more extensive or persistent efforts. This study's conclusion can contribute to demonstrating how crucial it is to take both statistical and practical significance into account when assessing the results of educational initiatives. It would be prudent to make progress in this area to enhance the usefulness of the study and to have a deeper knowledge of the internal motivational variables that impact student opinions.

The third research question of the study was *“Is there a significant difference between the experimental and control groups in terms of students' vocabulary learning achievement?”* Quantitative data on English vocabulary acquisition achievement from the pre-test given to the experimental and control groups before the study and the post-test given following the study were utilized to answer this research question. The outcomes of this study revealed a substantial difference in the vocabulary acquisition achievement of the students in the experimental and control groups.

The outcomes of the ANCOVA analysis highlight the crucial role of particular teaching techniques in boosting vocabulary learning and validate the efficacy of the particular pedagogical strategies applied to the experimental group. The research confirmed that group interventions (treatment effect) and pre-existing circumstances (e.g., basic vocabulary knowledge levels) both considerably influenced vocabulary learning outcomes. The impact of pre-existing conditions implies that learning outcomes were importantly influenced by participants' initial vocabulary knowledge levels. More significantly, the distinction between

the experimental and control groups strongly demonstrates that the experimental group's higher outcomes were attained through the application of particular instructional tactics. This research validates the importance of creative and specialized teaching methods in language education and shows that focused educational interventions can have a major impact on the achievement of students. To sum up, it can be said that the current study shows the usefulness and suitability of particular pedagogical approaches, various instructional techniques for raising vocabulary acquisition outcomes, and a crucial foundation for the advancement and refinement of methods of teaching in language education.

The fourth research question of the study was *“Is there a significant difference between the experimental and control groups regarding students' attitudes toward English lessons?”* Initial and subsequent tests were distributed to the experimental group and the control group shortly before and following the implementation to gather data for this research question, which centered around the goal of examining the efficacy of game-based learning platforms in English language teaching and the change in student attitudes. Quantitative data was used to assess the experimental and control groups to see whether opinions toward English lessons differed significantly between participants. To guarantee the accuracy of these studies, methodological strategies, and statistical presumptions were additionally glanced at.

Analysis of the two groups' post-intervention opinions toward English instruction did not find any significant variations. However, it was discovered that beginning attitudes played a significant role in predicting after-treatment attitudes. This suggests that interventions may be more effective when they build on existing student attitudes. The results support that longer-term or more focused attitude modification techniques may be required since attitudes regarding English language courses may not be readily altered by short interventions. The research's methodological approach has established a strong base by utilizing an effective approach and statistical principles. This can improve the findings' trustworthiness. These results can draw attention to how crucial it is to consider students' previous knowledge and attitudes when developing and assessing approaches to learning. The findings of this study can be viewed as a viable tool to improve language learning and acquisition, and they can encourage the incorporation of game-based learning platforms in the teaching of languages. Overall, it can be seen that this research topic has contributed to the field of language education by providing practical insights into the efficacy of game-based learning platforms in teaching vocabulary in English and influencing student attitudes.

The fifth research question of the study was “*What are the opinions of the experimental group students about digital games in Wordwall?*” Based on the findings of the qualitative content analysis carried out to comprehend students' opinions and experiences with the Wordwall platform after the implementation, this research question of the study gave important findings. Under the headings of “Participation and Motivation, Learning Effectiveness, Changes in Attitudes toward English Vocabulary Learning, and Suggestions for Improvement”, students' opinions regarding the Wordwall employed in this study were categorized.

In terms of engagement and motivation, it was found that students actively participated in using Wordwall and found the experience enjoyable. This can be a factor that increases students' feelings of satisfaction with the content and has a positive impact on the learning process. Emotional reactions were also positive, with students experiencing excitement and happiness. Furthermore, Wordwall was proven to improve retention and recall in terms of learning effectiveness, and students' experiences were positively impacted by its simplicity of use. It came to light that the platform's interactive features, in particular, encourage students to interact with the course material and support better comprehension. Additionally, a favorable shift in the way that students felt about learning English vocabulary was noted. Students' attitudes about learning English vocabulary were found to be positively altered by Wordwall, which they originally considered as tough, but ultimately made the learning process more fun. This suggests that students' interest in studying languages could be inspired by the platform. At last, it was concluded that the platform requires enhancements in terms of technological modifications, content creation, customization, and features based on the recommendations made by the students. By incorporating these suggestions, Wordwall's user experience might be significantly enhanced and students' learning could become more engaged.

5.3. Suggestions

The following research ideas are based on a study on the impact of using Wordwall for vocabulary instruction on student achievement:

- The effectiveness of the Wordwall platform on students' vocabulary achievement has been evaluated through a study that included 37 students in the control and experimental groups at the same time. It could be more beneficial to work with many groups and students to conclude the findings.

- The research was applied to high school 9th-grade students at a state school in the Central Anatolia Region. More contributions to the literature can be made if Wordwall studies are conducted with study groups in primary and secondary schools in various parts of Türkiye.

- The implementation process was completed in about seven weeks. While the data gathered from the study is valuable, longer-term studies may generate more trustworthy data and help in a more accurate assessment of the application's outcomes.

- The application was limited to Imam Hatip High School, which exclusively enrolled male students, and the 9th-grade students. Studies can be conducted to get more comprehensive data that takes gender, school difference, and age into consideration if it is applied to different high school levels in a high school with a mixed male and female population of students.

- Studying to acquire vocabulary in English was restricted to specific school hours on the Wordwall platform. Research on applications outside of school can be served since students can practice outside of school, compete with one another, and support their learning.

- Students reported that Wordwall's digital online games helped them remember English words better. This may create the opportunity for researchers to carry out additional research on Wordwall's impact on vocabulary retention.

- Only English vocabulary instruction in EL classes was conducted using the Wordwall platform in this study. Wordwall can be used for grammar and pronunciation study as well as to enhance reading, writing, speaking, and listening abilities in English classes.

- This study was exclusive to the English course and was carried out utilizing Wordwall. Further research on Wordwall's efficacy in other courses can be done because its content makes it appropriate for usage in other courses as well. Research carried out in various fields, for various goals, and involving students of varying academic backgrounds may provide divergent findings.

- This study placed more emphasis on how well students comprehended vocabulary in English. For this reason, studies can be conducted on the effects of motivation, anxiety, and similar affective aspects of different student groups as well as their academic achievement in English.

- It is now crucial for educators to be prepared to match the demands of today's highly technological students. Studies can be applied to examine how teachers integrate digital tools such as Wordwall in the lesson planning and teaching process. When ESL students are given supportive environmental factors, like encouragement from friends, and teachers, they are more likely to have a good attitude and be more motivated to study English (Halim et al., 2020).



GENİŞLETİLMİŞ TÜRKÇE ÖZET

Necmettin Erbakan Üniversitesi, Eğitim Bilimleri Enstitüsü
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İngiliz Dili Eğitimi Bilim Dalı
Yüksek Lisans Tezi

WORDWALL'DAKİ DİJİTAL ÇEVİRİMİÇİ OYUNLARIN LİSE ÖĞRENCİLERİNİN İNGİLİZCE KELİME BİLGİSİ GELİŞİMİNE ETKİSİNİN İNCELENMESİ

Tuba GÜNGÖR DEVECİ

GİRİŞ

İletişim, kişilerin ya da grupların fikirlerini, bilgilerini ve duygularını paylaşmalarında oldukça önemlidir. İletişim doğumdan ölüme kadar devam eden bir süreçtir. Gelişen teknoloji ve küreselleşen dünyayla birlikte iletişim kurmak için ortak bir dile ihtiyaç duyulmuştur. İngilizce bu anlamda dünyada konuşulan en yaygın dillerden biridir. İngilizce; kültür değişimi, sağlık, bilim, eğitim, turizm ve iş alanında dünyanın anlaşma dili olmuştur. İngilizce, ülkemizde bu sebeplerden biri nedeniyle en çok öğrenilen yabancı dil olarak ön sıralardadır. Türkiye’ de İngilizce dersi; ilkokul, ortaokul ve lise müfredatlarında yer almakla birlikte yüksek öğrenimde de isteğe bağlı olarak devam etmektedir.

Lise kademesinde, İngilizce zorunlu ders olarak okullara göre farklı sayıda ders saatleriyle eğitim-öğretim sisteminin içinde yer almaktadır. Ancak lise öğrencileri bazı sebeplerden, İngilizce öğrenmede zorluklar yaşayabilmektedirler. Bunlar arasında; çevreden, bireyin kendisinden, eğitimciden ve materyallerden kaynaklı bazı sorunlar olabilmektedir.

İngilizce dersi okullarda okuma, yazma, konuşma, dinleme beceri odaklı ve bunların yanı sıra dilbilgisi, telaffuz, kelime edinimi destekli olarak devam etmektedir. Kelimeleri ve anlamlarını bilmek, iletişim ve dilin temel öğelerinden biri olduğu açıktır. İngilizce öğrenirken kelimelerin anlamlarını bilmemek, okuma, yazma, konuşma ve dinleme becerilerinde yetersiz kalınmasının sebeplerinden biri olabilmektedir. Lise öğrencileri İngilizce kelimeleri; motivasyon eksikliği, kelimeyi hatırlayamama, telaffuzda zorlanma, kelimeye çok maruz kalmama, kültürel farklılık ve öğrenmek için uygun metodu bilmeme kaynaklı zorluklar yaşayabilmektedirler.

İngilizce kelime öğrenme sürecinde karşılaşılan zorlukları, en az seviyeye indirmek için hayatımızın merkezinde olan teknolojiye faydalanmak akıllıca olacaktır. Teknolojinin

içine doğmuş olan öğrenciler artık geleneksel yöntemler yerine teknolojiyi kullanan öğrenme ortamlarını tercih etmektedirler. İngilizce öğrenirken de teknolojiden faydalanmanın bu süreci olumlu olarak desteklediği bilinmektedir. Özellikle, İngilizce kelimeleri edinim sürecinde teknoloji temelli olan dijital oyunları derse dahil etmek hem öğrenci hem de öğretmen için sayılmaz kolaylıklar sağlamakla kalmayıp birçok ayrıcalıklar da sunmaktadır. Ulaşılabilirliği sayesinde dijital oyunlar, katılım ve motivasyonu artırabilirler. Bunlara ek olarak, gerçek yaşam örnekleri içerisinde hızlı dönüt vererek, işbirlikçi ortamı teşvik edebilirler. Ayrıca tekrarlarla kelimeleri daha kalıcı hale getirmede faydalı olan dijital oyunlar, öğrencinin kendi gelişimini takip edebildiği materyallerdir. Bütün bu sebeplerden, Wordwall platformundaki dijital çevrimiçi oyunların, lise öğrencilerinin İngilizce kelime edinimine etkisinin araştırılması bu çalışmanın konusunu oluşturmaktadır. Bu araştırma konusuna açıklık getirmek için beş tane araştırma sorusu üzerinden sonuca ulaşmak istenmiştir.

METODOLOJİ

Deneyssel bir çalışma olan bu çalışmada nicel ve nitel veriler birlikte kullanılarak karma yöntem uygulanmıştır. Nicel verileri elde etmek için deney ve kontrol grubundaki öğrencilere uygulama öncesi ve sonrası, İngilizce kelime başarı testi ve İngilizce dersine yönelik tutum ölçeği uygulanmıştır. Nitel veriler de sadece deney grubuna çalışma sonrasında uygulanan öğrenci görüş formu ile toplanarak elde edilmiştir.

Araştırma, 2023-2024 eğitim-öğretim yılının 1. döneminde, Türkiye'nin İç Anadolu Bölgesi'nde, Konya ili Selçuklu ilçesinde yer alan bir devlet okulu olan İsmail Kaya Anadolu İmam Hatip Lisesinde yapılmıştır. Bu çalışma, 7 hafta boyunca lise seviyesinde 9. sınıf erkek öğrencilerin katılımıyla yürütülmüştür. Öğrenciler, deney ve kontrol grubu olarak rastgele seçilmişlerdir. İngilizce hedef kelimeler, öğrencilerin İngilizce ders kitabından (Uplift) 2. ve 3. ünitelerden seçilen kelimelerdir. Wordwall'daki oyun içerikleri de araştırmacı tarafından bu hedef kelimeler kullanılarak hazırlanmıştır. Uygulama sürecinde, sadece deney grubundaki öğrenciler bilgisayar odasında Wordwall platformundaki dijital oyunları oynayarak İngilizce kelimeleri öğrenirken, kontrol grubundaki öğrenciler ise İngilizce kelimeleri sınıflarında geleneksel yöntemle kitaplarındaki kelime aktiviteleriyle öğrenmişlerdir. Uygulama sonrasında araştırmadan elde edilenler, çok basamaklı istatistiksel analiz kullanılarak anlamlandırılmış olup nicel verileri analiz etmek için t-testlerden ve ANCOVA' dan faydalanılmıştır. Nitel veriler için de içerik analiz yöntemi kullanılmıştır.

BULGULAR

Araştırmada elde edilen verileri değerlendirmede kullanılan çok adımlı istatistiksel analize, ilk olarak, ön test ve son test kelime bilgisi başarı ve tutum ölçümleri için normallik testleri yapılarak başlanmıştır. ExPOST değişkeninin normalliğini değerlendirmek için çarpıklık ve basıklık değerlerinin yanı sıra histogram da incelenmiştir. Çarpıklık ve basıklık değerlerinin kabul edilebilir (-1,5 ila +1,5) aralıkta olduğu görülmüştür. Daha sonra, analizde ön testten son teste kadar grup içi değişiklikleri araştırmak için eşleştirilmiş örneklem t-testlerine odaklanılmıştır. Bu yöntem sayesinde, 1. ve 2. araştırma soruları ele alınarak, deney ve kontrol gruplarında zaman içinde önemli gelişmeler olup olmadığı ayrı ayrı incelenebilmiştir. Kelime öğrenme başarısı ve İngilizce derslerine yönelik tutumlardaki gruplar arası farklılıkları araştıran 3. ve 4. araştırma soruları için de ANCOVA uygulanmıştır. Son olarak, Wordwall'daki dijital çevrimiçi oyunlarla ilgili öğrenci görüşlerini tespit etmek için kapsamlı bir nitel içerik analizi yapılmıştır. Bu bulgulardan, deney grubunun İngilizce kelime öğrenmede kontrol grubundan daha iyi olduğu sonucuna varılırken, her iki grubun da İngilizce dersine yönelik tutumlarında bir farklılık görülmemiştir. Deney grubunun Wordwall platformu hakkındaki görüşleri de olumlu yöndedir.

SONUÇ

Elde edilen veriler ve bunlara dayanan bulgular ışığında sırasıyla araştırma sorularının sonuçlarına odaklanılmıştır: 1) *Deney ve kontrol gruplarının kelime bilgisi başarı ön test ve son test puanları arasında anlamlı bir fark var mıdır?* Her grubun kendi arasında ön test ve son test puanları karşılaştırıldığında, Wordwall'daki dijital çevrimiçi oyunlarla kelime öğrenen deney grubunun puanlarında çok artış olmasına karşın geleneksel yöntemle kelime öğrenen kontrol grubundaki öğrencilerin puanlarında gözle görülür bir artış olmamıştır. Bu sonuç da dijital çevrimiçi oyunlarla İngilizce kelime öğrenmenin önemini göstermiştir. 2) *Deney ve kontrol gruplarının İngilizce dersine yönelik tutum ön-test ve son-test puanları arasında anlamlı bir fark var mıdır?* Elde edilen bulgulara göre her grubun kendi arasında ön test ve son test puanları karşılaştırıldığında, İngilizce dersine karşı tutumlarında hem deney grubunda hem de kontrol grubunda önemli bir değişim olmamıştır. Bu durum, eğitim tutumlarının şekillendirilmesindeki karmaşıklığın giderilmesinde daha kapsamlı ya da ısrarlı çabalara duyulan ihtiyacın altını çizmektedir. 3) *“Deney ve kontrol grupları arasında öğrencilerin kelime öğrenme başarıları açısından anlamlı bir fark var mıdır?”* Deney grubunun ve kontrol grubunun uygulama öncesi ve sonrası test puanları karşılaştırıldığında, deney ve kontrol

gruplarındaki öğrencilerin kelime edinimi başarılarında önemli bir fark olduğu ortaya çıkmıştır. Daha yüksek puanlar alan deney grubunun kullanmış olduğu dijital çevrimiçi oyunların, İngilizce kelime öğrenme sürecini çok büyük ölçüde desteklediği anlaşılmıştır. 4) “*Deney ve kontrol grupları arasında öğrencilerin İngilizce dersine yönelik tutumları açısından anlamlı bir fark var mıdır?*” İki grubun da çalışma öncesi ve sonrası İngilizce dersine yönelik görüşleri incelendiğinde, anlamlı bir farklılık bulunmamıştır. Buna ek olarak, uygulama sonrasında öğrencilerin İngilizce derslerine yönelik tutumları açısından deney ve kontrol grupları arasında anlamlı bir fark olmaması, daha uzun süreli veya daha hedefli tutum değiştirme stratejilerine duyulan potansiyel ihtiyacın önemini vurgulamıştır. 5) “*Deney grubu öğrencilerinin Wordwall'daki dijital oyunlar hakkındaki görüşleri nelerdir?*” Uygulama sonrası, deney grubundaki öğrencilerin Wordwall hakkındaki görüşleri; katılım ve motivasyon, öğrenme etkinliği, İngilizce kelime öğrenimine yönelik tutum değişiklikleri ve iyileştirme önerileri olarak kategorize edilip değerlendirilmiştir. Öğrenciler mutluluk ve memnuniyet duygularını ifade etmişler ve neşe veren bir öğrenme ortamı oluştuğunu söylemişlerdir. Öğrenciler, oyunlaştırılmış öğrenme ortamının kelimeleri daha iyi akılda tutmalarına yardımcı olduğunu belirtmiş ve bunu Wordwall’un interaktif oluşuna bağlamışlardır. Ayrıca, Wordwall’da gezinmeyi kolay bulduklarını da eklemişlerdir. Öğrencilerin İngilizce kelime öğrenmeye yönelik tutumlarında kayda değer bir dönüşüm yaşanmıştır. Başlangıçta sıradan veya zorlayıcı olarak algılanan İngilizce kelime öğrenme süreci, Wordwall’un devreye girmesi ile daha etkileşimli ve eğlenceli hale dönüşmüştür. Bu değişimin sonucu artan motivasyon sayesinde, Wordwall’un etkileşimli ve eğlenceli doğası tarafından teşvik edilen pasif öğrenmeden aktif öğrenmeye geçiş açısından da önemi anlaşılmıştır. Bunlara ek olarak, bazı öğrenciler iyileştirme önerilerinde teknik olan kısımlara değinmişlerdir. Birçok öğrenci oyun çeşitliliğinin artırılabilirliğini dile getirmiştir. Son olarak, öğrenciler kişiselleştirilmiş özelliklerin de Wordwall platformuna dahil edilmesini önermişlerdir. Bütün bulgular, Wordwall gibi dijital oyun tabanlı öğrenme araçlarının öğrenme deneyimlerini önemli ölçüde zenginleştirerek daha ilgi çekici ve etkili hale getirebileceğini göstermektedir. Özellikle dil öğreniminin temel bir unsuru olan kelime ediniminde daha iyi öğrenme sonuçlarına katkıda bulunacağı açıktır.

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APPENDICES

APPENDIX A: The English Vocabulary Achievement Test

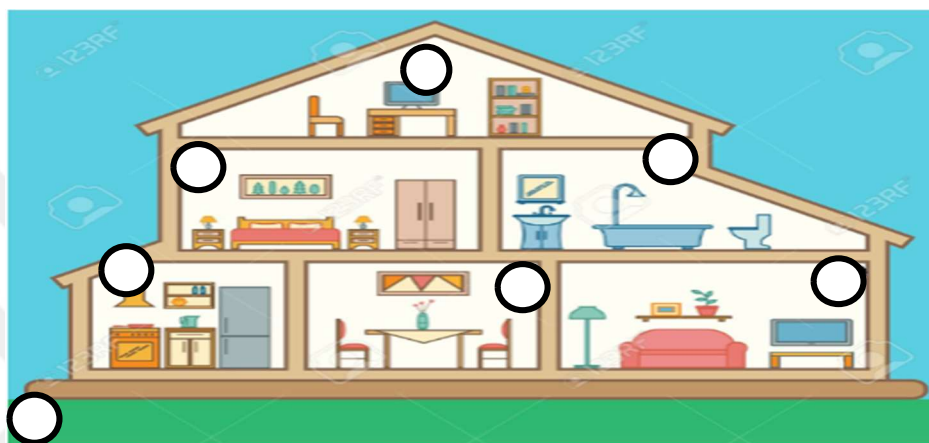
NAME: SURNAME CLASS

VOCABULARY TEST (Pre-test and Post-test) for UNIT 2 and UNIT 3


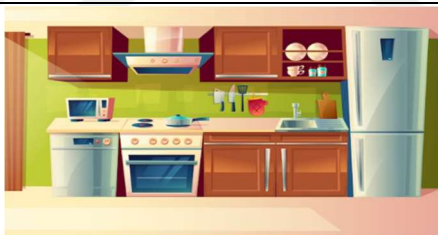


UNIT 1

A) WRITE THE NUMBERS ON THE CORRECT PARTS OF THE HOUSE AT THE PICTURE. (7x1=7 pts)

(1) bedroom
(2) study room
(3) dining room
(4) bathroom
(5) living room
(6) kitchen
(7) garden



B) COMPLETE THE WORD MAP WITH THE MISSING WORDS FROM THE BOX. (12x1=12 pts)

 <p>fireplace chandelier</p> <p>(8)</p> <p>(9)</p> <p>(10)</p>	 <p>microwave dishwasher</p> <p>(11)</p> <p>(12)</p> <p>(13)</p>	bedside table	
		armchair	
		cupboard	
		coffee table	
 <p>towel bath mat</p> <p>(14)</p> <p>(15)</p> <p>(16)</p>	 <p>desk chest of drawers</p> <p>(17)</p> <p>(18)</p> <p>(19)</p>	fridge	
		washing machine	
		oven	
		sofa	
		wardrobe	
		shower	
		bed	
		bath	

C) CHOOSE THE CORRECT PREPOSITIONS TO COMPLETE THE SENTENCES. (7x1=7 pts)

- | | | |
|--|------------|----------------|
| 20. I have got a notebook _____ my bag. | a) between | b) in |
| 21. There is a hat _____ his head. | a) on | b) under |
| 22. The tree is _____ the house. | a) in | b) in front of |
| 23. The school is _____ the bank and cafe. | a) in | b) between |
| 24. Room 21 is _____ Room 20. | a) near | b) between |
| 25. The carpet is _____ the coffee table. | a) in | b) under |
| 26. There is a window _____ the sofa. | a) behind | b) under |

D) WRITE THE WORDS UNDER THE CORRECT PICTURES. (8x1=8 pts)

chemist's / mosque / butcher's / hospital / stationer's / greengrocer's / furniture shop / baker's



(27)



(28)



(29)



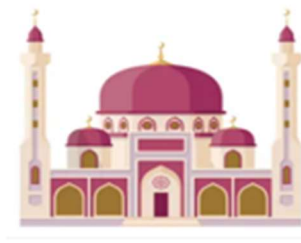
(30)



(31)



(32)



(33)



(34)

E) CIRCLE THE CORRECT ADJECTIVE. (6x1=6 pts)

35. I have a terrible headache, so I do not want to go to a **quiet** / **noisy** place.
36. My city is very **safe** / **unsafe**. I can go out late at nights.
37. Paris is a **crowded** / **relaxing** city. The streets are full of people.
38. Village life is very **stressful** / **peaceful** in comparison with city life.
39. İstanbul is more crowded than Burdur. Life is **boring** / **lively** in İstanbul.
40. We can feel relaxed over there. It is a **quiet** / **crowded** town.

F) WRITE THE WORDS UNDER THE CORRECT PICTURES. (10x1=10 pts)

village / city / town / river / lake / forest / mountain / beach / waterfall / sea



(41)



(42)



(43)



(44)



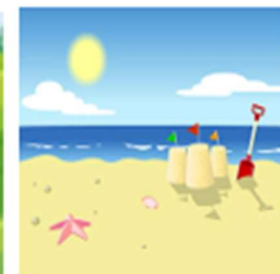
(45)



(46)



(47)



(48)



(49)



(50)

UNIT 3

G) MATCH THE WORDS WITH THEIR TURKISH MEANINGS. (18x1=18 pts)

<input type="radio"/> 51. collecting stamps	a) bisiklet binme
<input type="radio"/> 52. doing archery	b) paraşütle atlama
<input type="radio"/> 53. cycling	c) at binme
<input type="radio"/> 54. horse riding	d) okçuluk
<input type="radio"/> 55. skydiving	e) mağara yürüşü, mağaracılık
<input type="radio"/> 56. caving	f) posta pulu koleksiyonu yapma

<input type="radio"/> 57. climbing	a) yüzme
<input type="radio"/> 58. playing chess	b) günlük tutma
<input type="radio"/> 59. blogging	c) tırmanma, dağcılık
<input type="radio"/> 60. ice skating	d) buz pateni yapma
<input type="radio"/> 61. swimming	e) tempolu koşu
<input type="radio"/> 62. jogging	f) satranç oynama

<input type="radio"/> 63. scuba-diving	a) çömlekçilik
<input type="radio"/> 64. pottery	b) doğa yürüyüşü yapma
<input type="radio"/> 65. hiking	c) define avı oyunu oynama
<input type="radio"/> 66. paintballing	d) robotik kodlama
<input type="radio"/> 67. geocaching	e) tüplü dalış yapma
<input type="radio"/> 68. robotics	f) boya topu oynama

H) CIRCLE THE CORRECT ADJECTIVE. (6x1=6 pts)

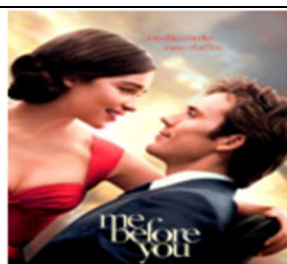
69. Sally does not like collecting stamps. It is **exciting/boring**.
70. Diego is keen on visiting art galleries. To him, paintings are **fascinating/amusing**.
71. Simon loves skydiving. It is challenging and **relaxing/exciting**.
72. Jack prefers paintballing to doing puzzles. He thinks that paintballing is funny and **amusing/boring**.
73. Anthony is fond of geocaching. He says that finding objects is **boring/interesting**.
74. Emily is interested in listening to slow songs. She thinks they are **relaxing/amusing**.

I) WRITE THE CORRECT WORD UNDER EACH PICTURE FROM THE BOX. (8x1=8 pts)

historical drama / biography / animation / horror / sci-fi / action / romance / comedy



(75)



(76)



(77)



(78)



(79)



(80)



(81)



(82)

J) CATEGORIZE THE ADJECTIVES ACCORDING TO THEIR MEANINGS. (6x1=6 pts)

dull / ordinary / must-see / cliché-ridden / fast-paced / unrealistic



(83)

(86)



(84)

(87)



(85)

(88)

K) CHOOSE THE CORRECT ADJECTIVE FOR THE BLANKS. (6X1=6 pts)

89. The scenes are _____ I highly recommend this film.

- a) unrealistic b) ordinary c) breathtaking

90. Your hobbies reflect your character and they make your life more _____

- a) unrealistic b) entertaining c) dull

91. He has a/an _____ ability in ice skating. Everybody likes him very much.

- a) inspiring b) heartbreaking c) ordinary

92. Sally does not like watching dramas. Because she thinks they are _____

- a) thrilling b) heartbreaking c) exciting

93. I love watching romance movies. Because they are _____

- a) heartwarming b) ordinary c) dull

94. The “Revenant” is a/an _____ movie. It has breathtaking scenes.

- a) ordinary b) cliché-ridden c) thrilling

L) WRITE THE WORDS IN THE CORRECT BLANKS FROM THE BOX. (6x1=6 pts)

audience / plot / on the edge of your seat / tell / keen on / opinion

95. In my _____, “Dangal” is a must-see movie. It has impressive scenes.

96. She feels nervous when she performs in front of a large _____

97. A watcher thinks that the message is more important than the _____

98. I _____ bedtime stories to my kids before sleeping.

99. This actor’s new film will keep you _____ with its surprising plot.

100. I’m _____ watching comedy movies because they are much more fun.

*** Each question is 1 point.**

Duration : 40+ 40= 80 minutes
Score : 100 points

Tuba GÜNGÖR DEVECİ

English Language Teacher

APPENDIX B: The Attitude Scale toward English Lessons

İNGİLİZCE DERSİNE YÖNELİK TUTUM ÖLÇEĞİ

Sevgili öğrenciler, Bu ölçekte İngilizce dersine yönelik tutumlarınızı ölçmek üzere maddeler yer almaktadır. Bu maddelerin her birine yönelik “tamamen katılıyorum”, “katılıyorum”, “kararsızım”, “katılmıyorum” ve “hiç katılmıyorum” şeklinde beş seçenek verilmiştir. Her cümleyi dikkatlice okuduktan sonra size en uygun seçeneği işaretleyiniz.		Tamamen Katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Hiç Katılmıyorum
1	İngilizce dersini almak benim için bir zevktir.					
2	İngilizce dersi, benim için önemli bir derstir.					
3	İngilizce dersinin, genel kültürümü artırdığını düşünüyorum.					
4	İngilizce dersine çalışmak benim için eğlencelidir.					
5	Her öğrencinin, İngilizce dersini alması gerektiğini düşünüyorum.					
6	İngilizce derslerini dört gözle beklerim.					
7	İngilizce dersinin, küreselleşen dünyaya ayak uydurmama yardımcı olacağını düşünüyorum.					
8	İngilizce dersinin, diller arasındaki benzerlik/ farklılıkların bilincine varmama katkı sağladığını düşünüyorum.					
9	İngilizce dersine çalışırken zorlanmam.					
10	İngilizce dersinin, yazma becerimi geliştirdiğini düşünüyorum.					
11	İngilizce dersinin, güzel konuşma becerimi geliştirdiğini düşünüyorum.					
12	İngilizce dersi seçmeli ders olsa da alırım.					
13	İngilizce dersinin, ana dile karşı bakış açımı geliştirdiğini düşünüyorum.					
14	İngilizce dersinin, yurt dışına gidebilmek için bir fırsat olduğunu düşünüyorum.					
15	İngilizce dersinin, dil bilgisi konusundaki bilgimi artırdığını düşünüyorum.					
16	İngilizce dersinin konularını tekrar etmekten zevk alırım.					
17	İngilizce dersinin, özgüvenimi artırdığını düşünüyorum.					
18	İngilizce dersinin, dillerin kullanım özellikleri konusundaki bilgimi artırdığını düşünüyorum.					
19	İngilizce dersindeki yeterliğimi geliştirmek için yabancı dizileri/filmleri İngilizce olarak izlemeye çalışırım.					
20	İngilizce dersinin, okuma alışkanlığımı geliştirdiğini düşünüyorum.					
21	Zorunlu İngilizce ders saatleri artırılmalıdır					
22	İngilizce dersinin, kendimi ifade edebilme becerimi geliştirdiğini düşünüyorum.					
23	İngilizce dersindeki yeterliğimi geliştirmek için, İngilizce düşünmeye çalışırım.					
24	İngilizce dersinin, okuma zevkimi artırdığını düşünüyorum					
25	İngilizce dersindeki yeterliğimi geliştirmek için, aklımdan geçen ifadeleri İngilizce olarak yazmaya çalışırım.					
26	İngilizce dersinin yabancı dile karşı bakış açımı geliştirdiğini düşünüyorum.					

APPENDIX C: The Student Opinion Form

ÖĞRENCİ GÖRÜŞ FORMU

Bu form, Wordwall'daki dijital eğitsel oyunlara yönelik görüşlerinizi toplamak için oluşturulmuştur. Aşağıda yer alan soruları kendi düşüncelerinize uygun olarak cevaplayınız.

Adı: Soyadı: Sınıfı:

Bölüm 1

	Katılıyorum	Emin değilim	Katılmıyorum
Wordwall'u daha önce kullandım.			
Wordwall içeriğini eğlenceli buldum.			
Wordwall kullanımını kolay buldum.			
Wordwall sayesinde kelimeleri hevesle öğrendim.			
Wordwall kullanmak kelime öğrenme başarımları olumlu etkiledi.			
Wordwall'u başka derslerde de kullanmak isterim.			

Bölüm 2

1. İngilizce dersinde Wordwall ile kelime öğrenirken nasıl hissettiniz?
2. İngilizce dersinde kelime öğrenirken Wordwall kullanılmalı mıdır? Niçin?
3. Wordwall, İngilizce kelime öğrenmeye karşı fikirlerinizi değiştirdi mi? Niçin?
4. İngilizce kelime öğrenirken, Wordwall'un daha kullanışlı olması için neler önerirsiniz?

APPENDIX D: List of English Vocabulary

UNIT 2

	English	Turkish
1	bedroom	yatak odası
2	study room	çalışma odası
3	dining room	yemek odası
4	bathroom	banyo
5	living room	oturma odası
6	kitchen	mutfak
7	garden	bahçe
8	bedside table	komodin
9	armchair	koltuk
10	cupboard	mutfak dolabı
11	coffee table	kahve masası, orta sehpa
12	fridge	buzdolabı
13	washing machine	çamaşır makinası
14	oven	fırın
15	sofa	kanepe
16	wardrobe	gardırop
17	shower	duş
18	bed	yatak
19	bath	küvet
20	in	içinde
21	on	üstünde
22	in front of	önünde
23	between	arasında
24	near	yanında
25	under	altında
26	behind	arkasında
27	chemist's	eczane
28	mosque	cami
29	butcher's	kasap
30	hospital	hastane
31	stationer's	kırtasiye
32	greengrocer's	manav
33	furniture shop	mobilya mağazası
34	baker's	fırın
35	city	şehir
36	town	kasaba
37	village	köy

38	river	nehir
39	lake	göl
40	forest	orman
41	mountain	dağ
42	beach	sahil
43	waterfall	şelale
44	sea	deniz
45	safe	güvenli
46	noisy	gürültülü
47	peaceful	huzurlu, sakin
48	crowded	kalabalık
49	lively	canlı
50	quiet	sessiz, sakin

UNIT 3

	English	Turkish
1	collecting stamps	posta pulu koleksiyonu yapma
2	doing archery	okçuluk
3	cycling	bisiklet binme
4	horse riding	at binme
5	skydiving	paraşütle atlama
6	caving	mağara yürüşü, mağaracılık
7	climbing	tırmanma, dağcılık
8	playing chess	satranç oynama
9	blogging	günlük tutma
10	ice skating	buz pateni yapma
11	swimming	yüzme
12	jogging	tempolu koşu
13	scuba-diving	tüplü dalış yapma
14	pottery	çömlekçilik
15	hiking	doğa yürüyüşü yapma
16	paintballing	boya topu oynama
17	geocaching	define avı oyunu oynama
18	robotics	robotik kodlama
19	boring	sıkıcı
20	fascinating	büyüleyici
21	exciting	heyecan verici
22	amusing	eğlenceli, güldürücü
23	interesting	ilginç
24	relaxing	rahatlatıcı

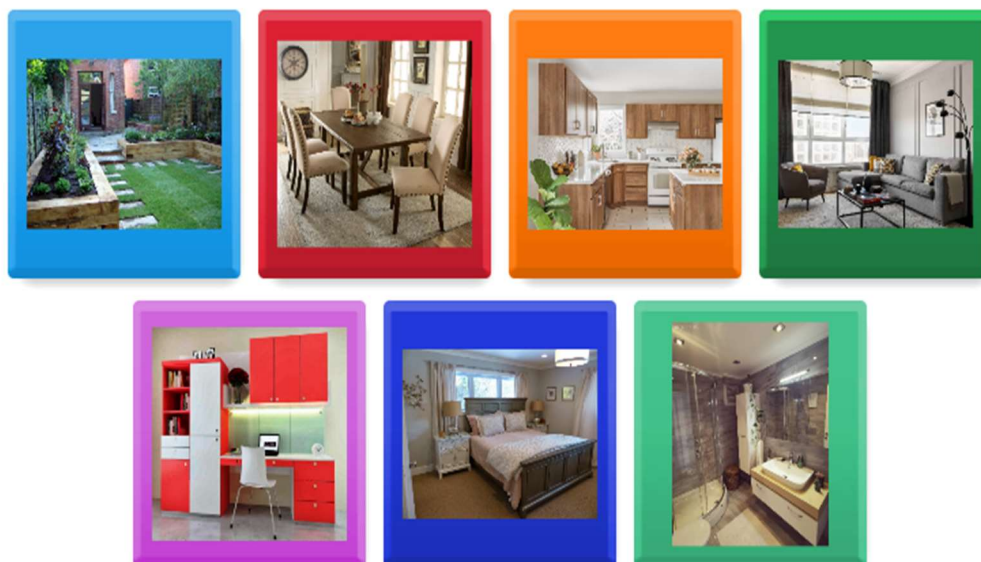
25	historical drama	tarihi drama
26	biography	yaşam öyküsü
27	animation	animasyon, canlandırma
28	horror movie	korku filmi
29	sci-fi	bilim kurgu
30	action movie	aksiyon filmi
31	romance movie	romantik film
32	comedy movie	komedî filmi
33	dull	sıkıcı, donuk
34	ordinary	sıradan
35	must-see	mutlaka görülmesi gereken
36	cliche-ridden	sıradan, klişe
37	fast-paced	sürükleyici, hızlı
38	unrealistic	gerçekçi olmayan
39	breathhtaking	nefes kesici
40	entertaining	eğlendirici
41	inspiring	ilham verici
42	heartbreaking	üzücü
43	heartwarming	iç açıcı, hoş giden
44	thrilling	çok heyecan verici
45	opinion	fikir
46	audience	seyirci
47	plot	hikayenin konusu
48	tell	anlatmak
49	on the edge of somebody's seat	ne olacağını heyecanla beklemek
50	keen on	sevmek, düşkün olmak

* Vocabulary definitions are provided as they occur in the English coursebook (Uplift).

APPENDIX E: Screenshots and Information of Word Games Used in the Research

Week 1/ Game 1: FLIP TILES by <https://wordwall.net>

1:00



Learning objectives: To gain the ability to know the meaning of specific vocabulary, and recognize them.

Aim: To learn the meaning of some specific vocabulary (the parts of a house) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: bedroom, study room, dining room, bathroom, living room, kitchen, garden

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Explore a series of two-sided tiles by tapping to zoom and swiping to flip.

Other templates: Flash cards, Matching parts, Random wheel, Anagram, Gameshow quiz, Open the box, Wordsearch, Crossword, Hangman, Quiz, Find the match, Match up, Random cards

Week 1/ Game 2: GROUP SORT by <https://wordwall.net>



the parts of a house and the things 1

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (the parts of a house and the things) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: fireplace, chandelier, armchair, coffee table, sofa, microwave, dishwasher, cupboard, fridge, oven, towel, bath mat, shower, washing machine, bath, bedside table, chest of drawers, desk, wardrobe, bed

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Drag and drop each item into its correct group.

Other templates: Open the box, Anagram, Quiz, Gameshow quiz, Random cards, Hangman, Random wheels



prepositions of place

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (prepositions of placement) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: in, on, in front of, between, near, under, behind

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Drag and drop the pins to their correct place on the image.

Other templates: Hangman, Random wheel, Anagram, Matching pairs, Unjumble, Flash cards, Open the box, Wordsearch, Flip tiles, Random cards

Week 2/ Game 4: CROSSWORD by <https://wordwall.net>



the places in neighbourhood

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (the places in the neighborhood) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: chemist's, mosque, butcher's, hospital, stationer's, greengrocer's, furniture shop, baker's

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Use the clues to solve the crossword. Tap on a word and type in the answer.

Other templates: Flip tiles, Matching pairs, Random wheel, Anagram, Gameshow quiz, Open the box, Wordsearch, Find the match, Hangman, Quiz, Flash cards, Match up, Random cards



names of the places

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

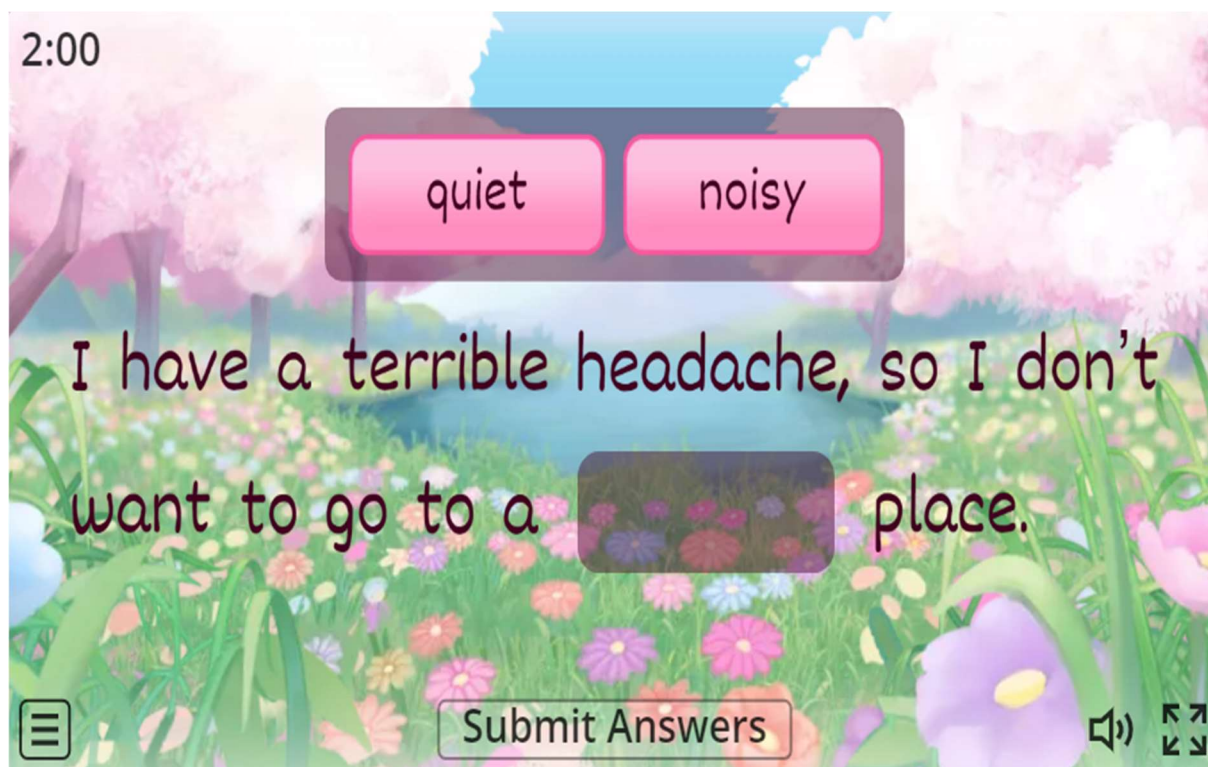
Aim: To learn the meaning of some specific vocabulary (names of the places) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: city, town, village, river, lake, forest, mountain, beach, waterfall, sea

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Tap the correct answer to proceed to among a series of multiple-choice questions.

Other templates: Gameshow quiz, Open the box, Crossword, Hangman, Random cards, Find the match, Match up, Random wheel, Flip tiles, Matching pairs, Wordsearch



adjectives about a place

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (adjectives about a place) of unit 2 in the 9th English coursebook (Uplift).

Vocabulary: safe, noisy, peaceful, crowded, lively, quiet

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Drag and drop words into blank spaces at a cloze activity within a text.

Other templates: There are no other templates under this digital online game.



free time activities

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (free time activities) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: collecting stamps, doing archery, cycling, horse riding, skydiving, caving, climbing, playing chess, blogging, ice skating, swimming, jogging

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Test yourself using cards with prompts on the front and answers on the back.

Other templates: Flip tiles, Matching pairs, Random wheel, Anagram, Gameshow quiz, Open the box, Wordsearch, Crossword, Hangman, Quiz, Find the match, Match up, Random cards



free time activities

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (free time activities) of unit 3 in the 9th English coursebook (Uplift).

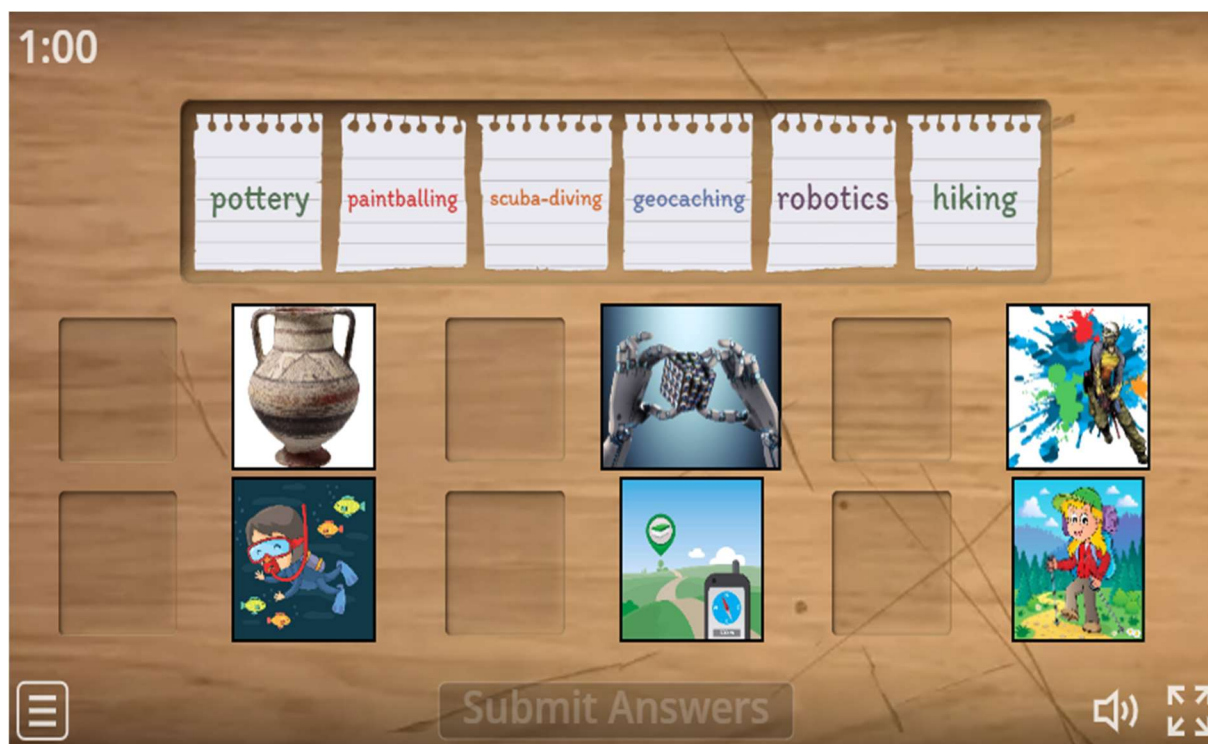
Vocabulary: collecting stamps, doing archery, cycling, horse riding, skydiving, caving, climbing, playing chess, blogging, ice skating, swimming, jogging

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Spin the wheel to see which item comes up next.

Other templates: Open the box, Flip tiles, Random cards, Hangman, Wordsearch, Matching pairs

Week 5/ Game 9: MATCH UP by <https://wordwall.net>



free time activities

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

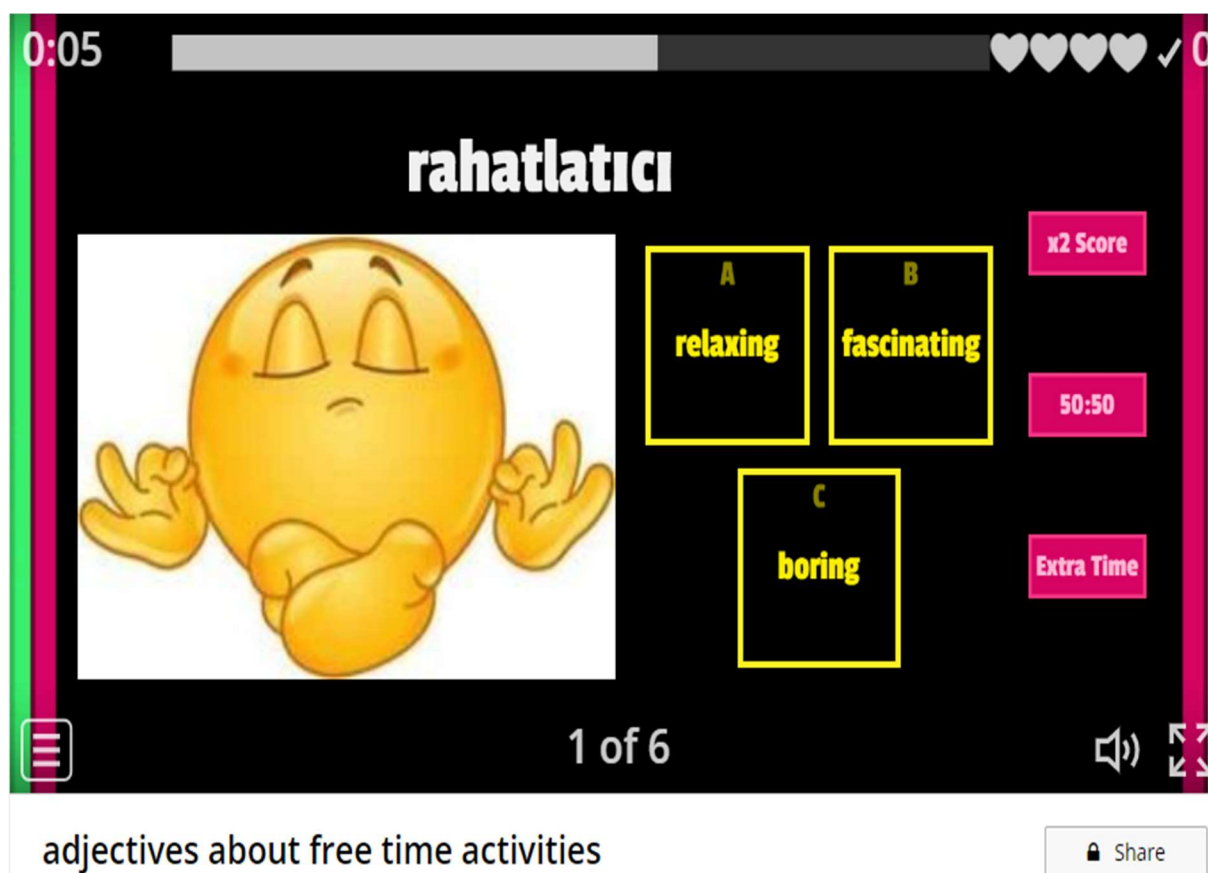
Aim: To learn the meaning of some specific vocabulary (free time activities) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: Scuba-diving, pottery, hiking, paintballing, geocaching, robotics

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Drag and drop each keyword next to its definition.

Other templates: Flash cards, Matching pairs, Random wheel, Anagram, Flip tiles, Open the box, Wordsearch, Crossword, Gameshow quiz, Quiz, Find the match, Hangman, Random cards



Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

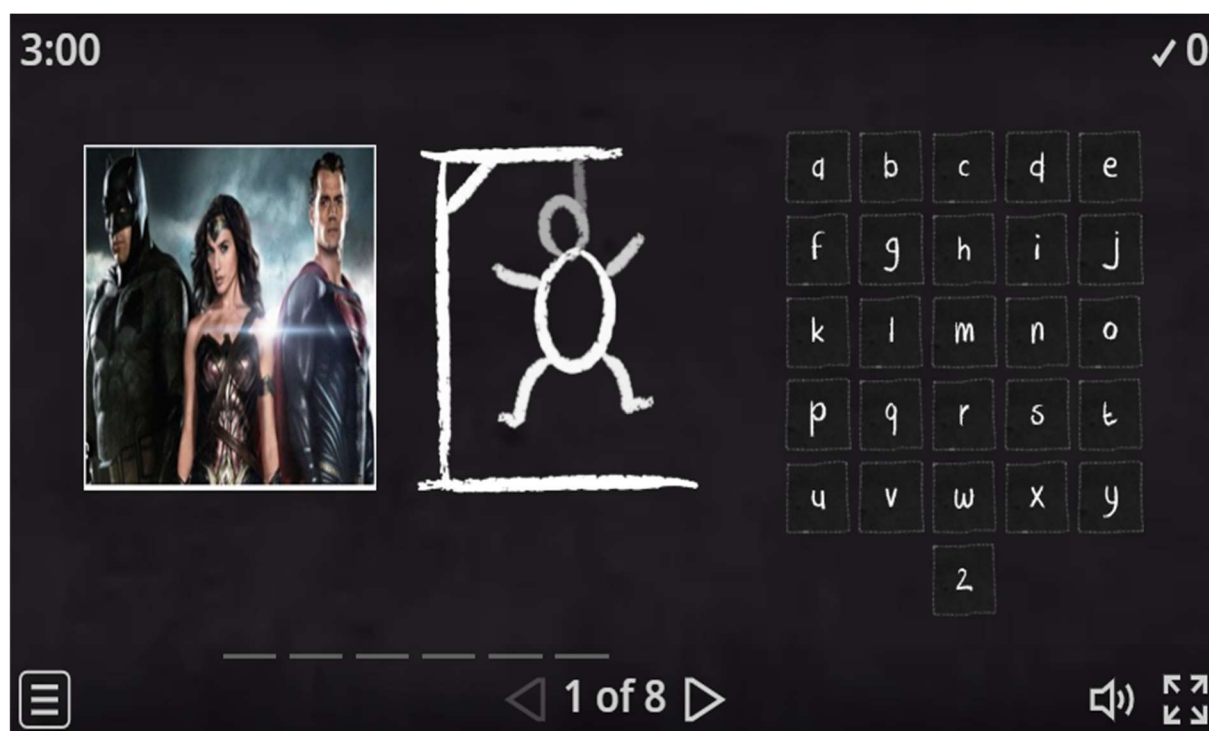
Aim: To learn the meaning of some specific vocabulary (adjectives about free time activities) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: boring, fascinating, exciting, amusing, interesting, relaxing

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: A multiple choice quiz with time pressure, lifelines, and a bonus round.

Other templates: Flash cards, Matching pairs, Random wheel, Anagram, Flip tiles, Open the box, Wordsearch, Crossword, Hangman, Quiz, Find the match, Match up, Random cards



the types of movies

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

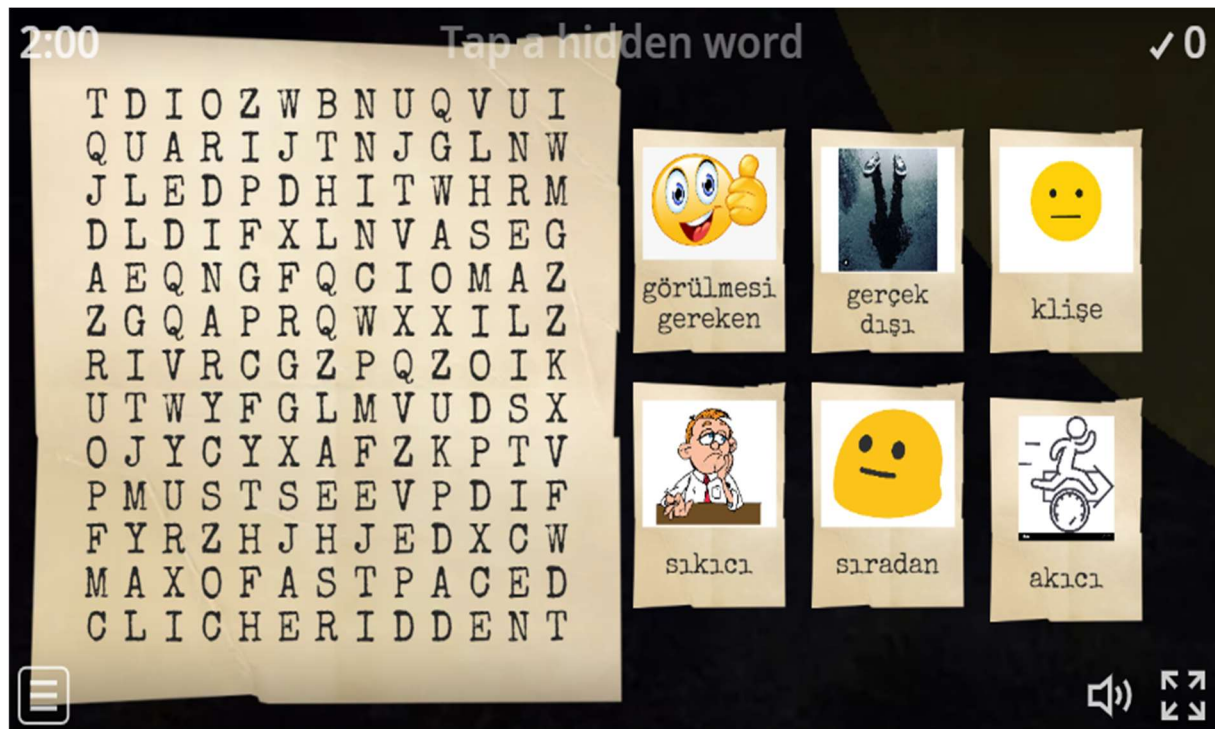
Aim: To learn the meaning of some specific vocabulary (the types of movies) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: historical drama, biography, animation, horror, sci-fi, action, romance, comedy

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Try to complete the word by picking the correct letters.

Other templates: Flash cards, Matching pairs, Random wheel, Anagram, Flip tiles, open the box, Wordsearch, Crossword, Gameshow quiz, Quiz, Find the match, Match up, Random cards



adjectives about movies

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (adjectives about movies) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: dull, ordinary, must-see, cliché-ridden, fast-paced, unrealistic

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Find the words as fast as you can. They are hidden in a letter grid.

Other templates: Flash cards, Match up, Random cards, Anagram, Flip tiles, Matching pairs, Random wheel, Crossword, Gameshow quiz, Open the box, Find the match, Hangman, Quiz

Week 7/ Game 13: FIND THE MATCH by <https://wordwall.net>



adjectives about movies

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (words about movies) of unit 3 in the 9th English coursebook (Uplift).

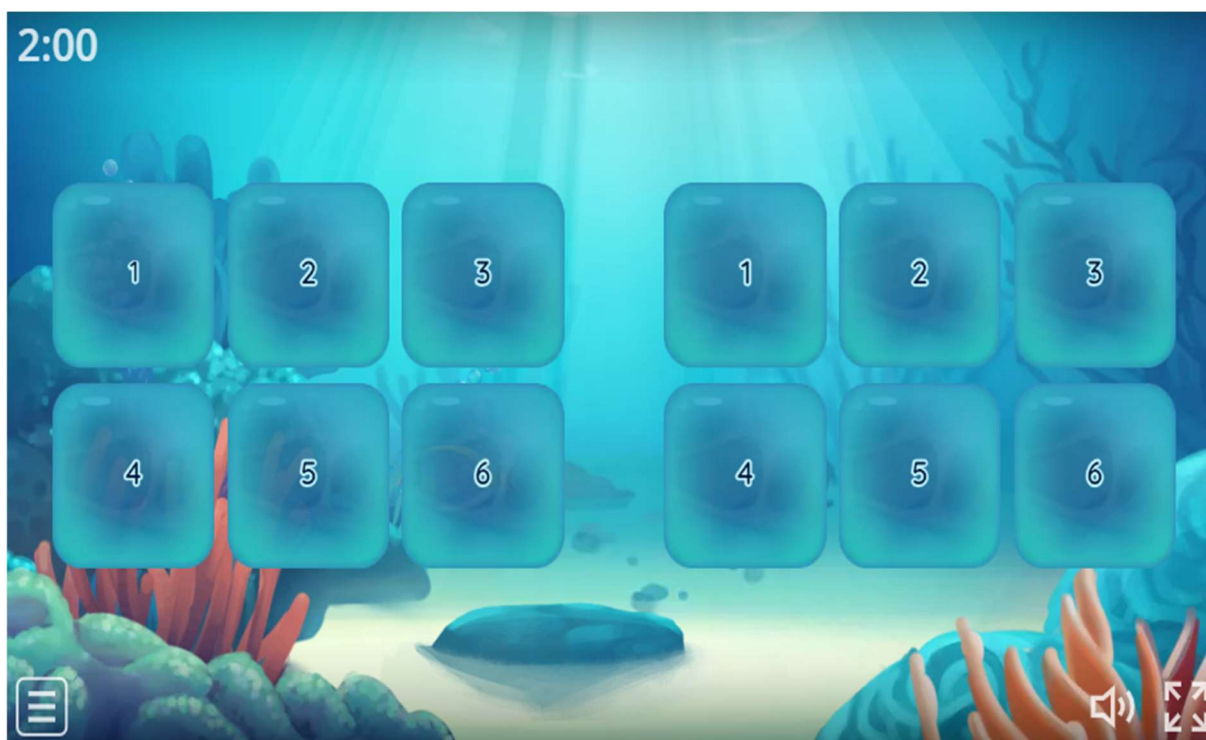
Vocabulary: breathtaking, entertaining, inspiring, heartbreaking, heartwarming, thrilling

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Tap the matching answer to eliminate it. Repeat until all answers are gone.

Other templates: Flip tiles, Matching pairs, Random wheel, Anagram, Gameshow quiz, Open the box, Wordsearch, Crossword, Hangman, Quiz, Flash cards, Match up, Random cards

Week 7/ Game 14: MATCHING PAIRS by <https://wordwall.net>



words from the text

Share

Learning objectives: To gain the ability to know the meaning of specific vocabulary and recognize them.

Aim: To learn the meaning of some specific vocabulary (words from the text) of unit 3 in the 9th English coursebook (Uplift).

Vocabulary: opinion, audience, plot, tell, on the edge of somebody's seat, keen on

Materials: smartboard, smartphone, computer or laptop, and the Internet

Instruction: Tap a pair of tiles at a time to reveal if they are a match.

Other templates: Flash cards, Match up, Random wheel, Anagram, Flip Tiles, Open the box, Wordsearch, Crossword, Gameshow quiz, Quiz, Find the match, Hangman, Random cards

* The content of the games was prepared by the researcher at <https://wordwall.net>.

APPENDIX F: Pictures of the Participants

WEEK 1 / Game 1: FLIP TILES



WEEK 1 / Game 2: GROUP SORT



WEEK 2 / Game 3: LABELLED DIAGRAM



WEEK 2 / Game 4: CROSSWORD



WEEK 3 / Game 5: QUIZ



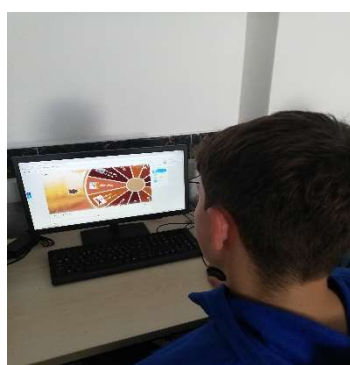
WEEK 3 / Game 6: MISSING WORD



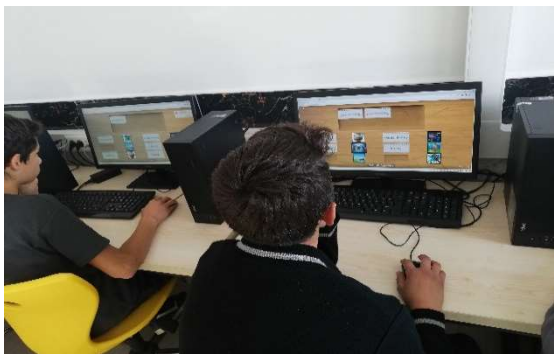
WEEK 4 / Game 7: FLASH CARDS



WEEK 4 / Game 8: RANDOM WHEEL



WEEK 5 / Game 9: MATCH UP



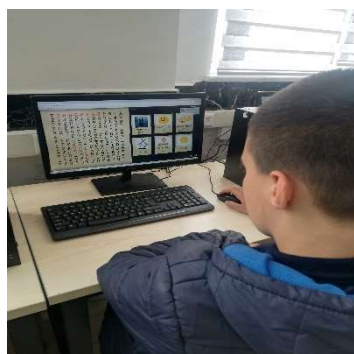
WEEK 5 / Game 10: GAMESHOW QUIZ



WEEK 6 / Game 11: HANGMAN



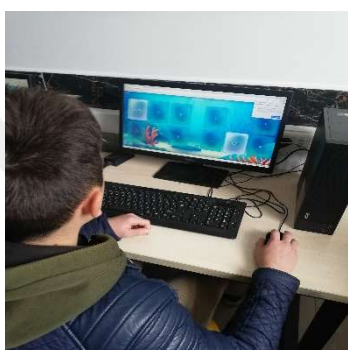
WEEK 6 / Game 12: WORDSEARCH



WEEK 7 / Game 13: FIND THE MATCH

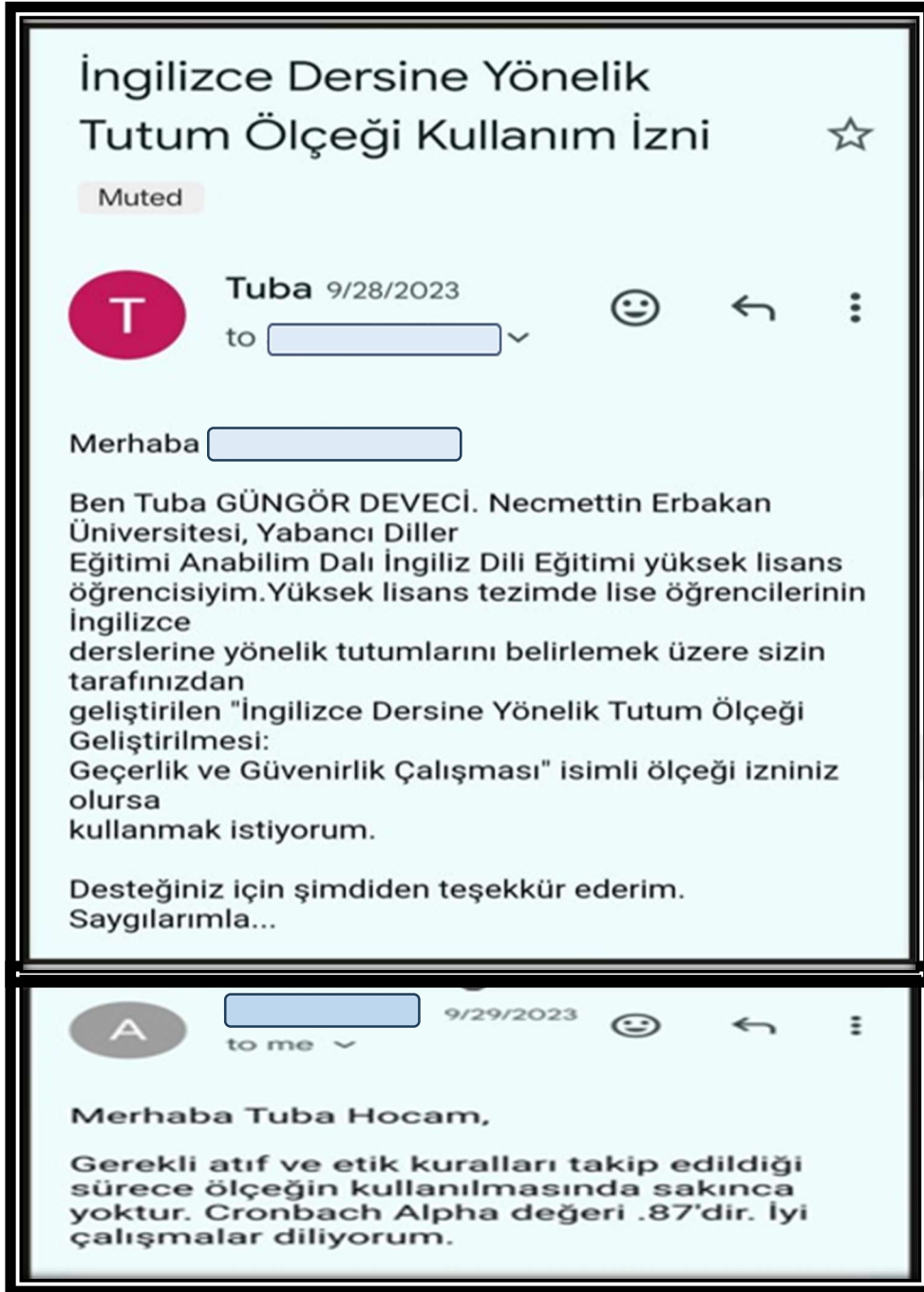


WEEK 7 / Game 14: MATCHING PAIRS



* The participants' pictures were captured by the researcher in the computer room while playing digital online games on the Wordwall platform.

APPENDIX G: Permission to Use the Attitude Scale toward English Lessons



APPENDIX H: Links to the Images Used in the Research

<https://wordwall.net/resource/16490945/english/house-rooms>, retrieved on 4 July 2023, (Word test, Part A)

https://www.123rf.com/photo_148695907_fireplace-living-room-family-house-interior-furniture-vector-illustration.html, retrieved on 4 July 2023, (Word test, Part B)

<https://www.freepik.com/free-photos-vectors/cartoon-kitchen>, retrieved on 4 July 2023, (Word test, Part B)

<https://www.vectorstock.com/royalty-free-vector/cartoon-bathroom-interior-vector-23761959>, retrieved on 4 July 2023, (Word test, Part B)

<https://stock.adobe.com/search?k=bedroom+cartoon>, retrieved on 4 July 2023, (Word test, Part B)

<https://www.istockphoto.com/tr/foto%C4%9Fraflar/pharmacy-cartoon>, retrieved on 5 July 2023, (Word test, Part D)

<https://www.vectorstock.com/royalty-free-vectors/mosque-cartoon-vectors>, retrieved on 5 July 2023, (Word test, Part D)

https://www.freepik.com/premium-vector/butcher-with-knife-meat-cartoon-illustration_10947401.htm, retrieved on 5 July 2023, (Word test, Part D)

<https://tr.pinterest.com/pin/129267451778943229>, retrieved on 5 July 2023, (Word test, Part D)

<https://www.freepik.com/free-photos-vectors/stationery-cartoon>, retrieved on 5 July 2023, (Word test, Part D)

<https://www.istockphoto.com/tr/ill%C3%BCstrasyon/greengrocers-shop>, retrieved on 5 July 2023, (Word test, Part D)

<https://www.freepik.com/free-photos-vectors/cartoon-furniture>, retrieved on 5 July 2023, (Word test, Part D)

<https://www.dreamstime.com/illustration/baker.html>, retrieved on 5 July 2023, (Word test, Part D)

<https://depositphotos.com/tr/photo/cartoon-background-of-old-village-90797492.html>, retrieved on 6 July 2023, (Word test, Part F)

<https://www.vectorstock.com/royalty-free-vector/cartoon-of-trees-view-in-a-forest-vector-23453459>, retrieved on 6 July 2023, (Word test, Part F)

<https://stock.adobe.com/search/images?k=cartoon+lakes>, retrieved on 6 July 2023, (Word test, Part F)

<https://stock.adobe.com/search?k=mountain+cartoon>, retrieved on 6 July 2023, (Word test, Part F)

https://www.123rf.com/photo_12996676_cartoon-nature-landscape-sea.html, retrieved on 6 July 2023, (Word test, Part F)

<https://stock.adobe.com/images/sketch-drawing-of-cartoon-old-town-the-streets-of-the-town-with-houses-and-trees/239120922>, retrieved on 6 July 2023, (Word test, Part F)

<https://www.vector4free.com/free-vectors/river>, retrieved on 6 July 2023, (Word test, Part F)

<https://www.pxfuel.com/en/query?q=cartoon+beach>, retrieved on 6 July 2023, (Word test, Part F)

<https://www.freepik.com/free-photos-vectors/waterfalls-water/77>, retrieved on 6 July 2023, (Word test, Part F)

<https://tr.pinterest.com/pin/471470654727486283>, retrieved on 6 July 2023, (Word test, Part F)

<https://tribune.com.pk/story/2223536/ertugrul-resurrection-dramas>, retrieved on 6 July 2023, (Word test, Part I)

<https://www.imdb.com/title/tt2674426/>, retrieved on 6 July 2023, (Word test, Part I)

<https://collider.com/upcoming-star-wars-disney-plus-shows/>, retrieved on July 2023, (Word test, Part I)

<https://moviesanywhere.com/movie/yes-man>, retrieved on 6 July 2023, (Word test, Part I)

<https://www.beyazperde.com/filmler/film-233561/>, retrieved on 6 July 2023, (Word test, Part I)

<https://www.filmaffinity.com/en/film588950.html>, retrieved on 6 July 2023, (Word test, Part I)

<https://www.amazon.com/Shrek-Forever-After-Family-Icons/dp/B019WMTWPK>, retrieved on 6 July 2023, (Word test, Part I)

<https://www.imdb.com/title/tt18689424/>, retrieved on 6 July 2023, (Word test, Part I)

