USING ONLINE APPLICATION-INTEGRATED PRODUCTION-BASED VOCABULARY ACTIVITIES WITH UNIVERSITY-LEVEL EFL LEARNERS: A CASE STUDY

Nurgül KESKİN
221113101

MASTER'S THESIS

Department of Foreign Languages Education
English Language Teaching Thesis Master's Program
Advisor: Assoc. Prof. Dr. Abdullah Nejat TÖNGÜR

İstanbul
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ORCID: 0000-0001-9771-2255

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JÜRİ VE ENSTİTÜ ONAYI

NURGÜL KESKİN'ın "Üniversite düzeyinde yabancı dil olarak ingilizce öğrenen öğrencilerle çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinlikleri kullanımı: Vaka çalışması" başlıklı tezi 10.10.2024 tarihinde aşağıdaki jüri tarafından değerlendirilerek "Maltepe Üniversitesi Lisansüstü Eğitim ve Öğretim Yönetmeliği" nin ilgili maddeleri uyarınca Yabancı Diller Eğitimi Anabilim Dalı Yüksek Lisans/Doktora/Sanatta Yeterlik tezi oy birliğiyle/oy çokluğuyla, başarılı/başarısız olarak kabul edilmiştir.

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Nurgül KESKİN

October, 2024

ÖZET

ÜNİVERSİTE DÜZEYİNDE YABANCI DİL OLARAK İNGİLİZCE ÖĞRENEN ÖĞRENCİLERLE ÇEVRİMİÇİ UYGULAMALAR ENTEGRE EDİLMİŞ VE ÜRETİME DAYALI KELİME ETKİNLİKLERİ KULLANIMI: VAKA ÇALIŞMASI

Nurgül Keskin
Yüksek Lisans Tezi
Yabancı Diller Eğitimi Anabilim Dalı
İngiliz Dili Eğitimi Tezli Yüksek Lisans Programı
Danışman: Doç. Dr. Abdullah Nejat Töngür
Maltepe Üniversitesi Lisansüstü Eğitim Enstitüsü, 2024

Bu çalışmanın temel amacı, çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinliklerinin üniversite düzeyinde yabancı dil olarak İngilizce öğrenen öğrencilerin kelime bilgisi başarılarını nasıl etkilediğini araştırmaktır. Çalışma aynı zamanda üniversite düzeyinde yabancı dil olarak İngilizce öğrenen öğrencilerin çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinliklerini kullanmaya yönelik tutumlarını belirlemeyi amaçlamaktadır. Çalışma bir vaka çalışması olduğundan, İstanbul'da bir vakıf üniversitesinde B2 seviyesinde yabancı dil olarak İngilizce öğrenen öğrencilerden oluşan tek bir grupla yürütülmüştür. Uygulama sekiz hafta sürmüş ve B2 seviyesindeki 17 Türk öğrenci her hafta farklı bir çevrimiçi uygulama entegre edilmiş ve üretime dayalı kelime etkinliğini tamamlamıştır. Bu çalışmanın verileri, bir ön test ve bir son test (nicel), anketler, gözlemler ve bir odak grup görüşmesi (nitel) olmak üzere karma yöntem toplama araçları kullanılarak toplanmıştır. Araştırmacı, nicel ve nitel verileri analiz etmek için karşılaştırmalı yöntemi kullanmıştır. Nicel veriler SPSS 27 (Statistical Package for the Social Sciences) bilgisayar programı yardımıyla analiz edilmiştir. Nitel veriler ise tematik analiz ile analiz edilmiş ve yorumlanmıştır. Nicel veri analizi bulguları, öğrencilerin puanlarında ön testten son teste istatistiksel olarak anlamlı bir artış olduğunu ortaya koymuştur. Nitel verilerin sonuçlarına göre, ortak temalar kelime bilgisinde gelişme, etkili öğrenme yöntemleri, motivasyon ve katılım, yazma becerilerinde gelişme, teknoloji kullanımı, işbirlikçi öğrenme ve yaratıcı ve eleştirel düşünmeden oluşmaktadır.

Bu çalışmanın bulgularına göre, çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinlikleri, kelime edinimi ve kalıcılığı açısından oldukça faydalıdır. Bu nedenle, bu araştırmada kullanılan kelime etkinlikleri, kelime öğretimi için alternatif yollar olarak düşünülebilir.

Anahtar Sözcükler: çevrimiçi uygulama entegreli, üretime dayalı, kelime etkinlikleri, kelime öğretimi, yabancı dil olarak İngilizce

ABSTRACT

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Maltepe University Graduate School, 2024

The primary purpose of this study is to explore how online application-integrated production-based vocabulary activities influence university-level EFL learners' vocabulary achievement. The study also aims to determine university-level EFL learners' attitudes towards using online application-integrated production-based vocabulary activities. As the study is a case study, it has been conducted with a single group of B2 level EFL students studying at a foundation university in İstanbul, Türkiye. The treatment lasted eight weeks, and 17 Turkish B2 level students completed a different online application-integrated production-based vocabulary activity each week. The data of this study were collected using mixed method collection tools: a pre-test and a post-test (quantitative), questionnaires, observations, and a focus group interview (qualitative). The researcher used the comparative method to analyze the quantitative and qualitative data. The quantitative data were analyzed with the help of the SPSS 27 (Statistical Package for the Social Sciences) computer program. The qualitative data have been analyzed and interpreted by thematic analysis. The quantitative data analysis findings have revealed a statistically significant increase in students' scores from pre-test to post-test. According to the results of the qualitative data, the shared themes consist of improvement in vocabulary knowledge, effective learning methods, motivation and engagement, improvement in writing skills, use of technology, collaborative learning, and creative and critical thinking. Based on this study's findings, online application-integrated production-based vocabulary activities are highly beneficial for vocabulary acquisition

and retention. Therefore, the vocabulary activities utilized in this research can be considered alternative ways to teach vocabulary.

Keywords: online application-integrated, production-based, vocabulary activities, vocabulary instruction, EFL

GENİŞLETİLMİŞ TÜRKÇE ÖZET

ÜNİVERSİTE DÜZEYİNDE YABANCI DİL OLARAK İNGİLİZCE ÖĞRENEN ÖĞRENCİLERLE ÇEVRİMİÇİ UYGULAMALAR ENTEGRE EDİLMİŞ VE ÜRETİME DAYALI KELİME ETKİNLİKLERİ KULLANIMI: VAKA ÇALIŞMASI

Bu çalışmanın temel amacı, çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinliklerinin üniversite düzeyinde yabancı dil olarak İngilizce öğrenen öğrencilerin kelime bilgisi başarılarını nasıl etkilediğini araştırmaktır. Çalışma aynı zamanda bu tür etkinliklerin öğrencilerin İngilizce kelime bilgilerini geliştirmeye yönelik tutumlarını belirlemeyi amaçlamaktadır. Çalışmanın önemi, geleneksel kelime öğretim yöntemlerinden farklı olarak çevrimiçi uygulamaların ve üretime dayalı etkinliklerin öğrenci başarısına katkısını incelemesidir. Bu sebeple, çevrimiçi uygulamaların kelime öğretimine entegrasyonu, yazılı üretim ile kelime öğrenimi arasındaki ilişki ve web tabanlı platformlar ile yazılı üretime dayalı etkinliklerin kullanımına yönelik tutumlar konularında detaylı bir literatür taraması gerçekleştirilmiştir.

Çalışma, İstanbul'da bir vakıf üniversitesinde B2 seviyesinde yabancı dil olarak İngilizce öğrenen 17 Türk öğrenciyle gerçekleştirilmiş bir vaka çalışmasıdır. Araştırma sekiz hafta sürmüş olup, her hafta öğrenciler farklı bir çevrimiçi uygulama entegre edilmiş ve üretime dayalı kelime etkinliğini tamamlamışlardır. Bu etkinlikler, öğrencilerin kelime dağarcığını geliştirmeyi ve dil becerilerini üretken bir biçimde kullanmalarını teşvik etmeyi amaçlamaktadır.

Veri toplama süreci karma yöntemlerle yapılmıştır. Çalışmada kullanılan veriler, nicel ve nitel olmak üzere iki ana kategoride toplanmıştır. Nicel veriler, bir ön test ve son test ile toplanmış ve bu testler aracılığıyla öğrencilerin kelime bilgisi seviyelerindeki değişiklikler ölçülmüştür. Ayrıca, öğrencilerin yapılan kelime etkinliklerine yönelik tutumlarını değerlendiren anketler, gözlemler ve odak grup görüşmesi de nitel veri toplama araçları olarak kullanılmıştır.

Nicel veri analizi SPSS 27 programı ile gerçekleştirilmiş ve öğrencilerin puanlarında anlamlı bir artış olduğu gözlemlenmiştir. Son test sonuçları, öğrencilerin kelime bilgisi başarılarında ön testle kıyaslandığında önemli bir gelişim gösterdiğini ortaya koymuştur. Nitel verilerin tematik analizi ise, öğrencilerin kelime bilgisinde gelişim, etkili öğrenme yöntemleri, motivasyon ve katılım, yazma becerilerindeki artış, teknoloji kullanımı, işbirlikçi öğrenme ve yaratıcı-eleştirel düşünme gibi ortak temaları vurgulamıştır.

Bu bulgular, çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinliklerinin kelime edinimi ve kalıcılığı açısından oldukça faydalı olduğunu göstermektedir. Öğrenciler, geleneksel öğretim yöntemlerine kıyasla daha yüksek düzeyde katılım göstermiş ve dil becerilerinde önemli gelişimler kaydetmişlerdir. Ayrıca, bu tür etkinliklerin öğrencilerin teknolojiyi öğrenme amaçlı kullanma becerilerini artırdığı ve işbirlikçi öğrenme ortamları sunduğu belirlenmiştir. Çalışmanın sonuçları, çevrimiçi uygulamaların kelime öğretiminde etkili bir alternatif olarak kullanılabileceğini ve bu tür etkinliklerin öğretim süreçlerine entegre edilmesinin öğrenci başarılarına katkı sağlayabileceğini göstermektedir.

Sonuç olarak, çevrimiçi uygulamalar entegre edilmiş ve üretime dayalı kelime etkinliklerinin, öğrencilerin kelime bilgilerini geliştirme, öğrenme sürecine aktif katılım sağlama ve uzun vadeli kelime hatırlama konusunda etkili bir yöntem olduğu söylenebilir. Bu çalışma, kelime öğretimi için alternatif yollar sunmakta ve dil öğretiminde teknoloji kullanımının önemini bir kez daha vurgulamaktadır.

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ABBREVIATIONS

EFL : English as a Foreign Language

ELT : English Language Teaching

STM : Short-Term Memory

LTM : Long-Term Memory

CALL : Computer-Assisted Language Learning

MALL : Mobile-Assisted Language Learning

BNC : British National Corpus

GSL : General Service List

AWL : Academic Word List

MC : Multiple Choice

WC : Word Completion

FIB : Fill-in-the-blank

WF : Word Formation

1. INTRODUCTION

Learning a foreign language has always been thought of as a bonus for career advancement, but in the 21st century it has become crucial for personal growth, globalization, and keeping up with the quick developments of communication technologies (Emecen, 2019). When closely analyzed, it is evident that the majority of European and other foreign countries have substantial percentages of their population who are fluent in a second/foreign language. Unquestionably, developing language skills like speaking, listening, reading, and writing is a necessary part of learning a second language (Açıkgöz, 2019), and vocabulary is recognized as the most important element in these areas (Folse, 2004). Speakers can convey their thoughts to others by using their words.

Vocabulary learning is very important because it is one of the main components of language learning. Vocabulary development is crucial to the process of acquiring new words. Learners can increase their vocabulary proficiency through vocabulary development (Çakır, 2019). The development of vocabulary is considered as a prerequisite for mastering the other four skills. (Toy, 2019). Learners who have a strong vocabulary are better communicators and have more options for expressing themselves. Therefore, students must amass a sufficient amount of vocabulary in order to become proficient and accomplish effective communication (Oljira, 2017).

Vocabulary can be taught with a variety of strategies to help learners become more proficient in using it. Some instructors demonstrate the written forms of words while explaining their definitions because of time constraints or not knowing effective vocabulary teaching strategies. However, it is possible that these techniques no longer meet students' needs in the 21st century. Schmitt (2000) claims that the most effective strategy to deal with vocabulary may not be to teach new words in class; it may be more fruitful to give students homework that introduces new vocabulary, like word lists or reading, and then develop, enlarge, and reinforce these words in class (p. 145). Furthermore, Zimmerman (2009) states that "what word learners really need is a teacher who facilitates relevant discussions and authentic opportunities to use target words" (p.

11). Limited productive vocabulary frequently hinders learners in their efforts to express themselves. As a consequence, it is vital for teachers to create situations where students can engage in production-based activities while learning vocabulary.

1.1 The Problem

According to the online Cambridge English Dictionary (n.d.), vocabulary refers to "all the words that exist in a particular language or subject". Considering this definition, it can be said that words form the vocabulary of a language, and every language consists of its unique vocabulary. Harmer (2007) claims that vocabulary serves as the vital organs and the flesh of language if linguistic structures serve as its skeleton (p. 229). Therefore, vocabulary knowledge constitutes an important aspect of language learning, and it directly affects all areas of communication – reading, writing, listening, and speaking. Without a good command of vocabulary knowledge, a language learner will be successful neither in receptive skills nor in productive skills. Consequently, the extent of a speaker's knowledge in a language is determined by their vocabulary knowledge. As language users' vocabulary choices determine the linguistic structures of their utterances or sentences, vocabulary knowledge plays a crucial role in using a language effectively. If the speakers' vocabulary knowledge is insufficient, they can only partially communicate and convey their thoughts. Because of this, the expansion of one's vocabulary is vital.

Due to the significance of vocabulary knowledge, strategies in vocabulary learning make up an important aspect of language teaching. However, there is not a single, universally effective technique for learning vocabulary as long as language learners are taken into account. Each learner is unique, and teachers are the ones who need to make an effort to find the most effective teaching method for their students. Nevertheless, in Türkiye, students are usually provided with word lists through which they are taught vocabulary. The words in these lists are expected to be memorized and used by students. Similarly, in the researcher's institution, the students in all levels are given different lists of words which they are supposed to use in their spoken and written productions. As might be predicted, most of the students fail to use these words in speaking and writing tasks. As they just memorize the words and mostly do controlled practice about these words, they lose their motivation to study vocabulary and do not know how to produce correct

utterances or sentences using these words. Therefore, suitable teaching techniques that will meet the students' needs are necessary.

In the 21st century, the integration of online applications and technological tools in vocabulary teaching is increasingly necessary due to several reasons. These reasons revolve around enhancing engagement, increasing accessibility, and meeting the evolving needs and preferences of learners (Wills, 2023). Online platforms provide a dynamic and interactive environment that can significantly boost student engagement. Traditional vocabulary teaching methods often struggle to maintain student interest whereas digital tools such as online games, quizzes, and multimedia presentations can make learning more enjoyable (Wills, 2023). Furthermore, vocabulary acquisition is an ongoing process that requires consistent practice and exposure. Online applications can facilitate this by providing resources that students can access outside of the classroom (Başal et al., 2016). For example, the use of mobile applications and online resources offers students the flexibility to learn anytime and anywhere. This is particularly beneficial for students who may not have access to traditional classroom settings or who prefer self-paced learning. Additionally, technological tools also allow teachers to adapt their teaching strategies to meet diverse learning needs (Başal et al., 2016). Teachers can utilize various online resources to cater to different learning styles, whether through visual aids, interactive games, or collaborative projects. This adaptability can lead to more effective vocabulary instruction as it enables teachers to tailor their approaches based on the specific requirements of their students.

Given the role of technology in this century, learners may be dissatisfied with the traditional and boring methods of learning English. As creators rather than consumers of knowledge, today's students are encouraged to express themselves creatively (Eaton, 2010). In order to achieve this, students need to work on improving their vocabulary knowledge, and teachers need to employ the most useful strategies that help students retrieve vocabulary while they are speaking and writing. Moreover, the fact that students' productive vocabulary is much smaller than their receptive vocabulary makes it difficult for English language learners to advance in learning and mastering the language. Therefore, it is obvious that being exposed to target level words in reading and listening activities is not enough for students to be able to use them in productive skills. As a

consequence, students need to be encouraged to use the vocabulary they learn with online application-integrated production-based activities so that not only their active involvement in vocabulary activities but also understanding and retention of vocabulary can increase.

1.2 The Aim of the Research

The main purpose of this study is to explore how online application-integrated production-based vocabulary activities impact university-level EFL learners' vocabulary achievement. The study also aims to find out university-level EFL learners' attitudes towards the use of online application-integrated production-based vocabulary activities. In this way, the researcher also aims at handling the issue about students' attitudes towards vocabulary learning in her institution.

The study will try to answer the following research questions:

1. How do online application-integrated production-based vocabulary activities influence university-level EFL learners' vocabulary achievement?

2. What are university-level EFL learners' attitudes towards the use of online application-integrated production-based vocabulary activities?

1.3 The Significance of the Research

When the literature on vocabulary teaching is thoroughly reviewed, many studies can be found about different vocabulary teaching techniques, the use of Web 2.0 tools, and the relationship between teachers' perceptions and their practices in class. However, there is not a study that explores the impact of online application-integrated production-based vocabulary activities on university-level EFL learners' perceptions of vocabulary learning. It gives participants the chance to speak up and give feedback on the vocabulary teaching strategies their teacher utilizes in their lessons. The results might assist the researcher in better understanding the needs of university-level EFL learners, and thus improving the quality of her vocabulary teaching techniques. Additionally, this study can also help other teachers of English language discover some creative activities they can use while teaching vocabulary in their English language classes.

1.4 Assumptions of the Research

The main assumptions of this study are as follows:

1. The resources utilized in the study are assumed to provide accurate and reliable information.

2. Each participant is assumed to give truthful answers to the questions in the study.

1.5 Limitations

This study has several limitations. Firstly, the purposefully chosen case cannot symbolize the whole situations in Türkiye because the study is limited to 17 B2 level students studying at the Preparatory English Program in Özyeğin University. The second limitation is that as this is a case study, there is no control group. The absence of a control group means that the study cannot definitively attribute the observed improvements in vocabulary acquisition to the online application-integrated production-based activities alone. Other variables, such as individual differences in learning styles, motivation levels, and external influences, may have also contributed to the outcomes. The third limitation is the time span of the study, which lasted only 8 weeks, with two class hours each week dedicated to the planned activities. This limited duration may not be sufficient to capture the long-term effects of the vocabulary activities on students' vocabulary retention.

1.6 Keywords and Identification

Vocabulary Journal: It is a booklet consisting of the list of the target words that students are expected to learn in their level. It aims to help students keep a record of the words that they will learn and use in their level in a systematic way and study these words regularly. Students are given the target words, the sections where the words are found, and their other forms with the "part of the speech" indicated as (v), (n), (adj), and (adv) in the vocabulary journal. To complete their vocabulary journals, students write the target words' meanings and/or their synonyms, antonyms or something that reminds them of the meanings of the words during their lessons or outside the class. They write their collocations or commonly used word combinations. They record example sentences from a dictionary. They can also add any other notes about the words (i.e. formal, informal, or reminders).

Case Study: According to Creswell (1998), "a case study is an exploration of a 'bounded system' or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context" (p. 61).

Field Notes: They are the researcher's documentation of events, conversations and behaviors observed in the field, and the researcher's reflections on them. According to Phillippi and Lauderdale (2017), field notes have been a central component of qualitative research since the early 1900s (p. 381).

Questionnaire: According to Richards et al. (1985), a questionnaire is a list of questions about a subject or subjects to which a respondent is expected to respond. Checklists and rating scales are some other questionnaire types. The creation of valid, reliable, and clear surveys is a crucial topic. In several areas of applied linguistics, including language surveys, needs analysis, and the study of attitudes and motivation, questionnaires are utilized (p. 303).

Focus Group: A focus group is a small group interview with participants who are demographically similar and have common characteristics or experiences. Their responses to inquiries from the researcher are examined. Focus groups employ group interaction to investigate and explain participants' beliefs, opinions, and viewpoints rather than a researcher asking each group participant a question individually. In order to learn from the group, the researcher either takes notes during the focus group or records the conversation for later note-taking.

2. LITERATURE REVIEW

This chapter presents pertinent studies on the definitions of vocabulary and word knowledge, aspects and dimensions of vocabulary knowledge, the role of memory in vocabulary acquisition, approaches to vocabulary teaching, vocabulary teaching strategies, integration of online applications in vocabulary teaching, the relationship between written production and vocabulary learning, and attitudes towards the use of web-based platforms and written production-based activities.

2.1 What Is Vocabulary and Word Knowledge

In order to understand what vocabulary is, it is important to define the term word first. According to Cambridge Dictionary (1995), a word is "a single unit of language which has meaning and can be spoken or written" (p. 1678). Words are the fundamental components of language, and they are composed of one or more morphemes, which are the smallest units of meaning. According to Sheeler and Markley (2000), "a word is a unit formed of sounds or letters that have a meaning" (p. 2). On the other hand, vocabulary is made up of more than just single words. Nandy (1994) puts forward that vocabulary is "the total number of words we know and are able to use" (p. 1). Similarly, Longman Dictionary of Contemporary English Online (n.d.) defines vocabulary as "all the words that someone knows or uses or all the words in a particular language or subject." Thus, when compared to word, vocabulary is a broader term. Richards at al. (1985) define vocabulary as "a set of lexemes, including single words, compound words and idioms" (p. 400). A meaning and a particular word may not always have a one-to-one match, and many words are frequently used to convey the same meaning. The term lexeme (also lexical unit or lexical item) is used to describe these multiword units. Therefore, vocabulary includes every word that an individual can identify, understand, and utilize effectively in communication, and it can change significantly from person to person based on a range of variables, including education, exposure to various surroundings, and personal interests.

Also, there is the term lexis which has been coined recently and is used to refer to vocabulary by some scholars. To illustrate, Jackson and Amvela (2000) claim that

vocabulary and lexis can be used interchangeably. Likewise, Larsen-Freeman and Decarrico (2010) support this notion by stating that vocabulary or lexis entails syntax, morphology, phonetics, and semantics (p. 18). However, there are some other scholars who distinguish between vocabulary and lexis. For example, Van Vlack (2013) suggests that vocabulary is associated with words and their meanings whereas lexis encompasses more than mere words; lexis includes other levels of lexical knowledge. Van Vlack (2013) depicts the increasing levels of complexity from word to lexis in Figure 1 below:

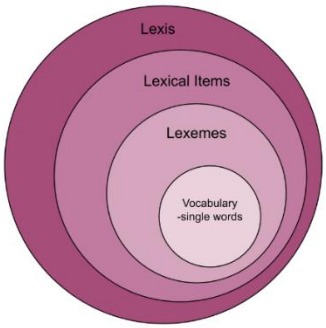


Figure 1. The Distinction between Lexis and Vocabulary (Van Vlack, 2013)

Many other researchers describe it as a set of word units that are pertinent to other units that produce meaning networks that can be classified as 'polysemy, collocation, synonymy, and frequency' (Miller, 1999; Nation, 2001; Schmitt & Meara, 1997). Thus, lexis is usually described as an in-depth explanation of vocabulary. It is more comprehensive than vocabulary and studies the semantic links between words, their collocations (words that frequently appear together), and their usage in context. Synonyms, antonyms, and words with similar meanings or usages are a few examples of lexically related words.

Seis (2020) points out in her thesis that word knowledge is created by vocabulary and lexis (p. 11). So as to acquire this knowledge, learners should learn the definition(s) of a word, the forms of this word in writing and speaking, its grammatical forms, its collocations, the register of the word, word association and frequency (Schmitt, 2000, p. 5). Schmitt (2000) also claims that when a word is mastered, links are formed between its referent and latter (p. 23). Many language learners mistakenly think that word definitions from dictionaries are sufficient. However, a word's connotations and

denotations indicate additional register relevant to the authentic context. For example, although the adjectives ‘thin’, ‘lanky’, ‘skinny’, ‘haggard’, ‘slender’, and ‘slim’ all have the same denotative meanings, their emotional connotations vary greatly depending on the context. Therefore, it appears impossible to produce or understand the language without a sufficient grasp of the target language vocabulary. Overall, it is essential that vocabulary knowledge continue to expand. As a result, teachers’ learning and teaching practices are extremely important since they significantly contribute to students’ proper vocabulary learning.

2.2 Aspects of Word Knowledge

Many scholars have examined a range of facets related to word knowledge (Pellicer-Sánchez, 2015). Richards (1976) suggests eight assumptions about lexical knowledge, and these assumptions are important as they offer a thorough framework for comprehending the complexities involved in acquiring new vocabulary. Richards (1976) puts these assumptions in the following order:

1. The native speaker of a language continues to expand his vocabulary in adulthood whereas there is comparatively little development of syntax in adult life.

2. Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words we also know the sort of words most likely to be found associated with the word.

3. Knowing a word implies knowing the limitations imposed on the use of the word according to variations of function and situation.

4. Knowing a word means knowing the syntactic behavior associated with the word.

5. Knowing a word entails knowledge of the underlying form of a word and the derivations that can be made from it.

6. Knowing a word entails knowledge of the network of associations between that word and other words in the language.

7. Knowing a word means knowing the semantic value of a word.

8. Knowing a word means knowing many of the different meanings associated with a word. (p.83)

All these factors stated above emphasize the complicated nature of word knowledge and the various components that contribute to language proficiency. That is why, Richards (1976) proposes that extensive vocabulary growth should be a key component of a second language program because a learner consistently expanding his vocabulary is more equipped to develop both productive and receptive language skills (p. 84).

Besides this, Nation (2001) declares that word knowledge encompasses the knowledge of receptive and productive dimensions of form (e.g., orthography), meaning (e.g., associates), and use (e.g., grammatical functions). Nation (2001) defines a word's form as its pronunciation in spoken language, its spelling in written language, and any word elements that comprise this specific item (like a prefix, root, and suffix). According to Nation (2001), meaning represents the connection between form and its conceptual value; that is, the notion and the things it alludes to as well as the connections that individuals have when they hear, see, or consider a specific word or phrase. When it comes to use, Nation (2001) states that it includes a word or phrase's grammatical functions, typical collocations, and any usage restrictions related to frequency, level, and other factors. The comprehensive framework related to the multifaceted nature of word knowledge developed by Nation (2001) is as follows:

Table 1. Nation's Word Knowledge Framework (Nation, 2001)

Form	spoken	receptive	What does the word sound like?
		productive	How is the word pronounced?
	written	receptive	What does the word look like?
		productive	How is the word written and spelled?
	word parts	receptive	What parts are recognisable in this word?
		productive	What word parts are needed to express this meaning?
Meaning	form and meaning	receptive	What meaning does this word form signal?
		productive	What word form can be used to express this meaning?
	concepts and referents	receptive	What is included in the concept?
		productive	What items can the concepts refer to?
	associations	receptive	What other words does this make us think of?
		productive	What other words could we use instead of this one?
Use	grammatical functions	receptive	In what patterns does the word occur?
		productive	In what patterns must we use this word?
	collocations	receptive	What words or types of words occur with this one?
		productive	What words or types of words must we use with this one?
	constraints on use (register, frequency …)	receptive	Where, when, and how often would we expect to meet this word?
		productive	Where, when, and how often can we use this word?

Considering what is required to know a word both receptively and productively in the table above, it is obvious that receptive understanding is easier than the productive application of a word. One of the reasons for this is that, in contrast to receptive understanding, which only requires a few word attributes to be understood, productive learning necessitates additional learning of output patterns and exact word knowledge (Nation, 2001, p. 28). In addition, students typically hear and read words more frequently than they actually use them. A further argument could be that second language or foreign language (L2) learners are not always inspired to use a word; therefore, it stays in their passive vocabulary.

Moreover, Schmitt (2000) also acknowledges the distinction between receptive and productive vocabulary knowledge by stating that "there are different degrees of knowing a word" (p. 4). Providing the alternative terms passive and active for receptive and productive, he defines receptive knowledge, which is often associated with reading and listening, as the ability to comprehend a word, and productive knowledge as the ability to use a word on our own when speaking or writing (Schmitt, 2000, p. 4). To put it another way, the capacity to understand a word when reading or hearing is known as receptive knowledge whereas lexical information utilized when writing or speaking is known as

productive knowledge (Laufer & Goldstein, 2004; Webb, 2008). Although researchers accept the receptive and productive dimension, there is disagreement among them about whether the receptive or the productive knowledge is acquired first (Laufer & Goldstein, 2004). Some researchers, such as Melka Teichroew (1982), see a continuum between receptive and productive knowledge. This theory holds that learners go from receptive knowledge to productive mastery over time by studying the lexical items in further detail. Faerch et al. (1984), Tréville (1988), and Palmberg (1987; as cited in Meara, 1997) have all widely acknowledged this progressive transition from passive to active knowledge; however, it is unclear when receptive knowledge becomes productive (Laufer & Goldstein, 2004; Schmitt, 2010). On the contrary, according to Meara (1997), the two categories of knowledge cannot be a continuum as they represent distinct kinds of associational knowledge. Meara (1997) suggests a lexical structure where words that are productively known are linked to a productive item while words that are receptively known have no relation to any other words in the lexicon. According to this perspective, there is no organic transition from a receptive to a productive state.

Furthermore, receptive knowledge is typically easier for learners to acquire and use than productive knowledge. A lot of researches have argued that L2 learners have more difficulty expanding productive vocabulary than receptive vocabulary (Laufer & Paribakht, 1998; Nation 2001; Webb, 2008; Zhang, 2009). The classroom activities related to vocabulary generally provide a receptive environment for learners. Tasks involving the acquisition of vocabulary foster greater receptivity than productivity. For instance, reading and listening tasks help students gain a large amount of receptive vocabulary (Jenkins et al., 1984; Nagy et al., 1987). Nevertheless, receptive learning has not been demonstrated to be superior to productive learning (Aksel Altındağ, 2016).

Laufer (1998) works with teenagers in order to measure the productive and receptive vocabulary sizes of non-native speakers by administering the Productive Level Test and the Lexical Frequency Profile. The findings verify that the receptive vocabulary sizes of non-native speakers are greater than their productive vocabulary sizes. Additionally, as learners age, the gap between their productive and receptive vocabulary grows in size. Thus, language learners must invest more time in integrating knowledge and usage coherently in order to acquire productive knowledge (Laufer, 1998). Laufer (1998) also

discovers that the size ranges of receptive and productive vocabulary are comparable among advanced English as a foreign language (EFL) learners. Topkaraoğlu (2013) claims that the first language of learners may cause problems for them when they are learning a second language, making it harder for them to acquire or use the second language. Words in the two distinct language systems may not be exactly the same for second language learners as they are in Turkish and English. In this case learners require time as well as chances for skill practice to produce the necessary vocabulary knowledge (Topkaraoğlu, 2013, p. 19). In addition to the receptive and productive dimension of word knowledge, there are inquiries about the amount of vocabulary second language learners should possess. Therefore, the next section will focus on vocabulary size and depth.

2.3 Two Dimensions of Vocabulary Knowledge

According to Kesmez (2020), the most crucial element in language learning is vocabulary. Human beings require extensive lexical knowledge in order to convey their emotions, communicate successfully, and use the language effectively. However, acquiring new vocabulary is a challenging task since vocabulary expansion goes beyond understanding a word's specific meaning in a given situation (Schmitt, 2010; Nation, 2001). Acquisition might not occur through only memorizing or dictionary reading. Therefore, focusing on the distinction between the breadth and the depth of a learner's vocabulary knowledge is helpful to understand the complex nature of vocabulary knowledge (Qian, 1999; Wesche & Parikbakht, 1996).

2.3.1 The breadth of vocabulary knowledge

This dimension, which has long been considered as the cornerstone of language learners' lexical competence, is connected to the size of a learner's word knowledge, and it illustrates the scope of the learner's vocabulary (Read, 2004). According to Nation (2001), the amount or number of words a learner knows at a particular level of language competency is known as their breadth of vocabulary knowledge. This definition is also supported by Wang (2009), who says that the estimated quantity of words a learner knows is referred to as their breadth of vocabulary knowledge (or vocabulary size).

Many researchers have found out that vocabulary size plays a crucial role in both target vocabulary learning process and the proficiency level of learners (Nation, 2001; Qian,

2002; Staehr, 2008). Because of this, there has been significant progress in measuring a learner's vocabulary size (Laufer & Nation, 1999; Nation, 1993; Nation & Beglar, 2007; Schmitt et al., 2001). Meara (1996) asserts that vocabulary size is a crucial element of lexical knowledge and proposes that learners with a large vocabulary are more proficient in various language skills compared to those with a limited vocabulary.

Schmitt (2008a) notes that a person needs to be able to comprehend between 95% and 98% of the words in a text for a clear understanding of it. This indicates that foreign language learners may have trouble understanding the text and may not be able to correctly infer the meanings of unknown items if they encounter more than one unfamiliar word every two lines (Ur, 2012). Schmitt (2008a) points out that understanding approximately 98% of an unsimplified text entails familiarity with a significant range of word families, which has been estimated by various researchers to be between 5,000 and 8,000. Word families are collections of words derived from a shared root (e.g. help, helpful, unhelpful, helper, helpless); thus, there are even more single words that require learning, and it will grow much more if idiomatic terms, whose meanings cannot always be deduced from the individual words, are considered (Ur, 2012).

According to Schmitt (2000), foreign language learners need to initially aim at learning about 2,000 of the most widely used words for effective communication in daily situations and to be prepared for academic work. The next phase is to acquire enough vocabulary to start reading authentic materials as a learner gains more confidence and finds it easier to talk on common topics. Although there is not a magic vocabulary size requirement that permits this, it appears that 3,000–5,000 word families are sufficient to give readers access to this type of written content at first (Nation & Waring, 1997). There are several wordlists that are commonly used in English vocabulary learning and teaching, such as Academic Word List (AWL) and General Service List (GSL). Oxford Wordlists are other mostly used wordlists, and they are based on extensive linguistic research, including frequency analysis of large corpora of written and spoken English. The most well-known wordlists associated with Oxford University include the Oxford 3000, the Oxford 5000, and the Oxford 10,000. The selected words in these wordlists are relevant and useful for learners at various stages of their language learning process.

Nation (2001) states that a learner needs to be familiar with about 3,000 high frequency words so as to comprehend most authentic texts. With this vocabulary, one might be capable of grasping the majority of a text's communicative content and infer unfamiliar words from context. Similarly, Schmitt and Schmitt (2014) assert that learning the 3,000 most common vocabulary in English is crucial. Laufer (1997a) also brings up this figure by pointing out that a learner who learns 5,000 words or 3,000 word families might understand nearly all of the book. According to Hirsh and Nation (1992), EFL learners require 5,000 word families for reading comprehension, and 6,000 or 7,000 word families for listening comprehension. The number could reach around 10,000 word families when the content is difficult, like in university textbooks (Hazenberg & Hulstijn, 1996). Moreover, an effective goal can be to build a strong base of higher-frequency vocabulary along with the specialized vocabulary for a given subject area if a student wants to communicate in that particular area. A vocabulary of 15,000–20,000 word families is required if the learner's objective is to create a vocabulary size similar to that of a native speaker (Nation & Waring, 1997). However, Nation (2001) states that only roughly 250 word families are known by foreign language learners.

2.3.2 The depth of vocabulary knowledge

According to Read (1993), this dimension pertains to "the quality of the learner's vocabulary knowledge" (p. 357). The depth of vocabulary knowledge can be more complicated than the breadth since it includes knowing a word's pronunciation, spelling, syntactic and semantic relationships with other words while the breadth could only imply understanding a word's single meaning in a given text (Chapelle, 1998). Depth dimension, according to Nation (2001), pertains to the degree of a learner's word knowledge or their ability to organize their vocabulary. In other words, it reflects how well a person can accurately and effectively apply their lexical knowledge. Vocabulary size and depth differ in that the former highlights the entire amount of vocabulary that students possess with restricted meaning whereas the latter concentrates on the multiple facets connected to a single word (Read, 2000, p. 237). A thorough grasp of a word's many meanings, acceptable uses, grammatical characteristics, and usage in a variety of settings are correlated with the depth of vocabulary knowledge (Kieffer & Lesaux, 2012; Nation, 2001; Qian, 1999). It may therefore be argued that vocabulary should be viewed

as a multidimensional structure with more intricate parts rather than a single dimension structure. Additionally, the depth of vocabulary knowledge might function as a network connecting different words. According to Milton (2009), students can build a stronger vocabulary by considering how a word collocates, connotates, and associates with other words in its surroundings.

Scholars posit that word knowledge can take many forms, and that word knowledge goes well beyond just understanding a word's meaning in a given context (De Bot et al., 1997; Nassaji, 2004; Nation, 2001; Quian, 2002; Richards, 1976). A collection of principles identifying lexical knowledge, like morpho-syntactic qualities, derivation, association, frequency, and semantic features, was enumerated by Richards (1976). According to his theory, word knowledge entails possessing a variety of knowledge, from syntactic to semantic relations as well as frequency, register, and different meanings of the words. Additionally, Seis (2020) points out that the depth of vocabulary knowledge includes a wide range of word knowledge properties, such as paradigmatic relations like antonym, synonym, and hyponym in addition to syntactic traits like collocations and semantic knowledge.

Similarly, Wallace (1987) examines nine distinct facets of word knowledge to determine an individual's level of word knowledge. Wallace (1987) states that knowing a word with the proficiency of a native speaker in a target language can entail having the following abilities:

(a) recognize it in its spoken or written form;

(b) recall it at will;

(c) relate it to an appropriate object or concept;

(d) use it in the appropriate grammatical form;

(e) in speech, pronounce it in a recognizable way;

(f) in writing, spell it correctly;

(g) use it with the words it correctly goes with, i.e. in the correct collocation;

(h) use it at the appropriate level of formality;

(i) be aware of its connotations and associations. (p. 27)

Furthermore, Baumann and Kame'enui (1991) consider association, comprehension, and generation as three degrees of word knowledge that can be utilized to refer to the depth of word knowledge. Firstly, the capacity to associate a new word with a particular meaning or context defines associative knowledge. Secondly, a student demonstrates comprehensive knowledge when they can identify an antonym, categorize words by using definitional information, or they may show that they have a general sense of how a word fits into a sentence. Thirdly, the ability to formulate a fresh response to a word, such as an original sentence or a paraphrase of the definition with the student's own words, is a sign of generative knowledge (Baumann & Kame'enui, 1991).

Bogaards (2000) also highlights the spoken or written form of a word, its meaning, morphological knowledge, syntactic knowledge, collocations, and discourse knowledge while considering the vocabulary depth. Considering the main areas of emphasis in this identification of lexical knowledge, it may be suggested that vocabulary depth encompasses various aspects of lexical knowledge, such as morphological, syntactic, or discourse understanding of a particular target word. Therefore, the number of lexical knowledge qualities that second language learners possess can help gauge their understanding of a particular word.

2.4 The Role of Memory in Vocabulary Acquisition

For many years, memory has been examined as a key concept in vocabulary learning. Richards et al. (1992) define memory as the cognitive ability to retain information, whether for short-term or long-term durations. Likewise, Baddeley (1997) describes memory as a mechanism designed to store and recall information that is naturally obtained through our senses. According to Sherwood (2015), memory is the brain's capacity to process, preserve, and recall information when needed. It is the process of retaining data throughout time to influence decisions made in the future. It would be challenging to develop language, interactions, and personal identity if past deeds were not recalled.

According to Thornbury (2006), learning cannot occur without memory, and especially language learning, which necessitates a vast amount of vocabulary, is primarily memory work. It necessitates having a vast amount of memorized information that one can store and recall. This data contains word meanings in addition to their phonetic forms. Therefore, it makes sense that possessing a strong memory is seen as being essential to a learner's ability to learn new languages.

Figure 2 below illustrates the Multi-Store Model of Memory, a seminal model of memory proposed by Atkinson and Shiffrin (1968). Their model offers a framework for comprehending how memory works, which can aid in enhancing vocabulary knowledge even though it does not directly deal with vocabulary learning.

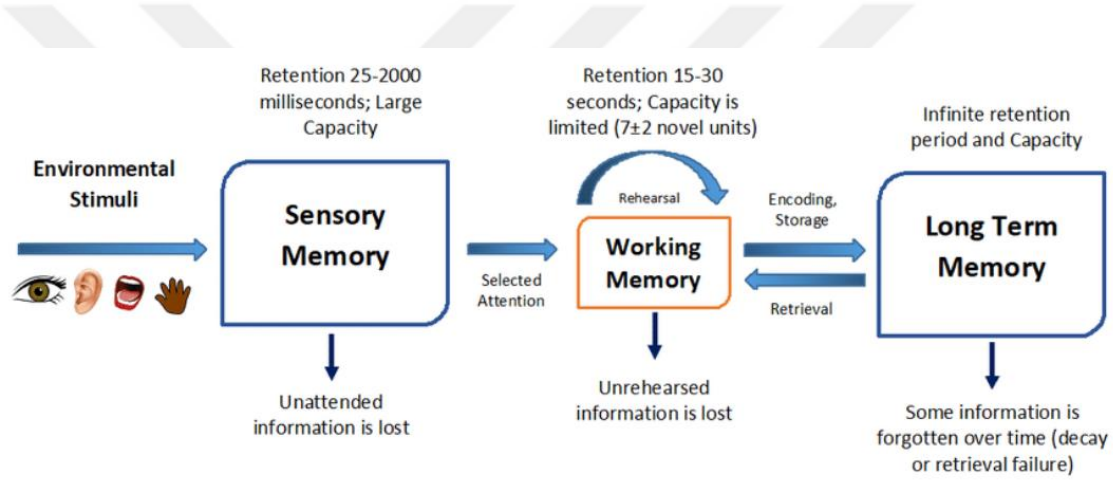


Figure 2. Multi-Store Memory Model (Atkinson & Shiffrin, 1968)

The Multi-Store Model consists of three main components. Sensory memory is the first component. This is the initial memory stage in which sensory data is briefly registered. For extremely short times (milliseconds to seconds), it stores a lot of incoming sensory data. For example, iconic memory stores visual information, while echoic memory stores auditory information. Different senses correspond to different sensory registers. The second part is short-term memory (STM), commonly referred to as working memory. Sensory memory transfers information to short-term memory where it is kept momentarily. The capacity and duration of STM are restricted; without rehearsal, it can keep very small amounts of data for longer than a few seconds, generally less than a minute (Baddeley et al., 1990; Peterson & Peterson, 1959). Information in STM can be

retained for longer with maintenance rehearsal. According to Ellis (1996), one of the strongest predictors of future vocabulary and grammatical achievement is short-term memory capacity. Furthermore, as noted by Thornbury (2006), working memory is necessary for the majority of cognitive functions, including comprehension, learning, and reasoning. Long-term memory (LTM) is the third component. Data that is practiced and encoded in STM has the potential to be moved to LTM, where it can be retained for longer durations. However, it can deteriorate if it is not accessed frequently; the more times it is retrieved, the easier it is to access (Thornbury, 2006). LTM is long-lasting and has a large capacity; it may last a lifetime. It is possible to retrieve data from LTM and temporarily import it back into STM.

A closer analysis of Figure 2 shows a strong connection between the three categories of memory storage. Humans take any information from their surroundings, but they cannot keep it or send it to their short-term and long-term memories without transferring, repeating, or rehearsing that information. According to Thornbury (2006), in language learning, the crucial aspects are initially transferring information from working memory to long-term memory and subsequently being capable of accessing and retrieving this information in real-time situations. The first process benefits from the application of memorization techniques and from exposure to the new information on a regular basis (⟶ frequency; ⟶ repetition). "Use it or lose it" applies to the second process, which is access and retrieval, and it is totally reliant on practice (Thornbury, 2006, p. 130).

As previously discussed, the breadth and depth of learners' word knowledge are significant determinants that affect their vocabulary acquisition. Nonetheless, there are instances when students encounter difficulties while going through the process. When given a speaking or writing task, they usually complain that they are unable to recall or utilize the words they have already studied. Schmitt (2000) claims that it is normal for language learners to forget words even after intense study sessions. Yükselir (2008) supports this idea by saying that partial vocabulary knowledge should be perceived as constantly changing, undergoing a continuous cycle of learning and forgetting until the word becomes thoroughly mastered and firmly established in memory. It is crucial to recognize that the process of learning words is not always linear; it involves gradual progress without any regression (Schmitt, 2000). Nevertheless, during a productive

activity, it can be disconcerting for learners to find themselves unable to recall essential words. The research conducted by Schmitt (1998) reveals that advanced L2 university students enhance their understanding of the meanings of target words by approximately 2.5 times more than the extent to which that knowledge is forgotten over the course of a year. However, this also implies some degree of regression. Interestingly, words known passively are forgotten mostly whereas words used actively are far less susceptible to being forgotten. Forgetting words primarily relates to memory processes. That is why, it is almost unattainable to fully appreciate the significance of vocabulary learning without considering memory storage and understanding how the brain functions. Therefore, research indicates that students should practice retrieval studies, pace their studies in accordance with their individual learning styles, personalize their learning, visualize their knowledge to help retain it in long-term memory, use mnemonic devices to make remembering easier, maintain a high level of learning motivation, and increase their level of conscious attention (Thornbury, 2002, pp. 23-25).

2.5 Approaches to Vocabulary Teaching

Among the methods used in L2 vocabulary teaching, two methods come to the fore: explicit approach and implicit approach (Ellis, 1995). According to Nation (2001), these methods are also known as intentional or incidental vocabulary learning. There are continuous discussions on which approach is better for helping students acquire language skills efficiently.

According to Ellis (1995), the explicit approach is purposeful training designed to teach vocabulary directly. In explicit vocabulary instruction, words are either introduced to students first, then their meaning is asked, or the word's meaning is first conveyed, then the word is questioned (Tekin, 2021). This approach focuses heavily on structured vocabulary exercises and techniques that have vocabulary learning as their main objective (Tahir et al., 2021). Providing students with explicit vocabulary teaching can result in improved vocabulary knowledge, particularly when the students are involved in engaging and interactive learning activities (Alamri & Rogers, 2018). Ellis (2005) claims that explicit vocabulary instruction boosts students' self-confidence at any age because language acquisition is accelerated by this clear and guided instruction. It facilitates students' comprehension of a reading or listening text when words are taught before they

interact with it. Schmitt (2008b) supports this idea by saying that explicit vocabulary instruction is required to raise students' word knowledge to a suitable level so that they can comprehend other unfamiliar words in the text.

Hulstijn (2001) claims that when there is limited time for reading and writing, learners benefit from explicit vocabulary instruction. Peters (2014) finds teaching students word meanings intentionally and out of context more effective than having them try to deduce meanings from the context because students might struggle to comprehend texts they read or listen to if they have limited vocabulary knowledge in the language they are learning (Laufer, 1997b). For vocabulary acquisition to be effective, Webb (2009) highlights the necessity of using an explicit approach to vocabulary teaching. Webb (2009) also suggests students who wish to increase their vocabulary quickly to study words together with their meanings, synonyms, and antonyms. Acquiring new vocabulary can be hard because of the absence of practical settings where students can apply the language they are learning and time constraints they have. Therefore, Schmitt and Schmitt (2014) put forward that explicit vocabulary teaching is crucial in foreign language education programs in nations where the language of instruction is not spoken outside of the classroom.

Duin and Graves (1987) state that word lists, dictionary definitions, collocations, synonyms, and semantic mapping can all be used to provide explicit instruction while teaching vocabulary. Furthermore, according to Harmer (1991), vocabulary acquisition occurs when realia, translation, visuals, and media are utilized. It is evident that all these activities are basically centered on the idea of using direct strategies to teach and master L2 vocabulary.

On the other hand, the incidental approach focuses on increasing vocabulary exposure through a range of contexts, like reading or conversation, without having explicit vocabulary learning goals (Molle et al., 2021). That is, students acquire new words through reading, listening, and interactive activities without even realizing it when they participate in incidental vocabulary instruction (Özer & Koçoğlu, 2017). According to Ellis (1994), language acquisition occurs naturally through implicit learning and instruction, which eliminates the need for direct processing.

According to Bisson et al. (2015), incidental vocabulary learning occurs while engaging in other activities like reading because learners acquire new vocabulary incidentally and without explicit teaching. This approach supports students' participation in disciplinary practices and discourses by utilizing both explicit and implicit language acquisition (Bisson et al., 2015). Stating that students are more apt to learn and increase their L2 vocabulary through contextualized strategies and content when they receive implicit instruction, Huckin and Coady (1999) offer a few benefits of incidental vocabulary learning: Firstly, contextualized strategies that promote authenticity and improve L2 vocabulary are used in incidental vocabulary learning. Additionally, incidental vocabulary learning expands the vocabulary of second language learners while simultaneously enhancing their reading comprehension. Lastly, due to being student-centered, incidental vocabulary learning increases student participation in the classroom. Nevertheless, studies suggest that people acquire vocabulary in their first language in this manner (Nagy, 1997; Ur, 2012). According to findings from related studies, EFL learners do inadvertently pick up L2 vocabulary, but the percentage is only roughly 4% to 25% (Waring & Nation, 2004).

Azzam (2021) states that educators following the implicit approach make the assumption that second language learners would learn new vocabulary through repeated exposure to a variety of materials and contexts. Nonetheless, there are drawbacks of this approach as well like learners' inaccurate guesses about the word meanings in a text, limited vocabulary learning because of time constraints while guessing words or learning the new language. Studies indicate that the reason why students inaccurately guess the meanings of words can be related to students' level and/or insufficient contextual clues (Huckin & Coady, 1999; Hulstijn, 1992; Hulstijn et al., 1996; Wesche & Paribakht, 2000). However, Hulstijn's (1992) study shows that providing L2 learners with explicit study time and structured content for pedagogical aims improves their performance and increases their knowledge when compared to incidental learning.

It is obvious that while some linguists claim that students' vocabulary will grow through incidental vocabulary teaching, others claim that an explicit vocabulary teaching approach is required for a thorough comprehension of a text. However, some support combining incidental and explicit vocabulary teaching strategies (McDonough & Shaw,

2012; Schmitt, 2000). Schmitt (2000) states that any well-designed vocabulary program must strike the correct mix between explicit instruction and incidental learning. It is definitely required to explicitly explain every word to rank beginners until they acquire an adequate vocabulary to start using the unfamiliar words they come across in context. But after this basic level, ways of including incidental learning into the curriculum should be found because encountering a word in various contexts broadens students' understanding of it, thereby enhancing the quality of their knowledge, and the repeated exposures aid in its retention in memory (Schmitt, 2000). Such elaboration and consolidation are essential when considering vocabulary learning from an incremental perspective. Since it is impossible to teach and practice every potential creative usage of a word, lexical knowledge can only be partially acquired through explicit approaches. Moreover, a number of exposures are necessary to completely understand some types of word knowledge, including collocation, register, and frequency. Therefore, while each has its own benefits and drawbacks, learning vocabulary requires the use of both explicit and incidental approaches.

2.6 Vocabulary Teaching Strategies

One of the most crucial aspects of foreign language teaching is vocabulary teaching. Mothe (2013) claims that the vocabulary of a language is akin to the bricks making up a tall building. They may be tiny bits, but they are essential to the entire framework. Thus, the key element in learning a new language is studying vocabulary. Vocabulary instruction has long trailed behind grammar instruction despite its critical role in the achievement of language learners (Başören, 2015). Wilkins (1972), advocating the value of teaching vocabulary in a foreign language, says that communication is severely restricted without grammar, but it cannot occur at all without vocabulary. This makes it clear that it would be extremely unlikely to acquire a new language without acquiring its vocabulary.

According to Hatch and Brown (2000), vocabulary teaching strategies relate to any of the activities teachers carry out or need to carry out to guide students in developing their knowledge of the target language vocabulary. Blachowicz et al. (2006) assert that it is preferable to use any technique when teaching vocabulary than none at all. Rubin (1981) suggests that vocabulary teaching strategies should support students' acquisition, storing,

retrieval, and application of words. As stated by Pavičić Takač (2008), vocabulary teaching strategies include activities such as introducing and presenting a term along with its definition, practicing and reviewing it in addition to other processes like training students. Therefore, it is apparent that teachers' role in vocabulary acquisition is important. According to Larrotta's (2011) study on the duties of teachers in vocabulary instruction, there is a number of suggestions that teachers can use to make the process of vocabulary teaching more effective and productive: selecting the target vocabulary; helping students with word knowledge (like meaning, use, and form); developing activities that require mental processing; encouraging students to incorporate new words into previously learned language; giving them the opportunity to interact with words; avoiding teaching words that are similar; and, lastly, teaching students the appropriate self-learning strategies.

Tekin (2021) regards "teacher modeling" as a vocabulary teaching strategy, and he suggests teachers to practice strategies with their students (p. 61). Similarly, Fisher et al. (2009) propose that teachers should demonstrate their students how to infer a word's meaning by looking for hints in a text, prefixes, suffixes, and roots. Teachers should first provide their learners with learning support and examples of how to find clues before entrusting the task to the students (Fawcett, 2012).

According to Susanto (2017), teachers need to recognize that teaching English to different age groups requires different approaches, so they should possess the right strategies and methods to use with their students. Supporting this idea, Shen and Liu (2011) state that meaningful learning occurs only when students' related experiences are connected to the learning process; that is, when the instructions are tailored to the students' abilities and backgrounds. Thus, as Schmitt (2008) concludes, there is no correct or ideal method for teaching vocabulary. This is due to the various unique qualities of learners that influence their learning styles, the amount and effectiveness of the vocabulary instruction, the education and institutional systems, the curricula, assignments, activities, and much more. It is vital for teachers to provide students with opportunities to work on the words they need to learn, rather than merely presenting a list of words to memorize (Larrotta, 2011). Therefore, foreign language teachers must continue to acquire the necessary knowledge

and abilities to provide their students with engaging and meaningful education because learners retain what is meaningful (Renandya & Farrell, 2011).

Thornbury (2002) highlights several factors teachers need to consider prior to teaching vocabulary. These include the students' degree of competency, their understanding of words, the difficulty level of the words (abstract or concrete terms), the ways of teaching them (via examples or explanations), and the purpose of acquiring the language (productivity or receptivity). Being aware of these factors, teachers may find it easier to choose the best vocabulary teaching strategies for their students. Thornbury (2002) also recommends teachers to include examples, contexts, lexical relations such as similar or opposite meanings, and full definitions as well as dictionary definitions while explaining words (p. 81). In addition to these techniques, Nation (1990) suggests teachers to employ the following set of strategies to help students understand word meanings:

Table 2. A List of Strategies To Explain the Meanings of Words (Nation, 1990)

By demonstration or pictures	**By verbal explanation**
1) using an object	8) analytical definition
2) using a cut-out figure	9) putting the new word in a defining context
3) using gesture	10) translating into another language
4) performing an action	
5) photographs	
6) drawings or diagrams on the board	
7) pictures from books (moving images, from TV, video or computer)	

These techniques can assist students in connecting the meaning to the object, image or action it represents; consequently, they can gain a clearer understanding of word meanings. Furthermore, Crevecoeur et al. (2014) support giving students a straightforward, intelligible, and unambiguous explanation of word meanings. Collins (2010) proposes that detailed explanations should be provided to support word meanings. More thorough explanations can involve supplying synonyms and antonyms, utilizing gestures and facial expressions, and using the word in its intended context so as to

reinforce the meaning. Seis (2020) claims that context offers crucial hints on a word's meaning. Words can have several meanings, and context enables students to determine the intended meaning in a given situation.

When a word is used in context, learners can better understand its meaning and part of speech by drawing connections between other words in the sentence. Seeing the same word in different contexts can also help them expand their knowledge about that specific word. Schmitt (2008b) posits that an increased exposure to and engagement with new words will increase the likelihood of acquisition for the learner. Similarly, Akbari (2012) contends that repeated exposure is necessary for learners to completely understand a word.

Özder Kılıç (2018) presents a classification of vocabulary teaching strategies that can be grouped into three major categories: presentation techniques (visual, verbal, audio), practice techniques (review, homework), and strategy training techniques (guessing from context, dictionary use, etc.). Furthermore, Seal (1991) proposes a taxonomy of vocabulary teaching strategies together with their activities, as shown in Table 3 below:

Table 3. Stages and Activities in Vocabulary Teaching (Seal, 1991)

Stages in Vocabulary Teaching	Activities
Conveying meaning	visual aids, word relations, pictorial schemata, definition, explanation, examples and anecdotes, context, word roots and affixes
Checking understanding	fill in the blank, matching pair, sorting exercises and pictorial schemata
Consolidation	problem-solving tasks, values clarification, writing a story or a dialogue, discussion and role-play

According to Tekin (2021), teaching vocabulary by using educational games enables students to retain the target words in their memories for an extended period since games make the contextualization of words easier. One way to implement educational games is to have students put words in their vocabulary notebooks in a semantic order, rather than listing them alphabetically (Vazirabad, 2013). By collaborating in small groups or teams

while playing games, students can also improve their social interaction skills (Rasyid et al., 2022). As games are typically centered around cognitively demanding activities, such as problem solving, guessing, word races, and back to the board, they also promote creative and critical thinking skills.

Aslandemir (2020) asserts that technology-based applications like Web 2.0 tools can be easily embedded into the educational process so as to facilitate students' vocabulary learning processes in the twenty-first century. As this study centers on the use of online application-integrated production-based vocabulary activities, the next part will address the role of technology in vocabulary teaching.

2.7 The Integration of Online Applications into English Language Teaching and Vocabulary Teaching

21st century students are known as "digital natives (or net generation)" because they grew up in the digital era, and they are competent users of the internet and other technological tools like computers (Sadiku et al., 2017, p.125). According to Oral (2013), these individuals are also referred to as "Generation Z" since they were raised in a technologically advanced world and are unable to comprehend life before the advent of the internet in contrast to previous generations (p. 17). Mowery and Simcoe (2002) define Generation Z as those born after 1995, the year when the internet began to be commercialized. Because they were literally born into technology, Generation Z has developed several behavioral traits and tendencies that set them apart from their parents, who are members of Generation Y (Persada et al., 2019). For this reason, it would be prudent to comprehend Generation Z's characteristics first so as to better comprehend their interaction with technology.

As they are used to viewing simulations of the available data, they are more likely to comprehend information visually. Their daily lives involve graphic designs, animations, pictures, and three-dimensional screens, which has also impacted their comprehension. Therefore, it is unrealistic to expect this generation to maintain prolonged attention on a teacher standing motionless and explaining a subject. To get their attention, teachers need to use simulations, augmented reality, videos, and graphic designs. This generation, in

contrast to previous generations, does not respond well to traditional and monotonous instruction (Turk, 2017).

In addition to being tech-savvy and quick to adapt to new technologies, Generation Z is also known for their independent thinking, competitive spirit, environmental awareness, and entrepreneurial attitude (Schwieger & Ladwig, 2018). These features might encourage autonomy and creativity while they are studying and searching for information. Rather than being instructed, they like engaging in creative activities. Oral (2013) states that instead of memorizing information, they would like to learn through games. As a result, as Kivunja (2014) also claims, Generation Z learns through wikis, blogs, games, and online resources more effectively.

It should not be ignored that the modes of communication and social interaction have undergone significant changes in the last ten years. The primary cause of this situation is the necessity for the internet use, which influences young people's attitudes as well. Thanks to technology, members of Generation Z devote a large portion of their time to online interactions with friends and peers. They are able to engage with one another orally and visually through online chat and video calls. As communicating, conveying messages, and socializing are the main goals of any language, language instruction must also be adapted to align with these goals in order to produce successful results. Any change brought about by digitality must be flexible enough to fit into every part of life, including the educational system.

Digital natives who are the individuals surrounded by technology and the internet since their infancy are also familiar with the current generation of technology, which makes them comfortable in any online setting. They are quite proficient in using technological tools, and they use programs and applications with great skill (Mıstık, 2019). A deeper understanding of the characteristics of digital natives can be gained from Hockly's (2011) assertion that they feel more secure when they are online and are not required to leave their devices. Therefore, as Maürtin-Cairncross (2014) states, in contrast to settings where printed materials are provided, digital learners feel more successful, engaged, and comfortable in environments where technology is integrated. According to Gibson and Sodeman (2014), the fun element that technology brings into the lessons is another factor

motivating digital natives to incorporate it into the classroom. Hockly (2011) also argues that curricula must take into account students' constantly evolving learning styles to assist them in acquiring the skills and abilities needed for success in today's rapidly changing, technology-driven world because effective teaching requires a strong foundation in creativity, innovation, communication, and collaboration in this era. Consequently, it is crucial to provide this generation's youth with the opportunity to produce the language they are learning by using technological tools like computers (Seymen, 2017).

Teaching approaches have evolved along with technology to meet the demands of digital learners, and these two are increasingly being merged. As a result, new terms, such as Computer-Assisted Language Learning (CALL), Mobile-Assisted Language Learning (MALL) and Web 2.0 tools, have been introduced to the field.

Richards et al. (1992) define CALL as the application of computers in the instruction or acquisition of a second or foreign language. According to Davies (2002), CALL is an interactive computer-assisted language teaching and learning approach that supports presentation, practice, and assessment. Technology and language learning are combined in CALL, which includes many technologies like digital audio recorders, laptops, personal data assistants, modems, and cable internet access. Aslandemir (2020) states that CALL includes a broad range of activities and applications, such as virtual reality settings created to improve language learning, online courses, interactive multimedia programs, software for language learning, and websites dedicated to language learning. The objective of CALL is to offer learners supplementary materials, interactive tasks, and chances for practice and assessment to enhance conventional language teaching and learning approaches.

As a result of further technological innovations, the concept of MALL has been developed. MALL is defined by Kukulska-Hulme and Shield (2008) as learning that is accessible anytime and anywhere thanks to the use of portable devices. Miangah and Nezarat (2012) state that MALL involves utilizing mobile technology for language learning. Therefore, it incorporates the use of handheld devices, such as tablets, smartphones, and wearable technology, to enhance learners' language learning process by eliminating any potential barriers so that students are no longer required to spend time

sitting in front of a computer or attending a classroom so as to access instructional materials. It gives students access to tools, exercises, and materials for language study at any moment and from any place. That is why, Aslandemir (2020) regards MALL as the best formula for the 21st century ideal language acquisition.

It is obvious that Generation Z is showing a growing reliance on digital technologies as time goes on. Even though paper and pencil still exist in daily life, even notebooks and pens have gone digital these days. Books and notebooks are being replaced by tablet computers which can record sounds. Consequently, a lot of scholars think that with the advent of MALL, traditional language learning has been superseded by more effective methods of language learning (Kurtoğlu, 2021). According to Kim and Kwon (2012), the way people learn has evolved as a result of the widespread use of mobile devices, which provide a range of opportunities, objectives, and needs for learning, and they claim that learners have more freedom and individualized learning settings because of the mobility that handheld devices provide. Likewise, Saran et al. (2009) assert that mobile devices enable optimal learning environments and remove the need for traditional classroom settings because of their distinctive qualities including mobility, localization, and personalization. In an age when people use mobile devices almost constantly, learning cannot be expected to occur just in classrooms. Thanks to mobility, learning may happen anywhere and anytime.

When it comes to the term Web 2.0 tools, it can be helpful to understand what Web 1.0 tools are initially. The term Web 1.0 tools describes the first wave of internet platforms and technologies which were mainly static and aimed at one-way communication between users and content producers. Jacksi and Abass (2019) opine that Web 1.0 tools, like "readable" websites with texts or images, emails, and forums, only allowed one-way communication, and their main drawback was the lack of interaction (p. 75). Therefore, Web 2.0 technologies were created to address the absence of interactivity and the restricted nature of content creation in Web 1.0. In contrast to traditional static web pages, Web 2.0 tools are a collection of web-based programs and platforms that enable user interaction, collaboration, and content production (Jacksi & Abass, 2019). With Web 2.0 tools, users can actively take part in generating and sharing content, often in real-time. The internet is now a vibrant medium for creativity, cooperation, and communication

thanks to these tools. Some examples of Web 2.0 tools include social media platforms like Instagram, blogging platforms like WordPress, wikis like Wikipedia, collaborative document editing tools like Google Docs, content sharing platforms like YouTube, social bookmarking platforms like Pinterest, online forums and communities like Quora, and virtual meeting and collaboration tools like Zoom.

According to Altıok et al. (2017), Web 2.0 refers to new internet technologies that offer options for communication, mutual interaction, information sharing, easy access to information, collaborative content production, evaluation, and visualization to everyone using them. Thus, Web 2.0 tools are more successful than traditional instruction at fostering a dynamic and student-centered environment which includes active and creative students, which is what the 21st century demands (Bush & Hall, 2011). Besides, Anastasiades and Kotsidis (2013) assert that incorporating Web 2.0 tools in lessons helps students enhance not only their critical and creative thinking skills but also their metacognitive and problem-solving abilities.

The incorporation of Web 2.0 tools in the classroom is also supported by English as a foreign language instructors (Jenkins et al., 2009). According to Morgan (2012), Web 2.0 technologies aid in language learning and acquisition by improving vocabulary and grammar as well as speaking, listening, reading, and writing abilities. Moreover, activities involving online applications like forums and social networks offer chances for authentic input and genuine connection with native English speakers (Görgülü, 2022). Language learners can work together and connect directly with the real community in settings created by Web 2.0 technologies (Wang & Vasquez, 2012). With the help of these innovative tools, students can engage with a wide range of foreign texts and audio activities and create original works through digital storytelling, online posters, cartoon tools, and wikis, all of which provide opportunities for learners to practice the language they are studying (Wang & Vasquez, 2012). By doing this, learners contribute actively to the creation and distribution of knowledge for meaning-oriented interactions with an audience that is similar to their real-world counterparts, all of which benefit the process of effective language learning. Additionally, Chang et al. (2012) assert that Web 2.0 tools let students concentrate on the linguistic and cultural facets of the language they are learning, which aids them in broadening their vocabulary and assessing how their native

language and the target language differ culturally. Technology-mediated tasks promote learning by doing because they provide an emphasis on communication, authenticity, meaning and purpose, which boosts students' enthusiasm to study the language and helps them retain what has been learnt for extended periods of time (Görgülü, 2022).

Web 2.0 resources offer activities inspiring students to study English. Wang and Vasquez (2012) declare that by utilizing technology in the classroom, English language teachers offer their students a supportive learning atmosphere in which they can improve their language abilities without worrying about receiving unfavorable feedback from peers or instructors. By using these new technologies in the classroom, teachers may be able to lessen students' anxiety about making mistakes, feelings of shyness, or demotivation. According to Görgülü (2022), the integration of online applications encourages students to take risks and employ creativity while using language meaningfully, and it enables them to communicate with language speakers in remote places and gain life-changing exposure to native speakers. Moeller (1990) states that building communicative competence is one of the central goals of foreign language instruction, and this can be accomplished through cooperative learning, group projects, and hands-on activities, all of which guarantee that knowledge is retained, and ideas are fully grasped. Igel and Urquhort (2012) note that a significant number of teachers believe that collaborative learning and an interactive learning environment are what is desired in language teaching to achieve the course objectives as group work increases students' motivation.

Ma (2017) suggests that foreign language instruction should be carried out in appropriate and sustainable learning settings where students can exchange their materials, resources, and ideas. Students must be cognitively engaged in both in class and outside class activities so as to succeed. According to Bouta et al. (2012), the most effective methods for raising students' cognitive engagement include collaborative learning and interaction. By using Web 2.0 tools, students can produce digital stories, podcasts, or cartoons, which improves their cognitive engagement and helps them learn a foreign language through practical uses. Consequently, to allow students to engage with the target language, reflect on their work and assess it while receiving feedback from their peers, teachers should create cognitive and social learning settings. Haneda (2014) highlights the importance of teachers who create authentic environments for foreign language learners to experience

real-life situations. For instance, blogs can create real life settings. To interact with the language they are learning, students can use blogs, which allow them to express themselves, assess their own learning and provide feedback to each other. According to Doughty and Long (2003), it is easier to remember and maintain newly learnt material in long-term memory if it is given within real-life contexts.

According to Arshad et al. (2012), utilizing Web 2.0 tools unquestionably has a significant impact on learning English because these tools ensure the creation of a personalized learning environment where students can actively interact with one another. These tools and platforms make it easy to manage learner differences and expectations of performance. Aslandemir (2020) puts forward that web-based tools are helpful for language teaching and learning because they facilitate the production of language, either through spoken or written forms, and the primary objective of the language acquisition process is self-production. Aslandemir (2020) also adds that students perform better when they are engaged and motivated, and this is only feasible when both teachers and students have access to 21st century essentials.

Despite being known to be quite socially active online, Generation Z prefers texting to chatting, which inevitably has an effect on their learning process. Hence, this study is centered on written production-based vocabulary activities. According to Lai and Zhao (2006), students can practice producing the target language on different types of platforms and websites which support language learning. Aslandemir (2020) cites Yahoo! Messenger as an illustration of a platform that offers online communication and can improve vocabulary acquisition. Compared to face-to-face talks, text-based online chat helps students better identify errors, especially their own language errors. According to Lai and Zhao (2006), since it increases the rates of noticing, text-based online chat seems to be an effective L2 learning environment that retains a pedagogical benefit. Among a variety of efficient online applications available for collaborative vocabulary production practice, the following platforms have been employed in this study: Google Docs, Google Sites, Google Slides, Google Forms, Jamboard, Pixton, Puzzle Makers, Padlet, Edpuzzle, and Jigsaw Planet.

2.8 The Relationship between Written Production and Vocabulary Learning

According to English (2018), the more lexical knowledge an L2 learner possesses, the higher the probability that the reading or listening content they encounter will be comprehensible as input, and the higher their capacity to produce comprehensible output. Supporting this notion, Folse (2008) claims that vocabulary problems can be more harmful to communication than grammatical problems although there could be additional reasons why an output is not comprehensible. While a lack of vocabulary may prevent an L2 student from conveying the intended meaning, poor grammar may result in local errors that do not obstruct communication.

Students develop a greater grasp of how to utilize the target language as they go from the stage of receiving comprehensible input to trying to make comprehensible output. Although Krashen's (1985) "Input Hypothesis" concentrates on the vital role of input in second language acquisition, other researchers have also underscored the importance of output. According to Swain (1985), output might be beneficial to students because it forces them to rely less on contextual clues and top-down processing techniques and more on the precise vocabulary and grammar needed to form language. Instead of being a competing hypothesis, the Output Hypothesis is more of a complementing hypothesis. Swain (1985) claims that the idea of being "pushed" to produce output is similar to the i+1 idea of comprehensible input (pp. 248-249). According to Swain (1985), the awareness of gaps between what L2 students are able to convey and what they want to communicate also contributes to language learning. Learners can adjust output with greater awareness when they become aware of these gaps in their L2 linguistic skills. Swain (1995) emphasizes three crucial purposes of producing comprehensible output. Firstly, an L2 learner observes what knowledge is required to convey the message in the L2. Secondly, the learner chooses how to convey the intended message by testing a new hypothesis through trial and error. Finally, the third role of output is a metalinguistic one that entails reflecting on and deeply analyzing L2 knowledge.

According to Tansel (1975), instead of flipping through dictionaries and searching for their meanings in the memory, utilizing words can help learners become proficient in their meanings. Nonetheless, it takes time for the words' meanings and usage characteristics

to be fully absorbed into memory (Nagy & Scott, 2000). During this process, students should become familiar with the target vocabulary by using them regularly in speaking and writing assignments as well as frequently coming across them in reading and listening assignments. As a result, teaching solely through word definitions, or surface learning, cannot guarantee that a word is sufficiently understood. Thus, to grasp the meaning and usage features of a word, one should be exposed to that word in numerous contexts and use this knowledge in various linguistic activities, which can result in deeper and more enduring acquisition of word meanings and usage patterns. According to Tağa and Kalenderoğlu (2022), writing has a big influence on developing and expanding one's vocabulary. By allowing students to actively employ new words in context, writing exercises help students' vocabulary grow and be reinforced. Students can practice using vocabulary in meaningful ways through writing, which increases their ability to comprehend and remember words. Writing additionally enables learners to experiment with various words and expressions, investigate the subtle aspects of language, and strengthen their vocabulary through real-world application (Tağa & Kalenderoğlu, 2022). Thus, writing provides a dynamic and participatory method for learning new words, which turns it into an indispensable asset for vocabulary building.

Craik and Lockhart (1972) identify three modes in which learners process information. Structural processing and phonemic processing are components of shallow processing. While structural processing is restricted to the appearance of words, phonemic processing deals with the encoding of a word's sound. Maintenance rehearsal is required by both structural and phonemic processing. The approach of learning vocabulary at this level is comparable to rote memorization. A learner's short-term memory is aided by repeatedly practicing the distinction between appearance and sound, but metalinguistic cognitive processes are not engaged for a thorough comprehension of newly learned vocabulary. While practicing recognizing a word's appearance and sound repeatedly helps learners preserve information for limited periods, it does not engage metalinguistic cognitive processes necessary for a deeper comprehension of newly learned words. Semantic processing, which comprises encoding a word's meaning and its relationship to other words with comparable meanings, is the third way in which students process vocabulary information. One metalinguistic function of pushed output is semantic processing. Reflecting on one's understanding of L2 vocabulary is necessary for semantic processing

for L2 learners. Elaborative rehearsal is used in deep processing to examine a word's many facets, including its subtleties, collocations, and associated syntax. According to Craik and Lockhart (1972), recalling knowledge becomes easier when the level of information processing is deeper. English (2018) illustrates these three ways of processing vocabulary information in Figure 3 below:

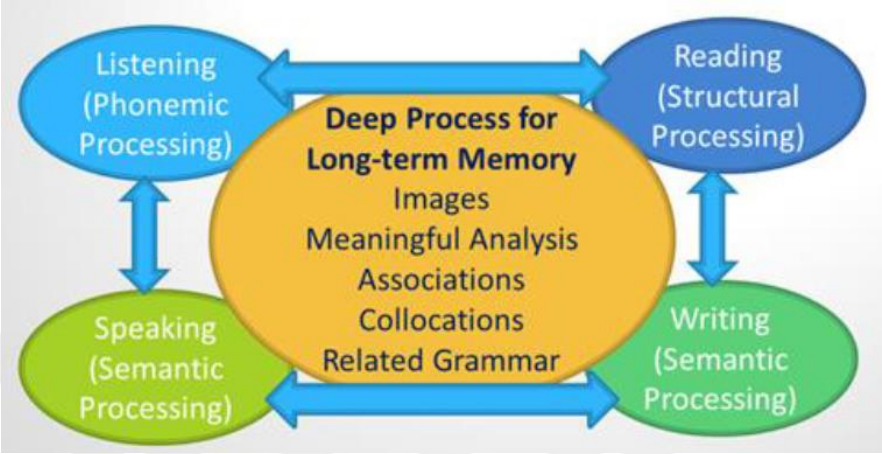


Figure 3. Three Ways of Processing Vocabulary Information (English, 2018)

According to Figure 3 above, in second language learning, reading starts the structural processing of vocabulary whereas listening starts the phonemic processing. Semantic processing is necessary for speaking and writing as productive skills. In speaking, this could happen during a conversation as speakers work together to negotiate meaning. In writing, L2 learners can progress to deeper levels of semantic processing and elaborate rehearsal because they have more time to ponder their vocabulary when they write. Therefore, written output is crucial to notice the gap between students' communication goals and their abilities.

The beneficial effects of writing on vocabulary acquisition are well-documented in the literature. To illustrate, Muncie (2002) proposes that L2 writing can be viewed as a technique for general language growth in some situations and may be particularly beneficial for vocabulary development. The time allotted for writing may be the cause of this since learners have more time to produce when they write than when they talk. Hulstijn (2001) asserts that writing needs more intensive processing compared to other types of activities; hence, it may aid in vocabulary learning. Besides, students can use

peer feedback, the internet, and dictionaries as resources when writing. According to Corson (1997), this could help students activate vocabulary that is more relevant but less common, and that might be in their passive vocabulary but is not quite in their active vocabulary yet. By highlighting the difference between passive and active vocabulary, Corson (1997) also notes that students cannot fully acquire vocabulary until the words can be used actively because if students are unable to practice using academic, low-frequency words in writing, they will not learn the conventions surrounding their appropriate usage. Three factors are identified by Coomber et al. (1986) as potential explanations for the beneficial effects of writing on vocabulary acquisition. The first factor is the application of words in meaningful contexts; the second one is the students' use of higher cognitive functions; and the last one is the slow nature of writing, which allows for more time for lexical knowledge elaboration.

According to recent studies, deeper engagement with new words is required (Aksel Altındağ, 2016). As writing encourages greater engagement at a deeper level of production, it can be considered a crucial element of vocabulary learning (English, 2018). L2 writers should take their time to carefully consider how they can convey the message they want, and writing gives them the opportunity to choose the right vocabulary and grammatical structures. During the editing phase, writers often get feedback that helps them make their messages more comprehensible. An L2 writer will consider which words are best to use to express the intended meaning during this process. While making these word choices, L2 writers must think beyond their superficial understanding of new vocabulary and take into account nuances, collocations, formality, and relevant grammar. This is a shift from analyzing a word's structure and sound superficially to processing it deeply to encode its meaning. According to Craik and Lockhart (1972), thorough processing of new vocabulary is likely to result in its storage in the long-term memory whereas shallow processing only produces short-term retention. Writing demands sustained attention, so it is feasible that students will preserve new words in their long-term memory when they produce written output.

In L2 writing classes peer sharing, peer collaboration, and peer evaluation are also commonly used. L2 learners are urged to think critically about the language they generate and negotiate meaning for comprehensible output through peer sharing and collaborative

writing (Swain, 2000). According to Kessler (2009), feedback from peers or teachers can help learners improve their vocabulary usage by identifying mistakes and enabling them to learn from incorrect or improper word usage. Therefore, corrective learning is made possible by receiving feedback on the written output. According to Leki (1993), sharing the written work with peers in the classroom can introduce a social component. She states that in a writing class, analyzing peers' texts allows students to encounter the often elusive and shifting nature of meaning directly (Leki, 1993). Such peer sharing provides a real chance for negotiation over meaning because a writer's intention may differ from what the reader understands. According to English (2018), peer sharing plays a vital role in the writing process as it aids students in understanding that writers produce content that is intended for readers to read, and students can gain this understanding by responding to their peer's written work as readers. Brown (2007) also emphasizes the same point by explaining the connection between writing and reading: "Clearly, students learn to write in part by carefully observing what is already written. That is, they learn by observing, or reading, the written word" (p. 347). From his words, it can be understood that students can obtain valuable insights into how they should write by reading and studying several relevant texts. By reading and analyzing their peers' written output, they can see different uses and/or meanings of the same words, which may help them expand their vocabulary knowledge.

Schneider et al. (2002) claim that learners can retain new vocabulary or information in their long-term memory by building semantic networks while writing. They can store the words by drawing associations and connections between the new input and their prior knowledge. Barcroft (2004) asserts that semantic elaboration and output are both required while using a new word within a sentence. This requires semantic elaboration because for a learner to use a word in a sentence, they must sufficiently recall its meaning and the contexts where it might be used. It incorporates output since writing sentences requires the student to engage in language production. According to some researchers, writing sentences involves a form of semantic elaboration which should make learning new words easier (Coomber et al., 1986). Another researcher proposes that writing sentences produces a particular kind of output that can help with lexical acquisition (Laufer, 1997c).

Semantic elaboration is defined by Barcroft (2004) as the process of expanding the meaning of information by relating it to existing knowledge. Semantic elaboration can take various forms, such as relating a new word to the words learners already know, using it in a sentence, or associating it with a personal experience in order to help them remember a new word. Sentence formation requires semantic elaboration because a learner must understand a word's semantic qualities in order to write it correctly in a sentence. Semantic elaboration also enhances memory retention, which is one of its major advantages. Learners can better encode and retrieve the information if they connect new concepts to their existing knowledge. Earlier research also shows that semantic elaboration contributes to the memory for the known vocabulary (Hyde & Jenkins, 1969; Ross, 1981). Sentence formation necessitates semantic elaboration which requires deeper processing. Therefore, it might not be incorrect to argue that deeper processing promotes improved memory and vocabulary retention, and writing sentences is regarded as one of the most effective ways to acquire target vocabulary.

There are studies which demonstrate the beneficial effects of using target words in context on vocabulary acquisition (Biemiller & Boote, 2006). For instance, Aksel Altındağ (2016) claims that writing new words in sentences or in essays can help learners remember these words both receptively and productively. Also, Laufer (1997c) opines that as sentence production requires output, it might help with vocabulary acquisition. According to Baicheng (2009), writing sentences to learn new vocabulary helps students expand their vocabulary because students' creating their own sentences has a greater impact on their vocabulary learning process than engaging with the sentences provided by their teacher. Therefore, as writing offers an opportunity to develop efficient vocabulary use, practicing vocabulary through sentence creation could lead to higher acquisition. For this reason, this study's emphasis is on written production-based vocabulary activities.

2.9 Studies on the Impact of Technology Use and Written Production-Based Activities on Vocabulary Development

Numerous studies in the literature mostly deal with descriptions of teachers' and/or students' opinions regarding the utilization of certain web-based platforms, such as Facebook, Kahoot, and Quizlet in vocabulary learning process (Dizon, 2016; Wichadee & Pattanapichet, 2018; Kurtoğlu, 2021). Several other studies concentrate on the

connection between writing and vocabulary development without the use of online applications (Muncie, 2002; Webb, 2005; Folse, 2006). However, the impact of online application-integrated production-based vocabulary activities on university-level EFL learners' vocabulary achievement has not been examined. That is why, this section presents the previous research in two parts: studies on the effects of technology usage on vocabulary development and studies on written production-based vocabulary activities.

A study by Lin et al. (2014) compares the effectiveness of computer-assisted collaborative learning, computer-free collaborative learning, and individual learning on English vocabulary acquisition among 76 eighth graders from three classes in a junior high school in northern Taiwan. There are three groups of students in the study, and all groups receive identical vocabulary instructions from the same teacher. Group A (a computer-supported collaboration group) uses digital resources, Group B (a computer-free collaboration group) uses dictionaries and class notes, and the Control Group (a computer-free individual learning group) works individually with similar resources. The study involves a pre-test (the school's first monthly exam), an immediate post-test after three instructional sessions, and a delayed post-test after thirty days. The findings demonstrate that Group A, the computer-assisted collaborative learning group, shows superior vocabulary retention compared to the other two groups. Behavioral analysis indicates that the utilization of technology in Group A enhances motivation, which leads to better performance.

Eren (2015) carries out research to explore the effects of Web 2.0 tools on students' vocabulary learning. The research compares an experimental group using Web 2.0 tools with a control group following a traditional lecture-based curriculum at the preparatory English classes of the School of Foreign Languages at Gaziantep University. The experimental group, made up of 23 students, uses social networking sites to create, revise, and share vocabulary-related content in a virtual classroom which allows for peer interaction. The control group has 22 students. The study lasts three months and involves pre- and post-tests, field notes, and semi-structured interviews to collect data. According to the test results, while both groups improve their vocabulary knowledge, the experimental group achieves a considerably higher mean score. Additionally, nearly

every student in the experimental group holds favorable views on integrating Web 2.0 tools into education.

Tanaka et al. (2015) research the effectiveness of an electronic portfolio called Lexinote in helping Japanese university EFL students maintain their vocabulary acquisition. Lexinote allows students to record, store, and look up target words from the internet, practice them orally and in writing, and share their work with classmates. Teachers monitor students' learning by tracking the number of words recorded, practice types selected, and editing frequency, and the learners are instructed to manage their learning based on word familiarity. The study aims to assess Japanese EFL students' perceptions of Lexinote's usefulness for vocabulary learning and identify key factors influencing their progress. Over the course of seven weeks, 63 first-year students enrolled in a general English course at a private university in Japan participate in the study. Data is collected via a questionnaire. The results show that over 80% of all participants express satisfaction with their vocabulary learning experience because Lexinote helps them to more easily record, practice, and utilize the words they encounter. By continuously observing what they are learning and have learned, students are better able to assess where they are in their vocabulary development and set goals for the future. By knowing what and how students have learned, in addition to what they have not, teachers can better support the students by assigning suitable tasks and offering guidance.

Andarab (2019) conducts a study to analyze the impact of humor-integrated pictures on vocabulary retention by using Quizlet. The participants are 45 intermediate EFL learners studying at a preparatory school of a private university in Türkiye. They are divided into two groups: an experimental group that receives vocabulary items with humorous pictures and a control group that receives the same vocabulary items without humor. After the eight-week treatment, an independent samples t-test on post-test scores shows that the experimental group significantly outperforms the control group. The findings indicate that humorous pictures enhance vocabulary retention more effectively than non-humorous contexts. This study highlights the combined benefits of technology and humor in language learning.

Yeşil (2022) carries out an experimental study that compares paper-based activities with web-based language learning to examine the effects of a Web 2.0 tool, Smart Draw, on learners' ability to recognize and retain L2 vocabulary. The study aims to answer whether Web 2.0 tools lead to significant improvements in EFL learners' vocabulary knowledge compared to traditional methods, and to gauge learners' perceptions of interactive web-based tools. A mixed methods research methodology is used in the study where 28 students from two classes at a Turkish state university participate. The control group uses paper-based activities while the experimental group uses Smart Draw, a software program that employs mind maps and visual communication for vocabulary learning. A word familiarity test is administered as a pre-test, a post-test, and again three weeks later to measure retention. The results indicate that the experimental group's performance significantly improves with time. Furthermore, five students from the experimental group participate in semi-structured interviews, which demonstrate how much they enjoy using interactive web-based technology in L2 classes.

In another study, İncekar (2023) explores the impact of using the Web 2.0 tool Kahoot! on vocabulary teaching in English lessons by focusing on student success, motivation, and opinions. An experimental design with control and experimental groups is employed. The participants involve 10th-grade students at a Multi-Program Anatolian High School in Gürpınar, Van. The experimental group (n=21) uses Kahoot! for weekly vocabulary reviews while the control group (n=16) follows traditional textbook methods. The study lasts five weeks, and data is collected by using an Achievement Test, the IMMS Motivation Scale, and a semi-structured Student Perception Form. The data demonstrates that the experimental group, which uses Kahoot!, has significantly higher achievement scores, motivation levels, and positive student opinions compared to the control group.

As for the studies on written production-based vocabulary activities, Lee and Muncie (2006) investigate the relationship between vocabulary learned through reading and its use in writing among intermediate-level ESL students. The study aims to determine how much target vocabulary from reading is used in writing, the improvement in students' lexical frequency profile (LFP) immediately and in delayed writing, and whether higher-level vocabulary usage enhances the quality of ESL writing. Conducted in a secondary school in Greater Vancouver, the study includes 59 students enrolled in an intermediate-

level ESL reading and writing course. The findings demonstrate that students' use of higher-level target vocabulary improves in writing immediately after reading and is maintained in delayed writing while vocabulary use at the 1,000–2,000-word level remains stable. The study also indicates an improvement in LFP. Effective vocabulary scaffolding involves teacher elicitation, explicit explanation, discussion, negotiation, and multimode exposure, all of which contribute to long-lasting vocabulary acquisition. Increased productive vocabulary use leads to better overall language performance and a significant increase in receptive vocabulary.

Bayraktar Balkır and Zehir Topkaya (2019) examine the impact of the Synectics Model, an instructional technique designed to boost creative thinking and problem-solving skills, on the vocabulary development of Turkish EFL learners in higher education. The study focuses on whether learners' vocabulary development changes significantly with the synectics program and the learners' perceptions of the technique. Participants include 20 intermediate-level EFL prep-year students from a Turkish public university. The researchers employ a mixed-methods design and a repeated measures design for the long-term observation of the participants' vocabulary growth. Learner-written texts are analyzed for type, family, and word frequency levels by using an online text analysis programme as the quantitative data collection tool. Qualitative data is obtained through semi-structured interviews and inductive content analysis, which provides deeper insights into participants' experiences. According to the findings, there is a considerable increase in the participants' vocabulary development. Furthermore, the qualitative results demonstrate that the majority of the participants hold positive opinions regarding the application of synectics in the acquisition and retention of new vocabulary. It is concluded that in EFL contexts, the Synectics Model can be applied as a prewriting activity.

In her dissertation, Cellat (2019) examines how blog writing influences the writing and vocabulary development of Turkish EFL high school students and explores their views on the blogging process. The study involves 35 students and uses a Mixed-Method Explanatory Sequential Design. Over 18 weeks, participants write weekly blog posts and comment on their peers' posts. Pre- and post-tests assess improvements in writing and vocabulary. Quantitative data shows that blog writing significantly improves both skills. Qualitative data reveals that students have favorable views of the blogging process by

noting benefits in technology use, vocabulary knowledge, reading and writing skills, general world knowledge and culture, time management, and interaction.

Tağa and Kalenderoğlu (2022) investigate the impact of combining writing tasks with vocabulary instruction on vocabulary learning, retention, and awareness among seventh-grade students in Ankara. Seventy-six students are split into three groups: Group A receives vocabulary instruction combined with a writing exercise, Group B receives enriched vocabulary instruction, and the control group receives traditional vocabulary instruction. The study utilizes a sequential explanatory mixed-method design. In the quantitative phase, a quasi-experimental design with pre-tests and post-tests is used. During the qualitative phase, interviews are conducted with three students from each group to assess their proficiency in understanding and applying the target words. Additionally, after the eight-week intervention, feedback is collected from Group A students and their teacher. Both quantitative and qualitative results demonstrate that the integration of vocabulary instruction with writing tasks positively affects students' acquisition of target words, retention of those words, and growth of word awareness.

Samsidar et al. (2022) assess the vocabulary knowledge and writing performance of 25 eleventh-grade students studying English at Muallimin Muhammadiyah Senior High School in Makassar, South Sulawesi, Indonesia, and explore the correlation between these two skills in their study. Data is collected through a vocabulary test and a writing test. The results indicate that the students' vocabulary knowledge is generally good, with most scoring between 70 and 79, and an average score of 66.84. The students' writing performance is rated as fair, with most scores ranging from 60 to 69, and an average score of 69.28. The study finds a significant positive correlation between vocabulary knowledge and writing competence. The researchers recommend enhancing vocabulary instruction focused on word families to improve writing performance.

Siddique and Rizwan (2023) conduct a study to evaluate the impact of blogging on intermediate learners' writing skills in English in terms of language and vocabulary. The study aims to assess and compare the vocabulary and language used in writing assignments by students using blogging versus traditional pen-and-paper methods. Using a true experimental design with pre- and post-tests, the study involves 68 intermediate

students in Pakistan. Participants are allocated to two different groups as an experimental group that completes assignments through blogging and a control group that uses pen and paper. After eight weeks, both groups take a post-test. The results show a considerable difference between the blogging and pen-and-paper groups. The study reveals that blogging significantly improves students' vocabulary and language use in writing. Additionally, it is discovered that technology-based online writing, peer review, peer feedback, and anywhere-anytime learning through blogging are more beneficial than conventional pen-and-paper writing.

3. METHODOLOGY

This chapter provides details on the research design, the research group, the research context, data collection, and data analysis.

3.1 Research Design

This research is focused on discovering how online application-integrated production-based vocabulary activities affect university-level EFL learners' vocabulary achievement and what university-level EFL learners' attitudes towards the use of online application-integrated production-based vocabulary activities are. To this end, in the current study, a longitudinal case study using a convergent mixed methods design was utilized to gather both the qualitative and the quantitative data, which lends itself to triangulation so that the data collected via various research methods could be analyzed from various perspectives to obtain a more thorough insight into the research questions.

A longitudinal study is a research design where the same variables, such as people, are repeatedly observed over either short or extended time periods (Larsen-Freeman & Long, 1991, pp. 11-12). Examining the same variables at various times is what makes a longitudinal study unique. Researchers can track trends or changes in the relevant variables over time with this method, and they can examine potential relationships between these changes and other impacts or causes (Thomas, 2020). Caruana et al. (2015) state that longitudinal studies are generally used to analyze developmental changes, to monitor the impact of interventions or treatments over time, and to comprehend the evolution of certain behaviors. Because researchers can track the changes in variables over time, they can offer important insights into cause-and-effect relationships. However, longitudinal studies may need a long-term commitment from participants as well as researchers (Simkus, 2023).

A convergent design is a mixed-methods approach, which involves not only qualitative but also quantitative methods in a single study (Fraenkel et al, 2012). It is a process when data collection and analysis of both quantitative and qualitative data take place simultaneously and are analyzed separately to determine if the data support or refute one

another (Damyanov, 2023). Belharar et al. (2023) note that in a convergent design, qualitative data is gathered by using methods like document analysis, observations, and interviews. Rich, descriptive data that fully reflects the experiences and viewpoints of the participants is collected through these methods. Quantitative data is gathered via methods including experiments, surveys, and standardized tests. These procedures usually produce numerical data that can be used to find trends, connections, or patterns through statistical analysis. Following the independent collection of both types of data, researchers examine each one separately to find important conclusions and themes. After that, they combine the quantitative and qualitative data to analyze, contrast, and integrate the findings. Through this integration process, researchers are able to confirm interpretations, triangulate data, and develop a deeper comprehension of the research questions (Creswell & Creswell, 2017).

A case study is an empirical analysis that investigates a current phenomenon in its actual environment; it uses numerous sources of information because the distinctions between the phenomenon and the environment are not immediately apparent (Yin, 1984, p. 23). According to Nunan (1992), the case study is a 'hybrid' from a methodological standpoint because it typically employs a variety of methods, instead of being confined to one approach for data collection and analysis of a particular thing, phenomenon, or social unit. Therefore, the case study researcher often pays attention to a single unit's characteristics. For the purpose of deriving insights applicable to a larger group to which the unit belongs, such observations aim to delve deeply into and examine the intensity of the numerous factors that constitute the unit's life cycle.

Nunan (1992) also claims that the case study has mostly been used in applied linguistics as a tool to track how first and second language learners go through language learning, and to change the conduct of students who have disruptive behavior or particular learning or attitude issues in the classroom. Moreover, Adelman et al. (1976) propose six major benefits of employing the case study as a method of research. Firstly, unlike other research methods, it is grounded in reality and thus appeals to practitioners more since they can better relate to the problems and worries addressed in this way. Secondly, Adelman et al. (1976) say that referring to a case, one can make generalizations about other cases. Thirdly, by representing a variety of viewpoints, it can support several

interpretations. Fourthly, case studies, when properly presented, can also offer a repository of information that can be reinterpreted by later scholars so as to investigate other cases. Fifthly, the case study findings can be applied right away for various purposes, such as staff development, feedback inside the institution, formative assessment, and educational policy-making. Lastly, it is typically easier to access case study data than traditional research reports, so various audiences could benefit from the data, which makes the research process more comprehensible to the reader.

3.2 Research Group and Research Context

This study involved a single group of B2 level EFL learners studying English at the preparatory English program of Özyeğin University, a foundation university in İstanbul, Türkiye. The students enrolled in the preparatory English program at School of Languages (Scola) in Özyeğin University learn English for academic purposes as they study at an English medium university. Scola's English for Academic Purposes (EAP) program aims to become one of the nation's most successful EAP programs while also promoting the most effective use of integrated educational technologies. Therefore, the goal of the preparatory English program is to support students in gaining the skills and study habits needed to succeed in their undergraduate and graduate degrees while having a strong command of both written and spoken English. To equip students with the capacity to make moral decisions in both their academic and professional lives, the program also helps them learn how to think critically, study independently and in groups, and become proficient with information technology tools.

An academic year consists of three semesters: fall semester, spring semester, and summer school. Fall and spring semesters each last up to 16 weeks and consist of a 14-week lecture period which is followed by an assessment period whereas summer school lasts 8 weeks and has a 7-week lecture period which is followed by an assessment period. The preparatory English program consists of three levels which are A2 (Elementary), B1 (Intermediate), and B2 (Advanced) levels. One semester is allotted to each level. The School of Languages sets the total weekly class hours for each level, with a minimum of 20 hours. The School of Languages administers a placement test to assess the students' English proficiency level before admitting them to the University's undergraduate programs. Students passing the placement test with at least 60 points out of a possible

100 are qualified to take the English Proficiency Exam. Direct admission to undergraduate programs is granted to students who achieve a minimum score of 65 out of 100 on the English Proficiency Exam. Students are not permitted to start their degree programs if they are unable to take the Placement Test or the English Proficiency Exam, or if they do not get the required minimum passing results. The students in this group are approved to enroll in the preparatory English program where their exam results are used by the School of Languages to determine their level.

This research took place in the fall semester in 2023-2024 academic year. As this is a case study, only one class of B2 level students participated in the study. As the researcher is an English language instructor at the preparatory English program in Özyeğin University, the particular B2 class was assigned to the researcher by the management of the School of Languages. The entire class including 17 Turkish students coming from different parts of Türkiye participated in the study voluntarily. Convenience sampling method that involves participants who are conveniently available and are eager to participate in the research was applied in this study to provide the suitable sample (Frey at al., 2000).

3.3 Data Collection

The quantitative and qualitative data for this study were collected by the researcher through multiple techniques in order to make a thorough analysis of the context and gain a better insight into the participants' attitudes, experiences and practices. The research was carried out in a single B2 level class assigned to the reseacher by the school management. A pre-test (See Appendix 1) and a post-test (See Appendix 2) created by the researcher were administered to address the first research question: How do online application-integrated production-based vocabulary activities influence university-level EFL learners' vocabulary achievement? The pre- and post-tests included 100 vocabulary questions in different types. While preparing the tests, the reseacher randomly selected the vocabulary items from the B2 level vocabulary journal which includes the lexical syllabus prepared by Norbert Schmitt and Diane Schmitt specifically for the preparatory English program of Özyeğin University in 2011 by using British National Corpus (BNC), General Service List (GSL), Academic Word List (AWL), and English Profile (Vocabulary Profiler). Although the same words (See Appendix 3) and contexts were used in both tests, the question types were different. After preparing the tests, the

researcher got feedback from two experts in the field. Making the necessary changes, the researcher finalized the tests. Between the pre-test and the post-test, the treatment was applied for two hours per week and lasted for eight weeks. To answer the second research question (What are university-level EFL learners' attitudes towards the use of online application-integrated production-based vocabulary activities?), when the weekly activities (See Appendix 4) started, eight weekly post-activity questionnaires (See Appendix 5) were given to the students each week; after 8 weeks of treatment, a final questionnaire was given to the students, and a focus group interview was conducted at the end of the study (See Appendix 6). The researcher also used her own field notes.

Tests are a method for gathering data. A test is a task or series of tasks that measure the test-taker's observable behavior (Brown, 1971). The test content takes shape thanks to test methods (Genesee & Upshur, 1996). Test takers are required to complete certain types of tasks while taking a test. For this study, the researcher created a 100-question pre-test and a 100-question post-test that include different test methods (25 multiple-choice questions, 25 word completion questions, 25 fill-in-the-blanks questions, and 25 word formation questions). The same vocabulary was tested in both tests, but with different methods. A pre-test is an assessment tool administered to participants before they receive treatment as part of a research project whereas a post-test is an assessment tool administered to participants following the administration of treatment (Hornbuckle, 2022). While pre-tests identify what students need to learn, post-tests demonstrate what they have learned. Educators can better monitor and assess student growth in each of the knowledge standards by creating a baseline with a pre-test.

Another particularly popular research tool whose aim is to collect data from a large group of individuals at once is questionnaires (Lindemann, 2023). According to Genesee and Upshur (1996), questionnaires are most beneficial with learners who have attained more than basic levels of proficiency in the second language if they are not in the students' mother tongue. They are most helpful when they are used on a regular basis and when teachers, parents, or students are expected to provide reasonably systematic and uniform feedback, such as before teaching starts and after the conclusion of a significant unit of instruction or a whole course of instruction. During these times, the data they offer is useful for planning and assessing entire courses or units.

Focus groups are among the most frequently utilized methods for collecting qualitative data (Gill & Baillie, 2018). Fraenkel et al. (2012) state that in a focus group interview, the interviewer asks a number of questions to a small group of participants (often four to eight). The participants hear each other's answers to the questions while they are seated in a group. Once they hear the other remarks, they frequently add on what they originally said. Consensus is neither required nor desired; they may disagree. The goal is to learn what individuals truly believe about an issue or issues in a social setting where the participants can hear the other people's opinions and think about their own opinions accordingly. At the end of this study, a focus group interview with five participants was conducted, and it lasted for 25 minutes.

Also, the researcher had the chance to monitor the complete process as she was the teacher who carried out the research in the classroom as well. Genesee and Upshur (1996) emphasize the importance of classroom observation and any related inferences about teaching and learning for the future preparations for teaching the same unit, lesson, or course. Teachers may decide to keep, drop, or adjust specific units with future groups of students based on the observations of how well they performed with the present set of students (Genesee & Upshur, 1996, p. 80). Thus, taking their observations into account, teachers can draw reasonable inferences about instructional or learning processes or strategies. Because of that, the researcher also used her own observations while collecting data in the study.

There are some strategies recommended in the field to preserve reliability and confirm validity. One of these strategies is expert review, which was utilized in this research. While structuring the data instruments, two experts were asked for their opinions. Moreover, the researcher triangulated the data; therefore, employing multiple data collection methods such as questionnaires, pre- and post-tests, focus group interviews, and observations strengthened the reliability of the study.

3.4 Data Analysis

For the current study, the researcher used the comparative method (Glaser & Strauss, 1967) to analyze both the quantitative and the qualitative data obtained through pre- and post-tests, a focus group interview, questionnaires and observations in order to discover

the effects of the online application-integrated production-based vocabulary activities on university-level EFL learners' vocabulary achievement. Comparative case studies analyze and synthesize patterns, similarities, and differences between two or more cases that have a similar focus or objective (Goodrick, 2014).

In this study, in order to analyze the quantitative data, the Wilcoxon Signed-Rank Test was employed as an alternative to the paired t-test due to the non-normal distribution of the data. Being a non-parametric statistical test, it was selected for its efficacy in comparing pre and post measurements within a single sample, assessing potential differences in their population mean ranks. This choice was particularly suitable for the study's context, characterized by a small sample size of 17, where the data failed to meet the assumptions necessary for parametric tests like the paired t-test. Thus, the Wilcoxon Signed-Rank Test served as a robust analytical tool, allowing for rigorous analysis despite the data's non-normally distributed nature and limited sample size. According to Creswell (2014), the use of non-parametric tests, such as the Wilcoxon Signed-Rank Test, is particularly advantageous in educational and social sciences research when data does not meet the assumptions required for parametric tests.

Moreover, through within-case and cross-case analysis, the participants' answers to online application-integrated production-based vocabulary activities were compared and contrasted in order to develop categories and shared themes while analyzing the qualitative data. Therefore, thematic analysis was also employed in this study. Braun and Clarke (2006) describe thematic analysis as a tool for detecting, interpreting and reporting patterns and themes within data.

The collected data was read again in various phases as part of the thematic analysis, after which emerging patterns were coded and categorized. Braun and Clarke (2006) suggest thematic analysis protocol consisting of six steps. The first step is the data conversion, the second step is the initial code creation, the third step is theme generation, the fourth step is theme review, the fifth step is theme definition and naming, and the final step is report production. For the purpose of demonstration, these phases are used in a cyclic structure rather than a linear one.

To assess if the participants' questionnaire responses are consistent with their classroom practices in vocabulary learning, the data was analysed in relation to classroom observations and a review of the field notes. The field notes were therefore categorized according to the study's online application-integrated production-based vocabulary activities. A thorough analysis of the findings was provided together with the data analysis results, which was displayed as tables, figures, and text. The results were assessed in relation to the research questions, and pertinent research and theory were used to support them.

4. FINDINGS AND DISCUSSION

In this chapter, firstly, the findings under certain headings that reflect the aims of the research, and then the discussions that try to make sense of them under specific headings and as a whole are given.

4.1 Findings

4.1.1 The findings of quantitative analysis

To address the first research question of the study, which is how online application-integrated production-based vocabulary activities influence university-level EFL learners' vocabulary achievement, the participants' pre-test and post-test scores were statistically analyzed using SPSS, version 27. The Wilcoxon Signed-Rank Test was conducted as an alternative to the paired t-test due to the non-normal distribution of the data. The findings emerging from the analysis of the quantitative data are shown in this section.

Table 4. Means Differences of Total Scores, Multiple Choice (MC) Scores, Word Completion (WC) Scores, Fill-in-the-blank (FIB) Scores and Word Formation (WF) Scores at Pre-test and Post-test

	Pre-test			*Post-test*				
Variable Scores	*N*	*M*	*SD*	*N*	*M*	*SD*	*t (df)*	*p*
Total Scores	17	30.23	10.45	17	70.17	13.07	-13.94 (16)	.000
MC Scores	17	14.05	3.91	17	20.41	3.26	-7.76 (16)	.000
WC Scores	17	1.58	1.54	17	10.58	6.07	-6.19 (16)	.000
FIB Scores	17	10.47	4.81	17	22.17	2.87	-10.38 (16)	.000
WF Scores	17	4.11	3.53	17	17.00	4.18	-9.30 (16)	.000

*The significance level is .050.

The Wilcoxon Signed-Rank Test was used to measure the effect of the intervention on students' vocabulary test scores. A statistically significant change was observed in students' total scores from Pre-test (M=30.23, SD=10.45) to Post-test (M=70.17,

SD=13.07), t(16)=-13.94, p<.0005. Categorical field information about the participants' pre-test total scores and post-test total scores can be seen in Appendix 7.

As both the pre-test and the post-test contained four different question types, each with 25 questions, the scores from each section were also compared. According to this, a statistically significant improvement was noted in students' scores on multiple choice questions from Pre-test (M=14.05, SD=3.91) to Post-test (M=20.41, SD=3.26), t(16)=-7.76, p<.0005. Categorical field information about the participants' pre-test multiple choice scores and post-test multiple choice scores can be seen in Appendix 8.

A statistically significant difference was observed in students' scores on word completion questions from Pre-test (M=1.58, SD=1.54) to Post-test (M=10.58, SD=6.07), t(16)=-6.19, p<.0005. Categorical field information about the participants' pre-test word completion scores and post-test word completion scores can be seen in Appendix 9.

There was a significant statistical change in students' scores on fill-in-the-blank questions from Pre-test (M=10.47, SD=4.81) to Post-test (M=22.17, SD=2.87), t(16)=-10.38, p<.0005. Categorical field information about the participants' pre-test fill-in-the-blank scores and post-test fill-in-the-blank scores can be seen in Appendix 10.

There was a significant statistical difference in students' scores on word formation questions from Pre-test (M=4.11, SD=3.53) to Post-test (M=17.00, SD=4.18), t(16)=-9.30, p<.0005. Categorical field information about the participants' pre-test word formation scores and post-test word completion scores can be seen in Appendix 11.

4.1.2 The findings of qualitative analysis

To gain a thorough understanding of university-level EFL learners' attitudes toward the use of online application-integrated production-based vocabulary activities, a thorough thematic analysis was conducted on the qualitative data, which was collected through eight weekly post-activity questionnaires, a final questionnaire, a focus group interview, and the researcher's own field notes. The findings emerging from the analysis of the qualitative data are shown in this section.

4.1.2.1 The analysis of the eight weekly post-activity questionnaires

Activity 1: Acrostic Poems

The survey responses about the acrostic poem-writing activity revealed several common themes regarding the perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary and Word Recall:

Many participants noted that the activity helped them learn and remember new words better. They found that writing poems made the meanings of words more memorable and increased their familiarity with vocabulary.

Student 4 stated, *"It was so effective for getting the meaning of the words that we learnt previously."*

Student 7 wrote, *"This activity was beneficial because I had to look some new words up for making rhyme and I learnt some word definitions with their usage."*

Student 8 highlighted the usefulness of the activity by stating, *"It was useful to understand and learn the new words."*

Student 14 expressed the benefits of this activity by saying, *"Thanks to this activity, I repeated the meanings of the words. At the same time, I better understood their usage in sentences."*

2) Improved Creativity:

The activity was described as fun and beneficial for creativity. Participants enjoyed the creative process of writing poems and coming up with rhymes and collocations.

Student 10 reflected on the creative aspect of the activity by noting, *"The activity was good because we tried to understand the meanings of some specific words in a new and creative way which I believe helped us to feel the meanings deeply by using poems."*

Student 15 wrote, *"I think it was beneficial. The words are more memorable for me now because we learned them while having fun. I also learned new words and conjunctions. I enjoyed using my creativity."*

Student 16 also highlighted the same point by stating, *"I think this activity was beneficial because of creativity. We had fun while learning new words."*

3) Effective Learning Method:

The method of learning through poetry was highlighted as effective. Participants reported that contextualizing words within a poem helped them to better comprehend and remember their meanings and usages.

Student 1 said, *"It was very beneficial. Thinking about words starting with certain letters made my brain work."*

Student 3 expressed the effectiveness of the activity by noting, *"It's more useful to learn words with poems. I can easily forget words when I learn their definitions only. But I won't forget these words thanks to our poems."*

Student 4 stated, *"It was so effective for getting the meanings of the words that we learnt previously. Besides, it helped us to make effective sentences."*

Student 6 noted, *"It was very useful for us because seeing these words in different poems and exploring their usages will help us to remember them."*

Student 17 wrote, *"I reviewed the definitions of the words and now I'm pretty sure that I will remember them."*

4) Engagement and Enjoyment:

Writing poems in a classroom setting was enjoyable for many students. The activity was seen as engaging, with some students finding the humorous or creative aspects of their classmates' poems particularly memorable.

Student 1 wrote, *"We had fun while we were learning. Some of my classmates wrote funny things, which made the meanings of the words more memorable in my mind."*

Student 5 noted, *"Writing a poem with words I didn't know made me learn the words' meanings in an enjoyable way."*

Student 9 stated, *"It was fun, and I learnt the meanings of words better and how to use them."*

5) Contextual Learning:

Seeing words used in sentences and exploring their different usages within the poem helped students understand the words better. This contextual learning was seen as beneficial for grasping the meanings and applications of new vocabulary.

Student 11 reflected on the benefits of contextual learning by saying, *"This activity was very useful because activities like this help me not to forget the words. I can remember both the meaning of my word and my friends' words."*

Student 12 wrote, *"I understood the correct use of words and how the poem structure should be."*

Student 13 stated, *"I found it beneficial because it helped me learn how to use the new words in sentences in my poem and I also learnt the meanings of my friends' words in their poems."*

The Themes about the Perceived Challenges:

1) Difficulty with Vocabulary and Rhymes:

Many participants found it challenging to find appropriate words and create rhymes, especially with unfamiliar or advanced vocabulary. The process of fitting words into the poem's context was also noted as difficult.

Student 3 stated, *"I tried to find good rhymes. It was so challenging for me."*

Student 4 described the challenge he experienced by noting, *"Trying to use my target word in a correct way was the most difficult one because I am not familiar with these words."*

Student 7 wrote, *"Creating a rhyme and finding the proper words that start with my word's letters were very difficult."*

Student 9 noted, *"Finding the words and fitting the words into the context were really challenging."*

Student 10 highlighted the same issue by stating, *"Finding relevant words and sentences to describe what I was trying to say was so challenging for me. Also, I tried to keep the rhyme and use the best words for my poem while I was trying to express my real feelings."*

2) Struggle with Poetic Structure:

Writing in the structured format of a poem, such as an acrostic poem, posed challenges. Some students struggled with maintaining the correct structure and finding words that fit the required format.

Student 8 mentioned this point by saying, *"In my opinion, the challenging part was writing the sentences in a correct structure."*

Student 15 wrote, *"I struggled a bit because it was an acrostic poem."*

Student 16 noted, *"Writing a meaningful poem was challenging. It was difficult to find words that start with those letters."*

Student 17 reported, *"These words are not the words that we use in our daily life, so it makes it hard to use the words in a poem."*

3) Creativity and Inspiration:

Some participants found it hard to be creative or to find inspiration for their poems. This was particularly challenging for those who did not consider themselves naturally creative or who were writing poems for the first time.

Student 6 mentioned this difficulty by saying, *"I had a challenge with my inspiration."*

Student 13 wrote, *"I am not a creative person, so I couldn't write a good poem. Although I couldn't do it well, I enjoyed my friends' poems."*

4) Language Barriers:

For some students, writing poems in English was particularly challenging. They had to think in their native language while trying to write in English, adding an extra layer of difficulty.

Student 1 acknowledged this challenge by saying, *"I had to push my vocabulary limits."*

Student 11 stated, *"I think writing a poem is difficult because in my daily life I don't write poems, and thinking in Turkish but trying to write in English is challenging."*

Activity 2: Comic Strips

The survey responses about the comic strip activity revealed several common themes regarding the perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary and Word Usage:

Many participants noted that the activity helped them reinforce and solidify their understanding of new vocabulary. Using words in sentences and seeing them in context through comic strips made the meanings clearer and more memorable.

Student 2 stated, *"This activity helped to learn how to use B2 level words in sentences."*

Student 4 highlighted the same point by saying, *"I tried to use the words in a correct way. After that, I saw my mistakes and learned how to use them."*

Student 5 noted, *"It was very beneficial. We learned the correct usage of words and their collocations."*

Student 7 wrote, *"It was beneficial because it required using words in sentences."*

Student 12 described the effectiveness of the activity by saying, *"I grasped the meanings of the words better. I learned to use the words in the right place and in the right forms."*

Student 15 said, *"This activity refreshed my vocabulary knowledge. I learnt how to use the new words."*

2) Improved Creativity:

The activity was described as fun and beneficial for creativity. Respondents enjoyed the creative process of developing comic strips, which involved brainstorming ideas and creating dialogues.

Student 4 mentioned this by saying, *"This activity helped to improve my creativity and my vocabulary skills."*

Student 14 wrote, *"I love these kinds of activities. It was fun and improved my creativity. I learnt new words and how I can use them."*

Student 15 commented on the same point by stating, *"It improved my imagination."*

3) Effective Learning Method:

The method of learning through comic strips was highlighted as effective. The combination of visual elements (pictures) and text helped students better remember and understand the words.

Student 3 noted, *"Studying newly learned words through such an activity makes them more permanent for me. Especially, the use of pictures makes the meanings of the words clearer. It helps me remember the words."*

Student 9 wrote, *"This activity helped me understand the words better with the help of the comic strips."*

Student 10 highlights this point by saying, *"Searching about the meanings of words and using them in our comic were really good ways to understand and memorize the words."*

Student 11 stated, *"I think it was beneficial because the words we used stayed in our memory better."*

Student 16 mentioned the benefits of this activity by saying, *"By visualizing the words we struggled with, we learned them more quickly and learned where we could use them. I learned new words, too."*

Student 17 said, **"I understood the meanings and contexts of words better with the comics."**

4) Group Collaboration:

Working in groups was seen as enjoyable and constructive. Students appreciated the collaborative aspect of the activity, which involved brainstorming and helping each other with the vocabulary and the creation of the comic strips.

Student 6 stated, *"Doing this activity as a group was enjoyable and constructive because we brainstormed with my friend and helped each other in areas we didn't know. Although we struggled a bit to be creative, it was a nice activity."*

Student 7 expressed the benefits of collaboration by saying, "*Being a group activity made it easier to make decisions when choosing characters and dialogues."*

Student 13 wrote*, "Working as a group helped in brainstorming ideas. Dealing with newly learned words and trying to use them contributed to my understanding."*

5) Engagement and Enjoyment:

Creating comic strips was an engaging activity for many students. They found it enjoyable to work on a creative project and appreciated the interactive and entertaining format.

Student 1 noted, *"We had fun with our friends while learning how to use the words."*

Student 5 wrote, "It was a lot of fun."

Student 13 stated, *"It's a very enjoyable platform. I'll use it myself."*

Student 17 highlighted the fun element in the activity by saying, *"It was an enjoyable activity for group work because we all created very nice comics in order to learn how to use the new words."*

The Themes about the Perceived Challenges:

1) Difficulty with Vocabulary and Sentence Formation:

Many participants found it challenging to use newly learned words correctly in sentences. Writing in English and ensuring proper usage of vocabulary were noted as difficult parts of the activity.

Student 3 wrote, *"The hardest part was writing in English and using newly learned words in sentences."*

Student 4 stated, *"Writing sentences with the new words was the hardest one because I had to think about how I could write my sentences and how I could use the new words."*

Student 11 mentioned the same issue by saying, *"It was difficult to choose words suitable for the cartoon or to create a graphic that matched the words we chose."*

Student 17 noted, *"It was difficult to use the words in sentences."*

2) Organizing and Structuring Comics:

Organizing the comic strips, generating topics, and placing characters and texts were challenging for some students. Establishing a coherent flow and structure for the comic story was also mentioned as a difficulty.

Student 2 highlighted this issue by stating, *"Organizing the comic was very hard."*

Student 5 wrote, *"Generating the topic and placing the characters and texts were a bit challenging."*

Student 10 acknowledged the difficulty by noting, *"Writing a comic story and separating the topic in different pages were challenging for me."*

Student 13 stated, *"It was difficult to establish a flow. I struggled a bit at first because it's a new platform, but it was very enjoyable."*

3) Struggle with Creativity and Humor:

Some participants found it hard to be creative or to incorporate humor into their comic strips. This posed a particular challenge for the ones who did not view themselves as naturally creative or who were not previously interested in comic strips.

Student 1 reflected on this issue by saying, *"We had difficulty making humor. It was difficult for me because I wasn't very interested in comic strips before."*

Student 6 wrote, *"I am not a very creative person."*

Student 7 stated, *"It was difficult to find elements of humor in the cartoon, so we didn't include any."*

Student 8 noted, *"It was hard to make a creative comic."*

Students 14 and 15 both noted, *"Creating a scenario was hard."*

4) Technical and Platform Issues:

One student mentioned difficulties with the technical aspects of the activity, such as the user-friendliness of the website or platform used to create the comics.

Student 9 reported this by noting, *"The website could have been a bit more user-friendly."*

Activity 3: Collective Diary Writing:

The survey responses about the collective diary writing activity revealed several common themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary and Word Usage:

Many participants found the activity beneficial for reinforcing and solidifying their understanding of new vocabulary. Using B2 level words in sentences and paragraphs helped them remember the meanings and correct usage of these words.

Student 3 mentioned the effectiveness of this activity by saying, *"I gained a better understanding of the new words by learning how to use them correctly in sentences."*

Student 6 wrote, *"I learned the meanings of words more permanently by using them in sentences."*

Student 7 reported that he found the activity beneficial by noting, *"Using words in the text reinforced my word knowledge."*

Student 8 stated, *"It allowed me to review the words I learned."*

Student 11 noted, *"It was beneficial for me because when I searched for which words was the best ones for my paragraph, I learnt their meanings."*

Student 14 highlighted the same point by saying, *"Using words that I have just learnt in sentences makes the words more memorable for me."*

Student 17 stated, *"It was very beneficial because I learnt some collocations and words."*

2) Improved Writing Skills:

The activity was seen as useful for practicing writing skills, particularly in preparation for language exams and academic writing tasks. It helped students identify and correct their mistakes, often with the help of their teacher. Also, students indicated that they had improved their grasp of English sentence structure. Analyzing and constructing sentences with newly learned words allowed them to identify and address their weaknesses in writing.

Student 1 noted, *"I think this activity prepared us for the language task."*

Student 2 stated, *"We use B2 level words in sentences, and I think it is very beneficial for the language exam."*

Student 4 wrote, *"These activities are good for our exams and academic writing skills. They are like a small version of a writing task, so we can easily fix our mistakes."*

Student 5 indicated the same benefit by saying, *"It was a beneficial writing practice. Using the words we learned from the journal helped us practice for the writing exam on Monday."*

Student 9 said, *"I think it was a very useful activity. It was quite beneficial to correct the mistakes we made together with the teacher. We had the opportunity to notice and correct our own mistakes."*

Student 12 described his experience by saying, *"I better understood English sentence structure and identified my weaknesses in writing paragraphs."*

Student 13 noted, *"Examining each paragraph individually helped me see mistakes more clearly. This resolved individual minor issues. Dealing with words and sentences enhances my understanding."*

Student 15 reported, *"This activity helped improve my writing. Constructing sentences with meaningful words was very effective."*

3) Interactive and Enjoyable Learning Method:

The interactive nature of the activity, combined with its educational value, made it enjoyable for many students. Working with pictures and writing paragraphs based on them was found to be a fun way to learn.

Student 1 commented on this aspect by saying, *"I found it beneficial because it was both fun and educational."*

Student 13 wrote, *"The pictures were very nice, they helped us write paragraphs with the new words. It was very enjoyable."*

Student 16 stated, *"I benefited from this activity because the interactivity and analytical thinking exercise offered by the activity were useful."*

Student 17 noted, *"It was entertaining, and it helped me write a good paragraph with the new words."*

4) Broadened Perspective Through Peer Work:

Reading sentences and paragraphs written by peers using the same target words provided a broader perspective on applying these words across various contexts.

Student 6 highlights this point by saying, *"Seeing the same word in different sentences written by my friends also broadened my perspective."*

The Themes about the Perceived Challenges:

1) Difficulty with Vocabulary and Sentence Formation:

Using newly learned words correctly in sentences was a common challenge. Students found it hard to integrate unfamiliar words into meaningful and grammatically correct sentences.

Student 2 expressed this issue by saying, *"Using correct grammar and collocations was difficult."*

Student 3 noted, *"Trying to use the newly learned words correctly was challenging for me."*

Student 4 wrote, *"Using words in the correct form was the hardest one because we are not so familiar with these words."*

Student 14 stated, *"It was really hard to use words that I learnt new."*

2) Organizing and Structuring Writing:

Writing meaningful paragraphs based on pictures and chosen words was challenging. Finding the right words and constructing coherent texts required significant effort. Besides, one student recognized writing as an area needing enhancement. Although the participants didn't find the activity overly challenging, it highlighted their need to enhance their writing skills overall.

Student 1 mentioned this difficulty by noting, *"Writing a meaningful paragraph based on the photo and the words I chose was challenging."*

Student 5 focused on the same issue by saying, *"Writing a paragraph based on a picture was challenging. But no pain, no gain."*

Student 13 stated, *"Writing is generally something I need to improve."*

3) Creativity Constraints:

The requirement to use specific target words sometimes limited students' imagination and made it harder to express their real feelings or keep the text dramatic.

Student 6 expressed this challenge by stating*, "Writing by using target words can sometimes limit my imagination."*

Student 10 reported the same point by saying, *"Both expressing the real feelings and keeping the text dramatic while using target words were a bit challenging for me."*

Activity 4: Short Stories

The survey responses about writing short stories highlighted several recurring themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary and Word Usage:

Many participants found the activity beneficial for learning and reinforcing the meanings and correct usage of new words, particularly B2 level words. The practice of incorporating these words into sentences helped solidify their understanding.

Student 1 mentioned this benefit by saying, *"It was very beneficial. We learnt a lot of words, how to use them and refreshed our memory."*

Student 2 noted, *"Using B2 level words in sentences was very beneficial for us to grasp their meaning and usage."*

Student 4 wrote, *"It was helpful to learn how to use new words. It improved my vocabulary and grammar."*

Student 10 stated, “It was beneficial for learning the correct use of words.”

2) Improved Writing Skills:

The activity was helpful in improving participants’ writing abilities, including grammar and sentence structure. Writing stories provided practical experience in constructing coherent and meaningful texts.

Student 5 highlighted this benefit by stating, *“Writing a story with the newly learned words was very beneficial. It improved my writing skills.”*

Student 9 noted, *“The activities in which we use words in sentences are very useful. They improve my grammar as well.”*

Student 14 wrote, *“It improved my writing skills.”*

3) Engaging and Enjoyable Learning:

Several participants expressed that the activity was entertaining and pleasurable, which increased the level of engagement in the learning process. The creative aspect of writing stories added an element of enjoyment.

Student 3 reflected on this point by saying, *“It was among the best. I enjoy writing stories. Writing a story in English was nice.”*

Both Student 4 and Student 10 wrote, *“It was fun.”*

Student 14 emphasized the same benefit by noting, *“We had fun while we were doing the activity.”*

4) Critical Thinking and Creativity:

The exercise encouraged critical thinking and creativity. Participants had to brainstorm and think critically to effectively incorporate the new vocabulary into their writing, which enhanced their creative skills.

Student 15 commented on this benefit by saying, *“We learned to use the new words in sentences. It’s an important exercise for critical thinking.”*

Student 16 noted, *"It was beneficial because I could use the new words that I learned with the words I know to make more complex sentences. It improved my creativity."*

5) Collaborative Learning:

Working in groups was mentioned as beneficial by some participants. Collaborating with peers enabled them to exchange knowledge and gain different perspectives on word usage.

Student 7 stated, *"The activity was very beneficial to detect the verbs that I didn't know. I also learnt some new words that my peers found."*

Student 13 reflected on the same benefit by saying, *"It was very beneficial to work on the words with our friends. I learnt new words from them."*

The Themes about the Perceived Challenges:

1) Difficulty with Vocabulary:

Writing meaningful and coherent stories using the newly learned words was a common challenge. Participants struggled with integrating the vocabulary into their writing in a way that made sense and flowed well. Some participants felt limited by the need to use words from a specific vocabulary unit. This restriction sometimes made it harder to express their ideas freely and creatively.

Student 1 noted, *"Creating a story was challenging. I felt that using only the vocabulary from a single unit limited us a bit."*

Student 7 wrote, *"Using the unknown words in a correct way was challenging. Also, finding suitable words to the story was hard."*

Student 10 stated, *"Writing a meaningful and fluent story with words we chose was hard. We needed to brainstorm for minutes."*

2) Grammar and Sentence Structure:

Using correct grammar and forming proper sentences with the new words was difficult for many respondents. They found it challenging to ensure grammatical accuracy while incorporating unfamiliar vocabulary.

Student 3 highlighted this challenge by saying, *"Writing in English is always hard. Again, writing in English was challenging."*

Student 4 wrote, *"I struggled a bit with grammar."*

Student 13 noted, *"Improving my writing is something I need to work on in both English and Turkish."*

Student 15 reflected on the same issue by saying, *"Using the new words we learned in sentences is challenging for me."*

3) Finding Inspiration:

Coming up with a good story or topic to write about was a struggle for several participants. The initial brainstorming and idea generation were challenging aspects of the activity.

Student 4 wrote, *"Finding a good story to tell was difficult."*

Student 11 stated, *"Thinking of a story was a bit challenging."*

Student 12 expressed the same issue by noting, *"Writing the story was difficult."*

Student 14 noted, *"Finding a story was hard."*

4) Individual vs. Group Work:

While some participants found group work beneficial, others felt it was challenging. A few participants expressed a preference for working on the activity individually to get more personal benefit from it.

Student 6 was happy with the group work. She wrote, *"Using these words in a paragraph is the most challenging one, but we did the activity as a group, so it wasn't that hard."*

Student 13 reflected on the good side of group work by noting, *"Working in groups helps with creativity."*

However, Student 9 wrote, *"Working in a group was challenging."*

Student 17 also noted, *"It was difficult to work in a group."*

Activity 5: Puzzles

The survey responses about the puzzle making activity highlighted several recurring themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary Retention:

Many participants found the activity helpful in remembering and reinforcing the meanings of words. The process of solving puzzles and recalling words contributed to better retention. The puzzles proved to be an effective tool for reviewing and revising previously learned vocabulary. This aspect helped refresh participants' memory of words learned in earlier lessons.

Student 1 commented on this benefit by saying, "*It helped me remember the words more easily."*

Student 9 wrote, *"It was a very useful activity to keep the words in mind."*

Student 16 stated, *"Finding the words by challenging my mind was an effective way to save the words in my mind."*

Student 3 reported that she found the activity quite beneficial by saying, *"It helped me remember and review the meanings of the words."*

Student 4 noted, *"I have remembered the meanings of some words that I learnt in previous weeks."*

Student 10 reflected on the same benefit by stating, *"It was beneficial because we had the opportunity to revise the words we have learnt so far."*

Student 13 wrote, *"It was beneficial to prepare the puzzle. Selecting words and writing their meanings and example sentences was a good review."*

Student 14 noted, *"Reviewing the words we have learned so far in the vocab journal helped me refresh my memory."*

2) Enjoyable and Engaging Learning Experience:

The activity was described as fun and enjoyable, which enhanced the engagement of the learning process. The combination of education and entertainment was appreciated by many participants.

Student 3 mentioned this point by noting, *"I enjoy solving puzzles. I found it very enjoyable."*

Student 4 wrote, *"I had fun."*

Student 5 stated, *"It was the most informative and entertaining game I have ever seen in my life."*

Student 6 expressed enjoyment by saying, *"It was both enjoyable and educational."*

Student 7 noted, *"Guessing the words from their meanings was fun."*

Student 10 highlighted the same benefit by stating, *"It also made the lesson more enjoyable."*

Student 13 wrote, *"Working on different activities with words every week is enjoyable."*

Student 15 reported that she found the activity very beneficial by saying, *"I learnt new words and revised the words I have learnt from the vocabulary journal in an enjoyable way."*

Student 17 stated, *"I had fun. It was the most enjoyable activity we have done so far."*

3) Learning New Words:

Participants mentioned that they learned new words and their meanings through the activity. It provided an opportunity to expand their vocabulary.

Student 2 mentioned this point by saying, *"Learning the words with their English meanings helped them stick in my mind."*

Student 5 wrote, *"The activity made me learn new words from the vocabulary journal."*

Student 6 reflected on the same benefit by writing, *"As a group, we learned new words, and the information we learned became memorable."*

Student 12 stated, *"I learned some words I didn't know."*

Student 17 noted, *"I learnt new words and definitions."*

The Themes about the Perceived Challenges:

1) Difficulty in Finding Words:

A common challenge was the difficulty in finding certain words within the puzzles. Some words were hard to locate, which made the activity more challenging for some participants. Guessing words based on their meanings and example sentences was found to be challenging.

Student 4 and Student 10 acknowledged this issue by writing, *"Some words were hard to find in puzzles."*

Student 6 noted, *"It was a bit difficult to guess the words based on their meanings and example sentences."*

Student 8 wrote, *"It was difficult to find the words while solving the puzzles."*

Student 15 stated, *"It was difficult to find the words from their definitions and example sentences."*

Student 17 highlighted the same issue by noting, "*It was difficult to solve the other puzzles."*

2) Spelling and Recalling Issues:

Participants struggled with spelling mistakes and recalling words they had forgotten. This added a layer of difficulty to the puzzle-solving process.

Student 1 reflected on this issue by saying, *"I struggled to recall the words I had forgotten."*

Student 2 wrote, *"The hardest part was making spelling mistakes while solving the puzzles."*

3) Technical Issues:

One participant faced technical difficulties while using the application to solve the puzzles. She had problems with her tablet and losing answers, which hindered her experience.

Student 13 mentioned her problem by noting, *"I experienced issues with my tablet twice, which caused all my answers to be deleted. I had difficulty using the application while solving the puzzle on the second link, but it was still enjoyable."*

4) Excessive Words:

The presence of too many words in the puzzles, especially those prepared by other groups, made it difficult for participants to learn and remember all the meanings.

Student 11 reflected on this issue by stating, *"The difficult part was that there were too many words, and I couldn't learn the meanings of the words in the puzzles prepared by other groups."*

Student 14 wrote, *"There were too many words."*

5) Tiring Activity:

A few participants described the activity as being tiring, especially after solving multiple puzzles. This decreased their focus and effectiveness in subsequent puzzles.

Student 12 stated, *"It was a tiring activity."*

Student 16 mentioned this issue by writing, *"It was a bit challenging. After two puzzles, I felt its effect decreased because I felt tired and I couldn't focus on the third puzzle."*

Activity 6: Story Completion

The survey responses about the story completion activity highlighted several recurring themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Enhanced Vocabulary Understanding and Application:

Participants found the activity useful for learning how to use the new vocabulary in sentences with correct meanings. It helped reinforce the meanings of words and understand their usage patterns.

Student 1 reflected on this benefit by noting, *"It was useful for me to learn how to use the new vocabulary I learned."*

Student 2 wrote, *"It was beneficial because I learned to use the words in sentences with the correct meaning."*

Student 8 highlighted the same point by stating, *"It helped me remember the meanings of the words that I forgot, and I learnt how to use them with this activity."*

Student 9 mentioned this benefit by saying, *"It helped me a lot to understand the words."*

Student 14 wrote, *"Using the words in sentences helped me reinforce their meanings and understand their usage patterns."*

2) Positive Learning Experience:

Many participants expressed that the activity was beneficial and enjoyable. They appreciated the opportunity to review words, learn collocations, and engage in creative writing exercises.

Student 3 noted, *"It was nice to review the words, learn their collocations, and how they are used in sentences."*

Student 4 stated, *"It helped me revise the vocabulary I have learnt and learn how to use them with their collocations in sentences correctly."*

Student 10 highlighted the same point by noting, *"This activity was beneficial and enjoyable for me because I learned the actual meanings of the target words and how to use them in a proper way while doing a creative activity."*

Student 13 wrote, *"It was very helpful to use the words in a creative way and then to go over and correct usage errors one by one. It was easier to continue something with a beginning rather than starting from scratch."*

Student 16 reflected on this aspect by stating, *"This activity taught me how to better use the new words I learned in daily life by making me write a story. It was fun."*

3) Collaborative Learning and Perspective Building:

Doing the activity as a group provided opportunities to view various perspectives and gain insights from classmates' stories. Participants appreciated the collaborative nature of the activity.

Student 6 mentioned this aspect by noting, *"Learning to use the words in sentences makes the learning more permanent. Doing this as a group gives us the opportunity to see different perspectives."*

Student 11 stated, *"I learned how to use the words in our story, I understood the meanings of the words my classmates used in their stories."*

4) Improvement in Writing Skills:

Some participants noted enhancements in their writing abilities due to the activity. Using words in sentences and paragraphs helped reinforce their understanding and application.

Student 5 reflected on this aspect by saying, *"It improved my writing skills."*

Student 12 noted, *"I understood the usage of some words and got better at writing paragraphs in English."*

The Themes about the Perceived Challenges:

1) Difficulty in Generating Ideas and Stories:

Several participants mentioned challenges in thinking of stories or scenarios for incorporating the target words. Finding ideas and being imaginative was noted as a difficulty.

Student 2 reflected on this issue by stating, *"Making up a story and using the words we selected in it were difficult."*

Student 3 highlighted the same point by writing, *"Finding an idea for a story was hard because it requires imagination."*

Student 4 noted, *"It was difficult to think of the story."*

Student 6 stated, *"Continuing a specific topic was a bit challenging."*

Student 10 wrote, *"Creating a creative and an interesting story was challenging for me."*

2) Individual Preference Over Group Work:

Some participants expressed a preference for individual activities rather than group work. Writing with partners was seen as challenging by some.

Student 1 highlighted this aspect by noting, *"We each thought of different stories, but in order to have a shared story, we wrote a different story than we thought."*

Student 7 reflected on the dominance of his partner by stating, *"My partner did almost everything, so I didn't do so many things."*

Student 17 wrote, *"Writing with partners is challenging."*

3) Difficulty in Fitting Words into Stories:

Participants found it challenging to fit the target words into their stories or scenarios. This aspect of the activity posed a difficulty for some.

Student 9 mentioned this by saying, *"It was a bit difficult trying to fit the target words into the story."*

Student 14 highlighted the same issue by noting, *"It was challenging to create a scenario based on the words I chose."*

Student 15 stated, *"It was hard to use the words in the story."*

Activity 7: Stream of Consciousness Writing

The survey responses about the stream of consciousness writing activity highlighted several recurring themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Improvement in Vocabulary Understanding and Usage:

Participants found the activity helpful in learning word meanings and applying them in sentences. Using words in context reinforced their understanding.

Student 1 reflected on this benefit by noting, *"It helped me to learn the meanings of words and how to use them."*

Student 2 wrote, *"This activity was very beneficial for learning the meanings of words. By using the words in sentences, I understand their meanings better. It was a very useful activity."*

Student 3 highlighted the same aspect by saying, *"When I used the words in the text, they were better reinforced in my mind."*

Student 6 stated, *"This activity was useful for making the new unit's vocabulary more permanent."*

Student 11 noted, *"I learnt how to use the new words in sentences."*

Student 14 mentioned the same benefit by stating, *"Using the words I chose in sentences helped me to reinforce their meanings."*

2) Enhancement of Writing Skills:

Many participants noted enhancements in their writing abilities due to the activity. Writing paragraphs and sentences helped them practice and develop their writing abilities.

Student 4 commented on this point by noting, *"It was good for my writing skills. It helped me to make sentences about the words that I learnt from the vocabulary journal."*

Student 6 noted, *"The feedback we receive from the teacher at the end of the lesson is very helpful for writing tasks."*

Student 7 expressed the same benefit by saying, *"We learnt various words that we can use in our writings. It was very beneficial."*

Student 8 reported that he found the activity beneficial by stating, *"We practiced the usage of some new words and it improved my writing skills."*

Student 11 wrote, *"My writing skills developed with this activity."*

3) Beneficial for Exam Preparation:

One participant mentioned that the activity helped him prepare for writing and language exams. Writing with B2 vocabulary was seen as particularly useful.

Student 2 reflected on this aspect by saying, *"Writing paragraphs with B2 vocabulary helps me prepare very well for both writing and language exams."*

4) Creativity and Learning New Words:

Participants found the activity beneficial for creativity and learning new words. Writing stories helped them expand their vocabulary and express themselves.

Student 5 highlighted this benefit by noting, *"It was beneficial for our creativity. Moreover, we learnt new words that we didn't know before*."

Student 9 mentioned this aspect by writing, "*These kinds of short story activities are the best way to learn vocabulary because we use those words to express ourselves*."

Student 11 wrote, *"It also improved my thinking skills."*

Student 12 stated*, "It improved my thinking ability. I learnt how to use words."*

Student 13 commented on the same aspect by stating, *"During this process, both my English and my creativity have improved significantly."*

Student 15 noted, *"Writing a paragraph based on a photo helped me combine my imagination with English."*

5) Positive Learning Experience:

Participants described the activity as relaxing, entertaining, and instructive. They had fun while applying new vocabulary and improving their writing skills.

Student 8 reflected on his experience by noting, *"It was a relaxing, entertaining and instructive activity. I had fun."*

Student 11 wrote, *"I had fun."*

Student 13 stated, *"Working with different websites and methods to study vocabulary and practice writing each week has been very productive. Writing with stream of consciousness was enjoyable."*

The Themes about the Perceived Challenges:

1) Difficulty in Constructing Sentences:

Some participants struggled with constructing sentences, especially in applying words accurately based on their meanings.

Student 1 referred to this challenge by noting, *"I had difficulty in constructing sentences."*

Student 7 wrote*, "I am still struggling with some grammar rules when I write something."*

Student 12 noted, *"It was difficult to write the text. The words that we don't know well from the unit challenge us."*

2) Challenge in Finding Topics:

Some participants cited difficulty in finding topics for writing. Choosing appropriate words was difficult.

Student 4 highlighted this issue by saying, *"Finding the topic was quite hard for me."*

Student 8 reflected on the same aspect by noting, *"Choosing words and writing a story were challenging."*

Student 11 stated, *"Understanding the photo and thinking about a story about it was hard."*

3) Difficulty in Using Words Appropriately:

Participants found it challenging to use newly learned words appropriately according to their meanings, especially within sentences.

Student 3 described this challenge by stating, *"It was difficult to use the words in the text in accordance with their meanings."*

Student 6 expressed the same issue by noting, *"Sometimes, using the newly learned words appropriately according to their meanings can be challenging."*

Student 9 noted, "*It was challenging to use words whose meanings I didn't know within sentences."*

Student 14 reflected on the same aspect by saying, *"It was very challenging to use the new words I learned."*

Student 15 wrote, *"It was challenging to select appropriate words from the Vocab Journal."*

Activity 8: Digital Escape Room

The survey responses about the digital escape room game highlighted several recurring themes regarding its perceived benefits and challenges. The summary of these themes is as follows:

The Themes about the Perceived Benefits:

1) Helpful for Vocabulary Acquisition:

Participants found the activity very helpful for grasping the meanings and different forms of words. It improved their vocabulary knowledge and helped them understand when to use words correctly.

Student 1 mentioned this aspect by saying, *"It was very helpful, it helped me understand the meanings and different forms of the words."*

Student 3 reflected on the same benefit by noting, *"I learnt new words and different word forms."*

Student 10 wrote, *"This activity was beneficial for me because it helped me to understand the meanings of the target words deeply."*

Student 12 stated, *"I learned the correct usage of some words."*

Student 13 noted, *"It was useful for practicing word forms. It's beneficial to have different activities each week."*

2) Enjoyable Learning Experience:

Many participants described the activity as joyful, fun, and entertaining. They enjoyed the game-like aspect of learning, which made it more memorable and engaging. Participants noted improvement in their English skills due to the activity. It helped them memorize and recall words, learn different word forms, and understand the meanings of words better.

Student 2 reflected on this aspect by writing, *"It was a really beneficial activity. It was very useful for memorizing and recalling words. While doing it, both my English skills improved, and I had fun. We can say it's a fun version of studying. Thanks to this, I became more dedicated to my studies. I learned how to use words in different forms in sentences."*

Student 5 expressed his thoughts about this point by saying, *"It was joyful and fun. It helped us to memorize the words."*

Student 6 highlighted the same point by stating, *"I enjoyed the game, it was a different experience. I learned different forms of words. It is more memorable to learn from the game than from normal paper."*

Student 8 wrote, *"It was a lot of fun, we learned new words and their forms. It improved my vocabulary."*

Student 9 stated, *"It was a fun activity to grasp the meanings and forms of the words."*

Student 11 referred to the same benefit by saying, *"I think it was a very beneficial activity. It was entertaining, fun, and educational at the same time. It helped us understand the meanings of words better."*

Student 14 noted, *"I believe this activity made other forms of words more permanent in my mind. At the same time, it made the lesson even more enjoyable."*

Student 17 commented on the same aspect by noting, *"It was fun, I liked it. I learned some new words and other forms. Games help me remember the words later."*

3) Interactive and Collaborative Learning:

The interactive nature of the activity enabled participants to work as a team, test and improve their vocabulary knowledge, and learn from different sources such as definitions, pictures, and videos.

Student 1 referred to the collaborative aspect of the activity by saying, *"It enabled us to work as a team."*

Student 4 noted, *"It was great to test and improve our vocabulary knowledge as a team."*

Student 7 wrote, *"We found words from definitions, pictures and a video. They were helpful to remember the words. It improved my vocabulary knowledge."*

Student 15 reflected on the same benefit by noting, *"It was very enjoyable because there were different websites and activities like solving puzzles and finding words from objects. It taught words and their other forms."*

Student 16 stated, *"Learning through an interactive game was quite good. We learned the forms of words. I think it was also a good activity for vocabulary review."*

The Themes about the Perceived Challenges:

1) Difficulty in Consensus and Finding Words:

Some participants found it difficult to agree on shared ideas, to find specific words within the activity, or to identify words from the assigned video.

Student 1 reflected on this issue by noting, *"It was challenging to come to a consensus on shared ideas."*

Student 4 wrote, *"Finding the correct words was challenging."*

Student 12 stated, *"As there are multiple words with the same meaning, we couldn't decide which word we should write."*

Student 15 noted, *"It was quite challenging to find the correct word by watching a video."*

2) Challenges with Word Forms:

Participants mentioned difficulties in using different word forms correctly.

Student 3 commented on this aspect by noting, *"Using different word forms was hard."*

Student 6 highlighted this same issue by saying, *"It was a bit challenging to use the words in the correct form."*

3) Technical Challenges:

A few participants experienced difficulties with technical aspects such as opening and keeping track of websites on tablets.

Student 3 wrote, *"The escape room concept was challenging."*

Student 13 stated, *"Opening and keeping track of the websites on the tablet was difficult."*

Given all the themes about the perceived benefits, Figure 4 below demonstrates the main benefits reported across the activities, highlighting common themes and positive outcomes experienced by participants.

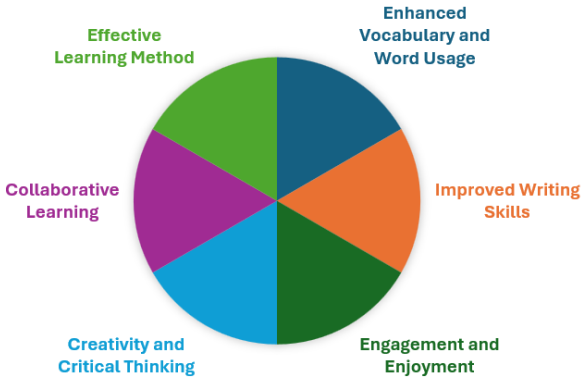


Figure 4. The Main Themes of the Perceived Benefits Identified Across the Activities

Given all the themes about the perceived challenges, Figure 5 below shows the main challenges encountered across the activities, helping to identify common themes and areas of difficulty for participants.

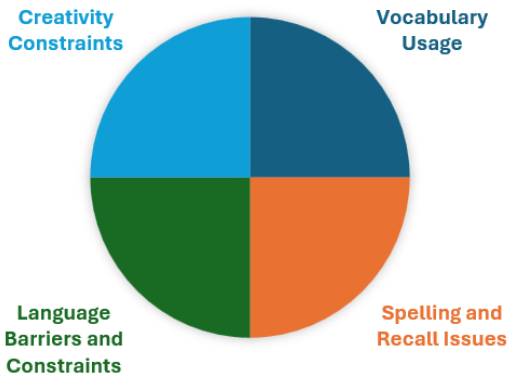


Figure 5. The Main Themes of the Perceived Challenges Identified Across the Activities

4.1.2.2 The analysis of the final questionnaire

The final questionnaire included seven questions. The main themes found on a question-by-question basis are as follows:

Question 1: What is your experience of using online application-integrated production-based vocabulary activities?

1) Beneficial for Vocabulary Improvement:

Participants consistently expressed that the activities were effective in improving their vocabulary knowledge. They found the activities useful and instructive for learning new words and understanding their meanings. They felt that their vocabulary expanded, and they were able to use newly learned words correctly in sentences, leading to practical improvement in their language skills.

Student 1 reflected on this benefit by noting, *"I think they were very beneficial. It was good for me to see and improve my own vocabulary knowledge."*

Student 9 wrote, *"The activities we did were very instructive because we used the newly learned words, which helped me fully understand the words. This last test was also good to see what I know and what I don't know."*

Student 10 described her experience as "beneficial" by stating, *"because they helped me to improve my vocabulary knowledge. Whenever we practiced and revised the vocabulary, they stayed in my mind much stronger than before."*

Student 14 stated, *"Thanks to these activities, my vocabulary expanded, and by using the words I learned, I developed not only theoretically but also practically."*

Student 16 noted, *"They were effective in learning English vocabulary and taught us how to use newly learned words correctly in sentences."*

2) Positive Learning Experience:

Many participants described their experience as positive, enjoyable, and informative. They found the activities fun, engaging, and effective in enhancing their vocabulary knowledge.

Student 5 commented on this aspect by saying, *"It was a positive experience for me. My vocabulary improved, and I became more informed about word forms and usage"*.

Student 7 wrote, *"Most of them were fun and effective, but I particularly liked the post-test we took and the acrostic poem writing."*

Student 17 stated, *"The activities we did in class were very enjoyable and helped me reinforce the new words."*

3) Motivation and Engagement:

The activities were noted to increase motivation for the lesson, keep participants energized, and actively engage them in using their vocabulary journals. They felt motivated to learn B2 vocabulary and appreciated the variety of activities.

Student 3 mentioned this benefit by noting, *"I found them useful, they motivated me to learn new words."*

Student 4 stated, *"The activities were very beneficial and motivated us to use our vocabulary journals actively. They helped me to understand the meanings of the words in the journal in a better way."*

Student 8 noted, *"The activities we do in class increase my motivation for the lesson and keep me energized even if I'm tired."*

Student 15 reflected on the same aspect by writing, *"They motivated me to learn the B2 vocabulary."*

4) Enhancement of Writing and Creativity Skills:

Participants highlighted the activities' contribution to enhancing their writing, creativity, and English skills. Activities like comic strips, story completion, and stream of consciousness were particularly enjoyable and beneficial for productivity and creativity.

Student 6 commented on this benefit by saying, *"All the activities were very beneficial. Especially seeing different ideas in the writings we did as a group contributed to my self-improvement."*

Student 12 wrote, *"They were generally fun, they enhanced my creativity, and they were informative."*

Student 13 mentioned the same aspect by noting, *"Comic strips, story completion, and stream of consciousness activities were very enjoyable for productivity and creativity. Trying to complete a short story contributed to my English and writing skills a lot."*

Student 16 noted, *"I also believe they enhanced my writing and creativity skills."*

Question 2: What skills did you practice while doing these activities?

1) Vocabulary Acquisition and Usage:

Participants focused on learning the meanings, usage, and different forms of words. They also practiced collocation use, word formation, and expanding their word knowledge through the activities.

Student 1 reflected on this aspect by noting, *"I learned the meanings, usage, and different forms of words."*

Student 3 highlighted the same skills by writing, *"We worked on the usage of words in sentences, their different forms, and collocations."*

Student 4 stated, *"We learned different word forms and spellings of words."*

Student 9 noted, *"We improved our spelling, word formation, collocation use, word knowledge."*

Student 14 wrote, *"I learned the usage, spelling, and pronunciation of words."*

2) Writing Skills:

Writing was a prominent skill practiced, encompassing creative writing, spelling, researching, and closely examining writing for mistakes. Participants improved their spelling, grammar, and collocation usage.

Student 1 commented on this aspect by stating, *"While doing the activities, I felt that I also improved in terms of grammar."*

Student 2 stated, *"We practiced creative writing. While checking our writings with our teacher, we learned the correct use of word forms and collocations."*

Student 6 wrote, *"The writing activities we did were excellent practice for writing exams, and they were the most beneficial activities for me."*

Student 8 highlighted the same point by noting, *"I practiced writing and my spelling skills improved in these activities."*

Student 13 noted, *"We practiced creative writing skills. Looking closely at everyone's writing after writing activities contributed to better understanding of personal mistakes."*

3) Collaboration and Decision Making:

Collaborative skills were exercised through teamwork, making decisions with friends, and problem-solving.

Student 3 mentioned this by stating, *"During the activities we did with our friends, we experienced making decisions together."*

Student 5 stated, *"We practiced problem solving and decision making with friends, and creative thinking."*

Student 14 noted, *"Our communication skills, problem-solving, and decision-making abilities improved during group activities. I learned words from my friends."*

4) Technology Utilization:

Technology use was highlighted as participants utilized online dictionaries, online applications, and technology for writing and research purposes. They also learned to use technology more effectively through these activities.

Student 4 highlighted this aspect by saying, *"We learned how to do research on a word by using online dictionaries and how to use some online applications."*

Student 5 wrote, *"We practiced technology use and online dictionary use."*

Student 14 noted, *"We also learned to use technology more effectively."*

Question 3: What did you find challenging while doing these activities?

1) Difficulty Using Newly Learned Words:

Participants found it challenging to apply newly learned vocabulary in different contexts and to integrate them meaningfully into sentences or activities.

Student 1 mentioned this challenge by noting, *"It was difficult to use the newly learned words in different contexts."*

Student 3 wrote, *"Trying to use the newly learned words was challenging."*

Student 4 stated, *"Using the target words meaningfully was challenging, but at the same time it was very effective."*

Student 11 highlighted the same issue by noting, *"Using new words in sentences was challenging."*

Student 14 noted, *"Using newly learned words was challenging."*

2) Creativity Challenges:

Creativity challenges were noted, particularly in activities such as story writing, poetry writing, and creating comic strips. Participants found it challenging to generate creative ideas independently but found group collaboration helpful in overcoming this challenge.

Student 6 reflected on this challenge by stating, *"The comic strip activity was challenging in terms of creativity, but since we did it as a group, we shared ideas and came up with a good result."*

Student 7 noted, *"Meaningful poetry writing exercise, and puzzle activity were difficult, but I think they were the most effective exercises."*

Student 12 wrote, *"Story writing was challenging and exhausting."*

Student 13 highlighted the same point by stating, *"I was having difficulty with creativity in the initial activities. This problem was overcome by conducting the activities in group format, and afterward, I became able to write on my own as well."*

3) Difficulty with the Tests:

Participants mentioned that tests were too long, leading to fatigue and tiredness during completion. The length of tests affected their performance and engagement.

Student 2 commented on this issue by noting, *"The tests were too long, and I got tired."*

Student 11 wrote, *"In the tests, the parts were so long."*

Student 15 stated, *"The tests were too long, I got tired while taking them."*

Moreover, the word completion sections of the tests were identified as particularly difficult. Participants found these sections challenging but acknowledged their effectiveness in enhancing creativity and vocabulary usage.

Student 5 mentioned this issue by noting, *"It was actually difficult when we were given the first two letters of words in the tests and asked to provide the correct words, but it's undeniable that this part enhanced creativity."*

Student 6 wrote, *"The word completion sections of the vocab tests were really difficult."*

Student 7 noted, *"The word completion section in the pre- and post-tests was difficult."*

Student 9 highlighted the same challenge by stating, *"The word completion sections in the tests were difficult."*

Question 4: What do you think about the use of technology in vocabulary lessons?

1) Enhanced Engagement and Motivation:

Participants expressed that technology usage in vocabulary lessons made the activities more enjoyable and engaging. They found it beneficial for maintaining concentration and motivation, leading to increased participation and interest in the lessons.

Student 1 highlighted this aspect by saying, *"It helped us concentrate on the activities we did in the lessons more and made vocabulary studies enjoyable."*

Student 3 wrote, *"It was beneficial. It teaches us while entertaining us and motivates us."*

Student 5 commented on the same point by stating, *"I find it beneficial for helping us learn vocabulary in a fun way."*

Student 8 stated, *"Easier access to information increases our motivation."*

Student 11 noted, *"It is absolutely necessary because it makes the lessons more colorful and enjoyable."*

Student 16 reflected on the same aspect by writing, *"It was very useful and sufficient. The use of technology motivated us."*

Student 17 expressed the usefulness of technology by noting, *"It was nice to use different platforms, we never got bored because there was always a different activity. It motivated us."*

2) Facilitated Learning and Recall:

Some participants mentioned that technology usage facilitated learning and helped them remember words better. They found activities including cartoons, photos, and games effective in aiding vocabulary retention and recall.

Student 1 stated, *"It helped me understand and remember the meanings of words."*

Student 2 commented on this point by noting, *"It was good, it made learning vocabulary easier, helped us connect to the lessons more quickly."*

Student 6 wrote, *"I think activities like designing cartoons and making puzzles are more directed towards students' efforts and are more useful in terms of the retention of vocabulary."*

Student 13 reflected on this point by writing, *"It was effective in terms of concentration. It helped us remember the words better."*

Student 14 noted, *"I enjoyed the lessons much more thanks to the use of technology. It became easier for me to remember the words."*

Student 15 stated, *"We used photos, watched a video, and played games during vocabulary activities and those were good for vocabulary practice. They helped us remember the words more easily."*

3) Efficiency and Accessibility:

Many participants appreciated the efficiency and accessibility offered by technology, including the capability to work simultaneously on shared documents or access digital materials easily. They highlighted the reduction in paper waste and the convenience of using digital resources.

Students 2 and 12 reflected on the reduction in paper waste by stating, *"It's beneficial because it reduces paper waste."*

Student 4 reflected on this aspect by stating, *"In my opinion, the use of technology is effective for our vocabulary improvement. By using shared documents, we could see what*

our friends produced as well, which enabled us to see different uses of target words and we understood different uses of words."

Student 7 highlighted the same point by writing, *"I think we used it sufficiently and effectively. It was also very effective to see everyone's writing and receive feedback from our teacher."*

Student 9 wrote, *"I find it generally beneficial. Everyone working simultaneously on the same file or page was very effective."*

Student 10 stated, *"It helps us a lot because using technology fosters our speed and we can save much more time for practicing."*

Question 5: How did the online application-integrated production-based activities affect your vocabulary knowledge?

1) Improvement in Vocabulary Knowledge:

Participants consistently reported that the activities led to an improvement in their vocabulary knowledge. They noted that they learned new words, their meanings, and various forms through these activities.

Student 2 commented on this aspect by writing, *"They improved my vocabulary knowledge, especially the last test we had made me realize that I have improved."*

Student 3 highlighted the same point by noting, *"They increased my vocabulary knowledge. I learned that words can have positive or negative meanings. I learned that 'greedy' has a negative connotation."*

Student 8 expressed his experience by stating, "*They improved my vocabulary knowledge, I learnt meanings of words, their other forms and how to use them."*

Student 9 noted, *"It was good for me to see my shortcomings. They improved my vocabulary knowledge a lot."*

Student 10 wrote, *"I learnt so many new words especially while doing these activities."*

Student 11 stated, *"I saw my mistakes and understood how to study new words."*

Student 14 reflected on the same point by saying, *"I learned the meanings, uses, spellings, and pronunciation of words."*

Student 15 stated, *"These activities affected my vocabulary knowledge positively because we learned the meanings of the words and how to use them in different contexts during the lessons."*

2) Positive Impact on Creativity and Writing Skills:

Several participants mentioned that the activities positively impacted their creativity in writing and contributed to better writing skills. They felt that using newly learned words in creative tasks made those words more memorable and reinforced their understanding.

Student 5 reflected on this aspect by noting, *"I can write better paragraphs now. I learnt all the forms of some words, and I can remember the meanings of most words quickly."*

Student 6 highlighted the same point by saying, *"They improved my creativity in writing. The fact that we had to use the new words we learned in creative activities made those words permanent in my mind."*

Student 7 noted, *"They definitely increased my vocabulary knowledge because now I have a better understanding of the words that I have to use or that will be more effective if I use them in my writings."*

3) Beneficial Feedback and Learning from Mistakes:

Many participants emphasized the importance of feedback provided during the activities, which helped them identify and learn from their mistakes. They appreciated the opportunity to correct errors and improve their vocabulary knowledge through feedback sessions.

Student 4 commented on this aspect by stating, *"They didn't develop my level rapidly, but I got so many benefits. I learnt from our mistakes a lot while you were giving feedback to us. We worked on word formation, spelling, collocations and meanings of words."*

Student 6 wrote, *"For example, we used the word 'outnumber' incorrectly while creating a cartoon with my partner, but thanks to our teacher's feedback, I have learned the correct usage permanently."*

Student 13 noted,

> Going over each word and correcting them one by one at the end of each activity helped me see and understand my personal mistakes. Actually, looking at others' mistakes also contributed a lot to me because I felt like I was looking at my own mistakes again because they were making my possible mistakes.

Question 6: How do you assess your performance in this project: successful or failed?

1) Successful Performance:

Many participants viewed their performance in the project as successful. They noted improvements in their vocabulary, creativity, and active participation in activities. Some specifically mentioned achieving high grades or feeling confident about their performance relative to their peers.

Student 2 expressed his satisfaction with his performance by saying, *"It is very good. I think I was successful."*

Student 4 reflected on his performance by noting, *"My vocabulary has improved, and I've expanded my word bank. I think I was successful."*

Student 5 wrote, *"I think I could have been in the top three in the class, but it was a long and difficult test. When it comes to vocabulary, I believe I'm better than most people."*

Student 6 stated, *"I think I was successful. I did these activities in collaboration with my friends and improved myself."*

Student 7 noted, *"I think I was successful. I got the highest grade."*

Student 10 commented on her performance by noting, *"I think I was successful as I took part in all the activities actively."*

Student 13 wrote, *"As the activities progressed and my vocabulary and creativity improved, I began to produce better results."*

Student 14 found himself successful by saying, *"I tried to be as active as possible. I hope I have been able to be."*

Student 15 stated, *"I assess my performance good in this project because I learnt a lot from the activities."*

Students 16 and 17 also described their performance as successful by noting, *"I tried to focus as much as possible and stay active. I think I was successful."*

2) Room for Improvement:

Some participants felt that they could have performed better or achieved higher grades. They identified areas where they believed they fell short, such as needing to study more outside of class or paying closer attention to vocabulary study.

Student 1 commented on his performance by writing, *"I see it as average; I think I need a bit more time to internalize the words we learned and practiced."*

Student 5 reflected on his performance by noting, *"I could have got a better grade. I think I am better than this grade. It was a very difficult and long test."*

Student 8 wrote, *"I have to study more, I think I couldn't show my real performance, I am better than my score."*

Student 9 stated, *"I could be so much better but I'm trying my best to gain all benefits from these activities."*

Student 11 expressed her thought about her performance by saying, *"I should pay more attention to vocabulary study."*

Student 12 noted, *"I don't think I was good enough. I usually don't take action. I don't study outside the class."*

Question 7: What do you suggest for further vocabulary improvement?

1) Continuation of Activities:

Many participants conveyed their wish for the vocabulary activities to continue. They found the activities beneficial and effective for improving their vocabulary and suggested that similar activities should continue in the future.

Student 1 wrote, "*These activities should continue."*

Student 2 commented on this by noting, "*These activities are very good. There couldn't be anything better. We even learn new words while sharing our opinions about the activities."*

Student 6 expressed her thoughts by giving an example,

> For example, in an activity, you made us choose a photo and asked us to describe it. I think we should have more activities like this because it helps us use our creativity. Additionally, providing feedback after each activity is very beneficial for understanding what we need to do next.

Student 13 noted, "*I think there may be more activities where students are given the beginning of a story and they need to complete the rest, or they are asked to describe a picture."*

2) More Assessments:

Some participants suggested incorporating more tests or assessments to further enhance vocabulary improvement. They mentioned the usefulness of tests in evaluating their progress and preparing them for exams.

Student 3 reflected on this point by saying, *"We could have more tests."*

Student 7 wrote, *"I would like the activities like the ones in the last test to continue because they prepare us for the exam."*

Student 17 stated, *"Questions similar to those in the vocabulary test were helpful and could be done more frequently."*

Furthermore, some participants suggested revising challenging sections of the tests and decreasing the number of the questions.

Student 5 highlighted this issue by stating, *"Tests should be a bit shorter."*

Student 6 noted, *"The word completion section of the vocabulary tests could be revised because it is very challenging for our level."*

3) Variety in Activity Types:

One participant recommended incorporating a variety of activities, including movie watching and playing games through interactive platforms like Kahoot or Quizlet to keep the learning process engaging and diverse.

Student 15 expressed her ideas on this by writing, *"I suggest doing similar activities more, watching movies, playing Kahoot or Quizlet games."*

4.1.2.3 The analysis of the focus group interview

The focus group interview comprised the same seven questions asked in the final questionnaire, and it was carried out with five voluntary participants (with students 5, 7, 11, 15, and 16). The main themes found on a question-by-question basis are as follows:

Question 1: What is your experience of using online application-integrated production-based vocabulary activities?

1) Vocabulary Enhancement:

Participants found the activities effective for learning English vocabulary, making lessons more interactive and helping with vocabulary retention.

Student 16 said, *"First of all, the activities we did were definitely effective in learning English vocabulary. They made our lessons more interactive."*

Student 15 supported this view by saying, "*The activities we did were both suitable for our level and helped us learn how to use words in context."*

Student 5 also commented on this aspect by stating, *"I think that the activities we did were beneficial. I was already aware of my shortcomings in terms of vocabulary, but I saw more clearly in which areas I was lacking."*

2) Engaging and Enjoyable Learning:

The activities made the lessons more interactive and engaging, which increased motivation and participation. Participants appreciated the range of activities and the incorporation of technology, which kept the lessons interesting and dynamic.

Student 16 expressed his satisfaction with doing a variety of activities by saying, "*We've been doing these activities since the first week, and every Friday, we have a different activity. I think this really contributed to us, we did various activities and we learned. If we had done the same activities every week, it could have been boring."*

Student 7 reflected on the benefits of doing enjoyable activities by stating, *"Thanks to the activities, we both learned and had fun in our lessons. I learned new words and collocations in different ways from all the activities. They helped what I learned to stick in my mind."*

3) Grammar and Writing Improvement:

Alongside vocabulary, the activities also helped improve grammar and writing skills. Participants noted that their ability to construct sentences and paragraphs improved as a consequence of the activities.

Student 11 found the activities beneficial for preparing for exams and quizzes, as they focused on words and contexts likely to appear in assessments. He felt that his writing skills improved through these activities. He said,

> I also think that these activities help us prepare for exams and quizzes because the words we encounter in exams are mostly from the vocabulary journal. Unfortunately, knowing only the meaning of the words in the journal doesn't

work in writing and speaking exams. I believe that working on the usage of words has improved me, especially in writing paragraphs.

Student 7 agreed with this opinion by saying, "I think these activities are very useful because learning the meanings of words is not enough, we need to learn how to use them in sentences. I also think they improved my grammar and writing."

4) Use of Technology

The integration of technology made lessons more interesting and facilitated quicker learning.

Student 15 highlighted this point by stating, *"Because technology was involved, I can say that I was more motivated during the lessons."*

Question 2: What skills did you practice while doing these activities?

1) Technology Use for Learning:

Participants improved their ability to use technology for educational purposes, including digital resources and online dictionaries.

Student 15 focused on this aspect by saying, *"We used technology for learning purposes. I learned how to use online Cambridge and Longman dictionaries."*

Student 16 commented on the same point by stating, *"It also improved my use of technology. Additionally, it was quite helpful in understanding the importance of using an English-to-English dictionary."*

Student 11 stated, *"Especially learning how to use an online dictionary was beneficial for me."*

Student 7 agreed with his friends' statements by saying, *"I can also say that I improved my ability to use digital resources effectively."*

2) Collaboration:

The activities fostered collaborative skills, with students working in pairs and groups, learning from each other, and developing interactive learning skills.

Student 15 highlighted this point by saying, *"We learned to collaborate in pairs and groups."*

Student 11 reflected on the same aspect by stating, "*When working together with our friends, we actually learned a lot from each other."*

Student 7 said, *"Perhaps I can add that we improved our interactive learning skills."*

Student 5 added, *"We discovered how to work more efficiently with our friends."*

3) Writing and Contextual Application:

Participants practiced writing skills by using words in different contexts, enhancing their ability to construct meaningful sentences and paragraphs. The activities helped students understand and use different word forms and collocations correctly.

Student 15 commented on this point by stating, *"I learned to use words with their collocations. Since we used words in different contexts, I feel that my writing skills have improved as well."*

Students 7 and 16 said, *"I learned how to use different forms of words in sentences."*

Student 11 highlighted the same skill by saying, *"I can also say that it contributed to the development of my writing skills."*

Student 5 stated, *"I believe that using words in context was the most important aspect. Knowing the meaning of a word but not being able to actively use it doesn't really serve much purpose."*

4) Creative Thinking:

The activities encouraged creative thinking, allowing students to engage in tasks that required innovative approaches and solutions.

Student 7 mentioned this aspect by saying, "*In addition to these, we learned to think creatively."*

Question 3: What did you find challenging while doing these activities?

1) Difficulty with Tests:

The 100-question tests, especially the word completion sections where participants were given only the initial letters of words, were found to be exhausting and challenging by many participants.

Student 15 commented on this difficulty by saying,

> I want to talk about the tests. The 100-question tests we did, both at the beginning and at the end, were very tiring. Especially, the part where only the initial letters of the target words were given in the second section of the test was very difficult. Even if it were in Turkish, I think I would struggle, you never know what to put there.

Students 11 and 16 agreed with this thought.

However, some participants found the challenging test sections beneficial for improving creativity and vocabulary knowledge, even though they were difficult.

Student 5 was one of them. He said,

> I consider it to be one of the most beneficial activities because those kinds of questions also enhance our creativity. For example, in word formation questions, when I think of a word, other forms of that word come to my mind immediately. Even if I don't know anything, if it fits fluently in the sentence, I usually write it down, and it's usually correct. But when the first two letters of words are given, I stop to think about which word will come there. You have to consider the correct form, the correct word, and write the word correctly. So, they actually require three things at the same time. That's why I think these parts in the tests are the most useful. For example, in multiple-choice questions, you can choose the one that seems more suitable. Usually, those who don't know English do

> that, and they just take points because of that, not because of their knowledge. There could be more questions like the second part, for example, if all 100 questions had been like that, or if we had done these types of activities for 2-3 weeks, we would have improved our vocabulary even more.

Student 7 supported this opinion by saying,

> I definitely think it's beneficial too. You're improving yourself in the end. Maybe you don't know a word in a multiple-choice question, at worst, you guess and there's a chance you get it right. You're not really learning anything in multiple-choice questions.

2) Creativity Challenges:

Activities that required a high level of creativity, such as writing acrostic poems, were challenging because they demanded a good command of vocabulary, rhyming skills, and meaningful content creation.

Student 7 mentioned this aspect by stating,

> Acrostic poem-writing activity was quite challenging because while trying to write a poem, you're also trying to rhyme, you need to know a lot of words, and they have to fit in meaning-wise as well as rhyme. I think that was difficult, that's what comes to mind as a challenging activity for me.

Student 16 agreed with this idea.

3) Difficulty in Word Usage:

Using newly learned words in meaningful contexts was initially challenging for some participants. Remembering different words and their appropriate use in various contexts was a common difficulty.

Student 11 reflected on this aspect by saying, *"At the beginning, using newly learned words was very challenging for me. I also struggled to remember different words related to the contexts we were creating, but I think all of these helped me improve."*

Student 15 agreed with this.

Question 4: What do you think about the use of technology in vocabulary lessons?

1) Fun Element:

Technology made classes more colorful and enjoyable, helping students to grasp new words more quickly and effectively.

Student 15 mentioned this aspect by saying, *"Using technology makes classes more colorful and enjoyable."*

2) Interactive Learning:

The use of technology facilitated interactive learning experiences. Feedback was visible to all students simultaneously, which enabled them to gain knowledge from each other's writing and mistakes.

Student 15 focused on this aspect by saying, *"When our teacher gave feedback on what we wrote, we could all see it at the same time, and we learned from each other's writing and mistakes."*

3) Efficiency in Learning:

The use of technology made the vocabulary learning process faster and more efficient because technology provided easy access to resources such as online dictionaries and different sources that help with understanding word usage, sentence formation, and collocations.

Student 7 commented on this by stating,

> In this century, technology is a necessity. Therefore, we should learn how to use it for our education. I think using technology while learning vocabulary is very beneficial because we can easily access everything related to the usage of a word in a sentence or its collocations from online dictionaries or different sources.

Student 15 added,

> When learning the words in the vocabulary journal is so important, I think only giving the vocabulary journal as a booklet to the students is not enough. I learn words by writing more effectively because writing makes them more memorable for me, so I think we are very lucky to have these activities. I think technology helped us learn and grasp the new words more quickly.

Student 16 supported this idea by saying, *"I think technology has made our vocabulary learning process easier and faster."*

Students 5, 11, and 16 agreed with their friends.

Question 5: How did the online application-integrated production-based activities affect your vocabulary knowledge?

1) Vocabulary Improvement:

The activities significantly increased the participants' vocabulary knowledge. All participants noted a richer vocabulary as a result of the activities. The activities helped participants use the learned words correctly in various contexts.

Student 7 commented on this aspect by saying, *"I believe they have increased my vocabulary knowledge. The lessons I got the most out of were the vocabulary lessons."*

Student 15 highlighted the same point by saying, *"They helped in expanding my vocabulary and using the learned words correctly."*

Student 5 stated, *"I have a richer vocabulary now."*

Student 11 said, *"They definitely increased my vocabulary and actually made me love English."*

Student 16 agreed with his friends.

2) Enhanced Writing Skills:

Participants reported improvements in their writing skills. Using new vocabulary in sentences contributed to better writing abilities.

Student 7 reflected on this aspect by stating, *"I can say that my writing skills have also improved because we used the words in sentences."*

Student 15 referred to the same point by saying, *"They also facilitated my learning by allowing me to see my friends' different perspectives. I can also say that they contributed to my writing skills."*

3) Self-awareness and Improvement:

The activities helped participants identify areas for improvement in their English skills, guiding them on what to focus on next.

Student 5 mentioned this aspect by saying, *"These activities showed me what I need to improve in my English."*

Question 6: How do you assess your performance in this project: successful or failed?

1) Successful Performance:

Participants observed significant improvement from their initial test scores to their final test scores, indicating progress over the duration of the project. Therefore, they considered themselves successful.

Student 16 commented on this point by saying, *"I think I was successful. I tried to focus as much as possible on the activities we did, and when I did, I achieved productive results. I got 41 from the first test and 75 from the last test."*

Student 15 reflected on her success by stating, *"I also believe that I was successful. I think my performance in class was good as well. I got 20 from the first test and 64 from the last test."*

Student 7 said, *"I think I was quite successful as well. I learn better when I have fun. I believe I have improved myself. I got 44 from the first test and 95 from the other one."*

Student 5 also expressed his satisfaction with his performance by saying, *"I was active in the lessons because I took the activities seriously, and I helped my friends as well. I think I did a pretty good job."*

2) Room for Improvement:

Some participants felt that they could have performed better during the project and in the tests, but they still recognized their progress.

Student 16 highlighted this by stating, *"I wasn't always very focused in class. I think if I had focused more, I could have achieved better results."*

Student 5 said, *"I got 34 from the first test and 70 from the last test. I wasn't very aware of the situation in the first weeks, but as the weeks progressed, I thought about how I could benefit more from these activities."*

Student 11 commented on her performance by saying,

> I got 16 from the first test and 50 from the other one. I don't think I'm very good, but I'm not bad either. I think my English is not as good as my friends', so my friends usually did more work in pair or group activities.

Question 7: What do you suggest for further vocabulary improvement?

1) Inclusion of Speaking Activities:

One participant suggested integrating speaking activities alongside writing exercises to improve overall language skills. However, both he and the others also acknowledged the challenge of encouraging all students to participate in speaking activities.

Student 5 was the one who suggested incorporating speaking activities by saying,

> "All of the activities were based on writing, I think speaking activities should be included as well. But in our speaking classes, the same people always participate in the speaking activities, and the teacher can't force anyone to speak, I don't know how effective they would be."

Student 7 expressed his concern about the use of speaking activities for vocabulary learning by stating, *"I haven't seen different people speaking in speaking classes. Speaking activities may not be very effective."*

2) Emphasis on Writing:

Writing activities were seen as beneficial for learning and identifying mistakes. Participants noted that writing helped them see and correct their errors more effectively.

Student 16 supported the use of writing activities for vocabulary learning by saying, *"Not everyone may want to speak, and I also think it would be more difficult to use newly learned words in speaking activities right away. I believe that we see our mistakes better by writing and learn from our mistakes."*

3) Inclusion of More Word Completion Questions in Vocabulary Exercises:

One participant recommended increasing the use of word completion question format, which provides the first two letters of the target word, in assignments and exercises.

Student 5 said, *"I think the question format, where the first two letters of the target word are given, should be used more in assignments and vocabulary exercises distributed during the lessons.*

4) Interactive Vocabulary Journals and Continuation of Activities:

One suggestion was made to fill out vocabulary journals collaboratively with the teacher in class, which could enhance understanding and retention of new words.

Student 15 stated, *"I also think it would be beneficial for us to fill out our vocabulary journal with the teacher in class and to do more activities of these kinds."*

5) Incorporation of Educational Games:

Games like Kahoot and Quizlet were proposed as useful tools for vocabulary learning, despite their focus not being on word usage. These games were seen as engaging and effective in helping students learn new words.

Student 11 made this suggestion by saying, *"I think we could also play Kahoot and Quizlet games. Although we don't focus on how to use the words in those kinds of games, I still think they are very effective and help us learn vocabulary*."

Student 5 agreed with this suggestion.

4.1.2.4 The comparison between the final questionnaire answers and the focus group interview answers

Common Themes

1) Improvement in Vocabulary Knowledge:

- Individual Responses: Participants noted that their vocabulary improved.

- Focus Group: Participants mentioned improvement in their vocabulary knowledge.

2) Beneficial for Learning Vocabulary:

- Individual Responses: Many participants noted that the activities were helpful for acquiring new vocabulary and understanding how to use it.

- Focus Group: Participants found the activities effective for learning vocabulary, making lessons more interactive.

3) Motivational and Engaging:

- Individual Responses: Participants noted that the activities inspired them to learn and engage more.

- Focus Group: Activities were described as fun, engaging, and motivational.

4) Improvement in Writing Skills:

- Individual Responses: Utilizing vocabulary within sentences was highlighted as a beneficial aspect.

- Focus Group: Activities helped improve writing skills by using words in context.

5) Use of Technology:

- Individual Responses: Technology usage was viewed as effective, making learning easier and more engaging.

- Focus Group: Technology made lessons more interesting and facilitated quicker learning.

6) Collaborative Learning:

- Individual Responses: Collaborative activities and group work were beneficial for understanding and using new words.

- Focus Group: Group activities helped participants learn from each other.

7) Challenges in Using New Words:

- Individual Responses: Participants struggled to use newly learned words correctly.

- Focus Group: Participants expressed the difficulty in using new words correctly.

8) Creativity Challenges

- Individual Responses: Participants had difficulty in producing ideas during the activities.

- Focus Group: Activities requiring creativity were found challenging.

9) Performance Assessment:

- Individual Responses: Mixed self-assessment with recognition of successful efforts and the need for improvement.

- Focus Group: Similar mixed assessments, with some participants rating their performance as average and others as successful.

Differing Comments and Additional Insights

1) Specific Skill Development:

- Individual Responses: Focused more on learning the meanings, usage, and forms of words, with less emphasis on broader skill development.

- Focus Group: Participants mentioned particular skills such as creative thinking, interactive learning, and utilizing digital resources.

2) Suggestions for Improvement:

- Individual Responses: Suggestions were more general, with a focus on continuing the current activities and having more tests for better assessment.

- Focus Group: Suggestions included incorporating more speaking activities, using question formats that enhance vocabulary learning, and playing educational games.

3) Technology Integration:

- Individual Responses: Focused on the effectiveness of technology in making lessons engaging and facilitating learning.

- Focus Group: Emphasized the necessity of using technology in modern education and its role in making learning more interactive.

4.2 Discussion on Findings

4.2.1 Discussion on the findings of the first research question

The study's initial reseach question sought to explore how online application-integrated production-based vocabulary activities influenced university-level EFL learners' vocabulary achievement. In order to analyze this, a 100-question pre-test at the beginning of the study and a 100-question post-test at the end of the study were given to the participants, and the researcher analyzed the test scores statistically by utilizing SPSS, version 27. The findings from the analysis of the quantitative data revealed that there was a significant increase in the participants' post-test results compared to their pre-test results. This shows that the intervention that included online application-integrated production-based vocabulary activities affected the participants' vocabulary achievement positively. It is obvious that this study gave a similar result to the previous studies that were conducted in the field and that discovered a beneficial impact of web-based activities

and written-production based activities on learners' vocabulary achievement (Lee & Muncie, 2006; Lin et al., 2014; Eren, 2015; Andarab, 2019; Bayraktar Balkır & Zehir Topkaya, 2019; Cellat, 2019; Aslandemir, 2020; Tekin, 2021; Samsidar et al., 2022; Tağa & Kalenderoğlu, 2022; Yeşil, 2022; İncekar, 2023; Siddique & Rizwan, 2023).

4.2.2 Discussion on the findings of the second research question

The study's second research question was to discover what university-level EFL learners' attitudes towards the use of online application-integrated production-based vocabulary activities were. Eight weekly post-activity questionnaires, a final questionnaire, a focus group interview, and the researcher's own field notes were employed so as to collect the qualitative data. Through within-case and cross-case analysis, shared themes were identified: improvement in vocabulary knowledge, effective learning method, motivational and engaging, improvement in writing skills, use of technology, collaborative learning, and creativity and critical thinking. This section discusses these themes in detail, connecting them with previous research in the field.

A key theme highlighted was the improvement in vocabulary knowledge. Students frequently reported that the activities were effective in enhancing their vocabulary acquisition and retention. For instance, one student mentioned, "These activities affected my vocabulary knowledge positively because we learned the meanings of the words and how to use them in different contexts during the lessons." This aligns with Nation's (2001) assertion that engaging with words in multiple contexts aids vocabulary learning and retention. Moreover, students noted that using words in creative formats, like stories and poems, helped them understand and remember the vocabulary better, echoing Schmitt's (2008a) findings on the benefits of productive vocabulary use. Thus, it can be concluded that the activities implemented during the intervention proved to be useful to enhance vocabulary knowledge. As they supported students' acquisition, storing, retrieval, and application of words, they were in line with Rubin's (1981) definition of effective vocabulary teaching strategies as well. Many studies carried out previously also found out the effectiveness of using web-based production activities in helping students increase their vocabulary knowledge and retention (Tanaka et al., 2015; Bayraktar Balkır & Zehir Topkaya, 2019; Cellat, 2019; Yeşil, 2022). However, while doing the activities in the study, many students reported difficulties in using the newly learnt vocabulary, and

these challenges often led to significant learning gains. For example, one student mentioned, “Using words in the correct form was the hardest one because we are not so familiar with these words.” This statement indicates that although the activities pushed the students beyond their comfort zones, they ultimately contributed to vocabulary improvement. The other challenge they experienced was related to recall issues. As Yükselir (2008) also argues, learning new words involves a never-ending cycle of learning and forgetting until the words are fully grasped and deeply ingrained in memory. Therefore, it is a normal process for learners to forget words (Schmitt, 2000). Nagy and Scott (2000) also support this argument by claiming that learning the meanings of words and how they are used takes time. A student’s response to the impact of the online application-integrated production-based activities on his vocabulary knowledge aligns with this argument, “They didn’t develop my level rapidly, but I got so many benefits. I learnt from our mistakes a lot while you were giving feedback to us.”

Furthermore, the activities were perceived as an effective learning method because they provided the students with the chance to practice the words they need to learn as Larrotta (2011) suggests teachers to do. While doing the activities, the students were at the heart of the production process, and their related experiences were integrated into the activities, which is what Shen and Liu (2011) suggest for meaningful learning. One student stated, “In my opinion, the activities we did were both suitable for our level and helped us learn how to use words in context.” Therefore, it can be argued that meaningful learning occurred thanks to these activities because they were suitable for the students’ abilities and backgrounds. Students expressed that the structured yet creative approach of integrating vocabulary into written-production activities facilitated deeper understanding and retention. As one student reflected, “The activities were very beneficial because they helped me to improve my vocabulary knowledge. Whenever we practiced and revised the vocabulary, they stayed in my mind much stronger than before.” This observation supports Ellis’s (2003) idea, which posits that meaningful use of language in tasks enhances learning outcomes. The participants’ use of the target words in different contexts contributed a lot to their understanding of the words because the meaning of a word is significantly influenced by its context as Seis (2020) also asserts. A student’s comment about the benefit of using context while learning vocabulary also supports this claim, “I learned that words can have positive or negative meanings. I learned that

‘greedy’ has a negative connotation.” As words have different aspects, the context helps in determining the intended meaning of a word.

In addition, the theme of motivation and engagement emerged strongly from the data. Many students highlighted the fun and engaging nature of the activities. Gibson and Sodeman (2014) support the use of technology owing to its fun element that motivates digital natives in the classroom. As Huyen and Nga (2003) also claim, activities that incorporate fun elements help learners relax and become more involved in the learning process. One student’s reflection on the motivational aspect of the used activities supports this point, “The activities we do in class increase my motivation for the lesson and keep me energized even if I’m tired.” Another student noted, “We had fun and we were informed.” These findings are consistent with Stockwell’s (2013) research, which emphasizes that technology-integrated language learning can significantly boost motivation by making learning more interactive and enjoyable. The researcher’s class observations also align with the participants’ comments on this point. The activities used in the study kept learners interested and encouraged them to take an active role in the learning process. That encouraged learners to take risks and apply what they learned. This led to better retention and understanding of new vocabulary. Moreover, as learners are more likely to recall enjoyable experiences, fun activities make learning more memorable and help learners retain vocabulary and build connections between words (Mayfield, 2021). One student’s reflection on this point sets a good example, “Some of my classmates wrote funny things, which made the meanings of words more memorable in my mind.” There are also several studies in the field revealing the positive impact of enjoyable and engaging activities on vocabulary learning (Andarab, 2019; Huyen & Nga, 2003; İncekar, 2023).

Improvement in writing skills was another significant theme. The activities required students to construct sentences and texts, thereby enhancing their writing abilities. One student observed, “By using the words in sentences, I understand their meanings better. Also, writing paragraphs with B2 vocabulary helps me prepare very well for both writing and language exams.” This supports Swain’s (2000) findings that production-based activities can improve both vocabulary and writing skills simultaneously. Nation (2001) also claims that writing vocabulary helps learners retain information better due to the

memorable nature of the process. This is particularly true when learners are actively engaged in writing and using the words in context because writing vocabulary in context can improve comprehension by providing learners with a more profound understanding of the words and their meanings. This, in turn, enhances both writing and other language skills because semantic processing is activated. One student's comment on the benefit of using words in sentences can serve as an example here, "...the words we used stuck in our memory better." Also, according to Jin and Webb (2021), writing words focuses learners on the spellings and forms of words, which can improve their knowledge of word forms and enhance vocabulary learning. This view aligns with both the participants' answers and the researcher's observations in this study. An example can be provided from a student's response, "I now know all the forms of some words." As feedback is a crucial component of the writing process, the participants in the study benefited a lot from the feedback process as well. Kessler's (2009) claim about the important impact of feedback from peers and teachers on learners' vocabulary improvement was supported by many participants stating that the feedback provided to them after completing the activities contributed to their understanding of the new words and their writing skills. Although many students had language barriers and constraints while forming sentences, they overcame these challenges thanks to the feedback they received. One student stated, "It was quite beneficial to correct the mistakes we made together with the teacher. We had the opportunity to notice and correct our own mistakes."

The incorporation of technology into these activities was also well-received. Students appreciated the use of online applications, which facilitated a modern and accessible learning environment. One student mentioned, "In this century, technology is a necessity. Therefore, we should learn how to use it for our education. I think using technology while learning vocabulary is very beneficial because we can easily access everything related to the usage of a word in a sentence or its collocations from online dictionaries or different sources." This aligns with the literature suggesting that technology can enhance language learning by providing diverse and rich linguistic input (Chapelle, 2003). Participants in the study also benefitted from the interactive nature of the technological tools used in the study. As the use of technology enabled them to see their classmates' written productions and the feedback provided by the teacher simultaneously, the learning environment matched Ma's (2017) description of appropriate and sustainable learning settings in

which students can exchange their ideas, materials, and resources. An example of this can be seen in one student's comment: "Looking at others' mistakes also contributed a lot to me because I felt like I was looking at my own mistakes again because they were making my possible mistakes." Besides, according to the researcher's observations, the students were happy to learn how to use different online platforms for their studies in the study. One student noted, "It was nice to use different platforms, we never got bored because there was always a different activity." However, some participants had some technical issues while creating comic strips, making puzzles and playing the digital escape room game, but they could solve their problems easily with the help of their classmates. As Mıstık (2019) asserts, members of Generation Z are quite skilled in using technological tools, programs and applications.

Besides, collaborative learning was highlighted as a beneficial aspect of the activities. Students noted that working with their peers helped them learn more effectively. One student commented on why she found collaboration useful by stating, "because we brainstormed with my friend and helped each other in areas we didn't know." This supports Vygotsky's (1978) theory of social constructivism, which posits that learning is a social activity enhanced through interaction with others. Bouta et al. (2012) also claim that the most effective methods for raising students' cognitive engagement include collaborative learning and interaction. In this way, learners share their knowledge and experiences, creating a shared understanding of the subject matter. This process of knowledge construction and sharing can enhance comprehension and retention because students are actively engaged in the learning process. Moreover, as Nguyen (2020) argues, collaborative learning helps learners develop essential soft skills such as communication, active listening, negotiation over meaning, and conflict resolution. The participants' answers and the researcher's observations support this argument of Nguyen's (2020). One student's reflection can serve as an example here, "Our communication skills, problem-solving, and decision-making abilities improved during group activities. I learned words from my friends." The skills to which the student referred here are essential for effective learning and in personal and professional contexts.

Lastly, the activities fostered creativity and critical thinking. Students had to think critically about how to use new vocabulary in creative ways, such as in poem writing and

story writing. One student reflected, “We tried to understand the meanings of some specific words in a new and creative way which I believe helped us to feel the meaning deeply.” This aligns with research suggesting that creative tasks in language learning can stimulate deeper cognitive processing and enhance learning outcomes (Pereira, 2016). As Craik and Lockhart (1972) also suggest, when learners engage in creative and critical thinking, they delve deeper into the subject matter, making connections and gaining a deeper comprehension of the concepts. This leads to better retention and recall of knowledge. Furthermore, when learners are prompted to engage in creative and critical thinking, they often find the learning process more enjoyable and engaging as one student noted, “It was fun, and I learnt the meanings of words better and how to use them.” This can lead to increased motivation, persistence, and overall academic success (Krueger, 2022). The researcher also observed that creativity posed a challenge for the majority of the participants. However, as they continued to practice creative and critical thinking skills, they gained confidence in their abilities to generate ideas, make decisions, and take responsibility for their learning. This independence is crucial for success in academic and real-world settings. One student’s response sets a good example, “I was having difficulty with creativity in the initial activities. This problem was overcome by conducting the activities in group format, and afterward, I became able to write on my own as well.”

In summary, the results of this study indicate that university-level EFL learners had favorable views on the implementation of online application-integrated production-based vocabulary activities. The shared themes of improvement in vocabulary knowledge, effective learning method, motivational and engaging nature, improvement in writing skills, use of technology, collaborative learning, and enhancement of creativity and critical thinking reflect the multifaceted benefits of these activities. These results not only corroborate previous research in the field but also offer crucial perspectives for teachers aiming to implement innovative and effective vocabulary learning strategies. The integration of technology, coupled with creative and collaborative production tasks, appears to offer a promising approach to enhancing vocabulary acquisition and overall language proficiency in EFL contexts.

5. CONCLUSION AND SUGGESTIONS

Conclusion:

The study aimed to investigate how online application-integrated production-based vocabulary activities influenced university-level EFL learners' vocabulary achievement and to explore university-level EFL learners' attitudes towards online application-integrated production-based vocabulary activities. To achieve the study's the first goal, a pre-test and a post-test were given to a single B2 level class consisting of 17 students with an eight-week interval. Eight different online application-integrated production-based vocabulary activities were introduced to the students during this period, and the subsequent impact of these activities on their vocabulary achievement was analyzed by comparing the students' pre-test and post-test results. Pre- and post-test results of the students were statistically analyzed with the help of the SPSS program to determine if the use of online application-integrated production-based vocabulary activities significantly improved university-level EFL learners' vocabulary achievement. The quantitative data revealed a notable statistical rise in students' total scores between the pre-test and the post-test. Therefore, the quantitative findings obtained by the researcher proved that the activities employed in the study contributed a lot to the participants' vocabulary achievement.

To fulfill the study's second goal, the researcher gave the participants a post activity questionnaire after each vocabulary activity and a final questionnaire at the end of the study. A focus group interview was also done with five voluntary students at the end of the research, and as the researcher was the teacher carrying out the research in the classroom, she also used her field notes to collect the qualitative data. Through a comprehensive qualitative analysis involving post-activity questionnaires, a final questionnaire, a focus group interview, and the researcher's own field notes, several key themes emerged: improvement in vocabulary knowledge, effective learning method, motivational and engaging nature, improvement in writing skills, use of technology, collaborative learning, and enhancement of creativity and critical thinking.

The findings consistently demonstrated that students perceived the activities as highly beneficial for vocabulary acquisition and retention. The results align with existing research which suggests that using words in various contexts promotes vocabulary learning and recall (Nation, 2001). The structured yet creative nature of the tasks facilitated deep cognitive engagement and practical application of new vocabulary in meaningful contexts, which activated semantic processing that makes recalling knowledge easier (Craik & Lockhart, 1972). Additionally, the integration of technology not only made the learning process more accessible but also significantly increased student motivation and engagement. This supports Stockwell's (2013) research, which highlights the role of technology in making language learning more interactive and enjoyable. Moreover, the activities promoted collaborative learning, allowing students to gain insights from their classmates and deepen their understanding through social interaction. This collaborative aspect of the activities reflects Vygotsky's (1978) theory of social constructivism, where learning is enhanced through social interaction and collaboration. The emphasis on creativity and critical thinking further enriched the learning experience, encouraging students to use vocabulary in innovative and thoughtful ways. Although the students had difficulties related to the use of newly learnt vocabulary and creating ideas during the research, their challenges turned into benefits, and they observed improvements in both their vocabulary and writing skills.

To sum up, these results align with existing literature on the benefits of production-based vocabulary learning and the employment of digital resources in language education. The study's findings contribute valuable insights for educators and researchers seeking to enhance vocabulary teaching strategies in EFL contexts. Hence, the vocabulary activities utilized in this study can be considered as alternative ways of teaching vocabulary. However, as this study was a case study and conducted with only 17 B2 level students, further research can be done to investigate its effect on more students. Based on the findings and experience obtained throughout this investigation, several recommendations are provided under the heading "Suggestions for Future Studies."

Suggestions for Further Studies:

While the study's findings provide valuable insights, certain limitations should be admitted. The study had a relatively small sample size, restricted to a single B2 level class

consisting of 17 students in one university, which may affect the generalization of the results. Additionally, the absence of a control group in the study made it challenging to attribute improvements in vocabulary knowledge solely to the online application-integrated production-based activities. Moreover, the types of activities chosen for the study can be one of the factors that create the challenge. Some students encountered challenges in specific creative aspects, such as finding appropriate rhymes in acrostic poem writing or incorporating humor into comic creation. These difficulties may have affected their engagement and overall performance in these activities. Another limitation of the study is the potential variability in the implementation of the activities. Different students may have experienced varying levels of engagement and effectiveness depending on their individual learning styles and preferences. Furthermore, the teacher's interest, knowledge, competence, and experience are crucial in successfully implementing these activities. A lack of familiarity with the online application tools and the activity types themselves may lead to inconsistencies in results, as teachers who are less proficient with these tools and activities might not achieve the same level of success in facilitating them. Also, the activities rely on access to technological tools and the internet; without these, it would be impossible to carry out the tasks as designed. Therefore, further research can be done to investigate its effect on more students with control and experiment groups. The effectiveness of these activities can also be studied in different educational contexts and with learners of varying proficiency levels to generalize the findings. Given the fact that one participant proposed combining speaking activities with writing activities for further vocabulary improvement, further research can be conducted including spoken production activities as well.

Based on the study's findings, several recommendations can be proposed for teachers. Since having students produce texts by using newly learnt vocabulary yielded positive results in terms of vocabulary learning and retention, it can be proper to assert that teachers should incorporate production-based activities into their vocabulary lessons to enhance engagement and retention. They should focus on the practical application of vocabulary in meaningful contexts to enhance students' ability to use new words effectively. Another suggestion can be related to the integration of online applications and digital tools. In the age of technology, leveraging online applications and digital tools can create interactive and engaging vocabulary exercises, and teachers should ensure that

they choose user-friendly and accessible tools. Otherwise, they can waste lots of time while dealing with technology related issues. Moreover, teachers should promote collaborative learning in their vocabulary lessons. Designing tasks that require collaboration can foster a social learning environment, which can enhance the learning experience through peer interaction and feedback. Also, encouraging creativity and critical thinking is crucial in the process of vocabulary learning. Tasks that challenge students to use vocabulary creatively and think critically about language use should be incorporated, such as acrostic poem writing or story writing activities.

Additionally, some recommendations can be made for educational institutions and curriculum developers. Educational institutions should provide teacher training opportunities for teachers. They should offer training for teachers on how to effectively integrate technology and creative, production-based tasks into their teaching practices. And curriculum developers should create curriculum modules that incorporate technology and production-based activities for vocabulary learning, ensuring they are adaptable to different proficiency levels.

To summarize, this study has demonstrated that online application-integrated production-based vocabulary activities have a positive impact on university-level EFL learners' vocabulary acquisition and retention. The results enrich the literature by validating the benefits of production-based vocabulary learning and incorporating technology in language education. Despite the limitations, the study provides valuable insights and practical recommendations for future researchers, teachers, curriculum developers, and policymakers, all aiming to enhance the effectiveness of vocabulary teaching strategies in EFL contexts. There will be more chances and possibilities to develop an appropriate framework for vocabulary instruction in ELT as a result of new research and findings.

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APPENDICES

Appendix-1 Vocabulary Pre-Test

Vocabulary Pre-Test

This vocabulary test includes 100 questions with multiple-choice, word completion, fill-in-the blank, and word formation parts. The aim of the test is to understand your competence in B2 level vocabulary. The total score is 100. Your answers will not affect your overall course score. Read the instructions carefully before answering the questions.

PART 1: For questions 1-25, read the sentences carefully, and choose the option that best fits the sentence.

(1) My grandmother has a/an _____ to forget things, so we check to see whether she has taken her medicine every day.

a. community b. inspection c. tendency d. dictation

(2) While working together on a group project, Sarah worked in close _____ with Tom. Their project was very successful as they shared ideas and supported each other.

a. obligation b. hesitation c. investigation d. cooperation

(3) After their argument, Lisa and David spent some time alone in order to _____ their feelings and thoughts. By analyzing their situation, they discovered the problems in their relationship and gained a deeper understanding of it.

a. neglect b. examine c. convince d. exhaust

(4) The child was so scared of the doctor that he held on _____ to his mother's arm. His father couldn't take him to hospital.

a. apparently b. tightly c. humorously d. subtly

(5) _____ internet access allows us to explore and learn about different topics without any control.

a. unlimited b. unbalanced c. unconscious d. unambiguous

(6) Because of the _____ heat outside, we had to carry plenty of water. The heat was so strong that we had to wear protective clothing during our journey.

a. vague b. finite c. intense d. prior

(7) Students who do poorly on school tests often _____ themselves as failures. Therefore, in order to change the way they see themselves, parents should help them understand that low grades do not decrease their value.

a. associate b. perceive c. deprive d. restrict

(8) The company was in a bad situation _____. Before the new manager, it experienced a period of low productivity.

a. previously b. equally c. artificially d. manually

(9) Regular _____ of our local park makes it a clean and enjoyable place for everyone. Therefore, we are all happy with the work that is done to keep the park in good condition.

a. maintenance b. documentation c. compilation d. adoption

(10) Although they traveled to the same destination, Jenny and Mark preferred to explore the city _____ during the day and then share their experiences in the evening. That allowed them to discover different places in the city on their own.

a. tremendously b. sincerely c. separately d. ironically

(11) The teacher used a dramatic _____ to emphasize the importance of the historical event. She caught the students' attention with that movement.

a. gesture b. attainment c. rehearsal d. disapproval

(12) John's responsibilities _____ yours, so you will share some of the work.

a. adjust b. overlap c. restrain d. convert

(13) Regular exercise and a balanced diet can help you to _____ your muscles and improve your overall physical health. They will make you feel stronger and more energetic.

a. reverse b. imply c. possess d. strengthen

(14) John wanted to _____ his love for Maria, so he planned a surprise romantic dinner with candles and music to show his deep feelings for her.

a. demonstrate b. exceed c. distinguish d. accompany

(15) During her speech, Lisa presented a/an _____ argument. She used strong evidence and persuasive language to make her point clear and affect the audience.

a. forceful b. implicit c. resistible d. mature

(16) In the classroom, teachers encourage _____ because when students follow classroom rules and do what their teachers tell them to do, this creates a positive learning environment.

a. rebellion b. applause c. citation d. obedience

(17) John felt _____ after receiving an email from an unknown sender. Because he didn't trust the sender, he decided not to click on any links to protect his online security.

a. splendid b. persistent c. embarrassed d. suspicious

(18) During their conversation, Susan decided to _____ the secrets about her family to her best friend. As she trusted her friend a lot, she told her everything.

a. interrupt b. reveal c. confuse d. publish

(19) Sarah told her friends different stories about where she had been last night. Because of her _____ statements, her friends couldn't understand which one was true.

a. guilty b. supplementary c. contradictory d. wounded

(20) As the marathon went on, Jane's energy decreased _____. She started the race with a lot of energy. She got more and more tired as she got closer to the finish line.

a. intellectually b. officially c. progressively d. ideologically

(21) Even the most challenging goals can become _____ with hard work. You can turn your dreams into reality.

a. radical b. obtainable c. merciful d. excluded

(22) John forgot to set his alarm clock; _____, he couldn't wake up early and was late for his important meeting.

a. consequently b. tensely c. considerably d. immensely

(23) His charismatic personality and confident behavior _____ to many people. As he attracts other people, he is very popular.

a. manipulate b. presume c. foster d. appeal

(24) Even in stressful situations, thinking _____ and making logical decisions is essential instead of reacting emotionally.

a. ultimately b. conventionally c. rationally d. roughly

(25) The manager decided to give Mary the _____ for the project. He was sure that she would do a perfect job.

a. constraint b. fertility c. assumption d. responsibility

PART 2: For questions 26-50, read the sentences carefully, and write the rest of the letters of the incomplete word. Spelling mistakes will not be accepted. (0) is an example.

(0) COVID-19 is an infectious **di_sease__** that has affected many people. (You need to write "sease" to complete the word "disease".)

(26) Vocabulary learning is an important **as_____** of language education. It is an essential part of foreign language learning because it helps you to communicate effectively.

(27) In winter, the flu virus can quickly **sp_____** from person to person. Especially in crowded places like schools, it can affect more and more people in a short time.

(28) On our first date, he behaved very **ge_____** towards me. He took me to a very luxurious restaurant and paid for everything.

(29) Teachers generally talk about the **is_____** of student motivation because this subject is very important to increase students' success.

(30) Buying a house is a significant financial **in_____** because the value of the house increases over time. In this way, you can make a good profit.

(31) His **at_____** to break the marathon's world record was unsuccessful, but he was happy that he tried it.

(32) Public speaking courses can **bo_____** your confidence. Your confidence will increase as you learn and practice the necessary skills to communicate effectively.

(33) Taking a deep breath before starting your presentation can **re_____** your stress. Your presentation will be more successful when you are free from negative emotions.

(34) Doctors and researchers should carry out their experiments and trials **et_____**. They should behave in a morally responsible manner to ensure their patients' safety.

(35) Vedat Milor is known for his **so_____** taste in culinary arts. He knows how to prepare, cook, and serve food well.

(36) Sometimes, silence can **ex_____** great sadness. Without saying a word, you can show your unhappiness.

(37) Radio waves **tr_____** information over long distances. In this way, people can listen to music and news broadcasts from around the world.

(38) The selection process of team leaders was **ar_____**. It was not based on skill or experience. It was decided by drawing names from a box.

(39) Older people and children are more **vu_____** to illnesses. As they are easily affected, it is necessary to take extra precautions to keep them healthy.

(40) The invention of the printing press in the 15th century **va_____** changed people's lives. When books became more accessible, a huge number of people started to become more knowledgeable.

(41) Many businesses offer discounts during the holiday season to attract more customers. As people generally shop for gifts on holiday, companies increase their **re_____**.

(42) Having an active social life can **pr_____** good health. It can improve the quality of your life by reducing the risk of depression.

(43) She **ac_____** deleted all the files on her computer while trying to delete the unnecessary ones. It was a mistake that made her very sad.

(44) At the international food festival, we tasted **va_____** dishes from around the world, such as sushi, tacos, and pasta. We saw many different types of food there.

(45) Governments should **el_____** plastic pollution in the oceans. They can prevent this with the help of strict rules and education.

(46) Scientists can put **ab_____** ideas into words. They can turn their ideas into concrete materials.

(47) Susan always takes the **in_____** in our group projects whenever we have a problem. She starts setting new goals for the team and organizes meetings although nobody tells her anything.

(48) Her journey from a small village to a successful career in the city is a **re_____** story. Her unusual success is a result of her hard work and discipline.

(49) Nowadays, the cost of eating out is **ex_____** high. Instead of spending too much on eating out, we can have similar meals for much less money at home.

(50) He studied for the exam **su_____**. He covered all the essential topics, so his preparation was enough.

PART 3: For questions 51-75, fill in the blanks in the paragraphs with a correct word given in the box <u>without changing the forms</u>. There are more words than you need in each box. Use each word only ONCE. There are 5 paragraphs in this part.

Paragraph 1:

inevitably	**fascinating**	**implication**	**threaten**
majority	**advanced**	**regard**	

Last week we went on a school trip to a museum. A large **(51)** _____ of the students were very excited because most of them had never been to a museum before. Our teacher told us what we would see when we arrived at the museum. The most **(52)** _____ part of the museum was the section on dinosaurs. Their skeletons were extremely interesting. There was another section that I liked a lot. That section was on **(53)** _____ technology, and we saw highly developed robots. Some of them were in human form. I think those robots will **(54)** _____ become a part of our daily lives soon. If technology continues to improve like that, we cannot avoid it. I hope they won't **(55)** _____ the lives of real human beings. They can become a danger to the world if we lose control over them.

Paragraph 2:

prospective	**surround**	**curiosity**	**consistently**
advocate	**recognition**	**embarrassingly**	

In the world of science, **(56)** _____ of discoveries often takes some time as scientists must prove their findings are significant. When people accept the importance of a discovery, they immediately start to use it. For example, many people have bought robot vacuum cleaners because scientists' explanations about the benefits of these robots aroused people's **(57)** _____. They had a strong desire to learn what kind of machines they were. Once they saw that their lives became easier thanks to the robot vacuums, they started to **(58)** _____ buying these robots on their social media accounts. As the number of people who suggested buying these robots increased, the number of people who bought them increased. In fact, scientists **(59)** _____ try to make discoveries. They always try to uncover new knowledge and understanding. When they find out that new thing, they introduce it to their **(60)** _____ buyers. These buyers are interested in their products, and they are potential users of these products.

Paragraph 3:

civilization	**rapidly**	**justification**	**sensible**
doubtful	**densely**	**prioritize**	

Today, urban areas are developing **(61)** _____ with new buildings and projects. All these buildings and projects change the appearance of cities quickly. And these changes often result in **(62)** _____ populated neighborhoods. These are places where many people live close together. Streets are full of high apartment buildings, shops, and businesses, and there is generally no space for children to play. However, city planners should make **(63)** _____ decisions while planning cities. They must make logical choices and take actions to meet people's needs. They should also **(64)** _____ projects that will improve the population's well-being. They should put the projects in order of importance and start with the ones that will benefit

people the most. As a result, it won't be a problem to provide **(65)** _____ for their decisions. They can easily explain what they have done and why they have done it in that way.

Paragraph 4:

sharpen	**ignorance**	**confirmation**	**passionately**
originate	**intelligent**	**adequate**	

Songs often **(66)** _____ from deep feelings. They come from strong emotions. Generally, musicians who feel the music **(67)** _____ can transfer their feelings and creativity into their compositions. They are so enthusiastic about music that this is quite easy for them. They always **(68)** _____ their skills through hours of practice because improving their skills is necessary to create new and unique melodies. However, sometimes, when they perform their songs to crowds, some people may not show the reactions that musicians expect. This can be because of these people's **(69)** _____ about the complexities of music creation. Many people don't understand the effort, skill, and emotion that musicians put into their work. To fully appreciate a musical piece, it is important to gain a/an **(70)** _____ understanding of the countless hours of effort musicians put into their work. If people know enough about this process, they can enjoy music more.

Paragraph 5:

accumulation	**seek**	**fundamentally**	**authoritative**
witness	**distribute**	**trapped**	

Scientific research is **(71)** _____ about understanding the mysteries of our world. In fact, scientists basically try to discover the secrets of the world. The **(72)** _____ of knowledge occurs through years of study and experimentation. Sometimes, researchers find themselves **(73)** _____ in complex problems. These problems catch them in such a way that they cannot find a way out. In these moments, **(74)** _____ sources help them continue their research. These sources are reliable and are respected by many experts in the field because they include

expertise from experienced researchers who had similar challenges. Once discoveries are made, it is important to **(75) _____** this knowledge to other researchers. If this knowledge is shared with others, they can also benefit from it.

PART 4: Use the correct form of the words in parentheses to complete the sentences. Spelling mistakes will not be accepted. There are 5 paragraphs in this part. (0) is an example.

(0) __Unfortunately__ **(fortune)**, it rained on our wedding day, but we had a great day anyway.

Paragraph 1:

In the **(76) _____ (precede)** years, life was significantly different from what it is today. At that time, people didn't have the technological tools we use now, such as televisions and mobile phones. However, the **(77) _____ (anxious)** level was not as high as today. People were still worried about their future, but they weren't worried about the number of likes they would receive for their photos because there were no social networking sites. Moreover, social connections were **(78) _____ (obvious)** stronger. People clearly had closer and more meaningful relationships as they spent quality time together with their family members and friends. However, especially with the introduction of social networking sites, such as Facebook and Instagram, we started to see **(79) _____ (observe)** changes in people's social connections. People began to communicate through social networking sites instead of coming together. Nowadays, even if people come together, they frequently check their mobile phones to see what is happening on social media instead of enjoying the moment. On the other hand, these social networking sites can **(80) _____ (enhance)** the quality of our lives. Lots of experts and people share valuable information that we can use in our daily lives. People can make their lives better by using these sites for their benefit. It is in their hands.

Paragraph 2:

Exploring **(81) _____ (hazard)** environments, such as jungles or mountains, requires a different mindset and specialized skills. These environments involve a significant risk or danger to human health and life. Therefore, it is necessary to proceed **(82) _____ (steady)**. You should move forward gradually, slowly, and carefully because one false step might have serious effects. The **(83) _____ (distinct)** between adventure and calculated risk-taking is crucial. The difference between them is a matter of life. However, with **(84) _____ (guide)**, you can deal with these dangerous situations with greater safety. Expert advice can help you learn how to read the signs of nature and make wise decisions. That's why people who you will take advice from are significant. If their statements are unclear, you can **(85) _____ (interpret)** what they say. If you understand them wrongly, this may cost you your life.

Paragraph 3:

Because of globalization, developing **(86) _____ (sensitive)** towards different opinions is necessary. We need to have the ability to understand what other people need and feel to communicate with them effectively. As our global society becomes increasingly diverse, we shouldn't be **(87) _____ (bias)** towards different cultures. Attitudes that always favor one way of thinking without considering other possibilities can hurt other people's feelings. We may not understand **(88) _____ (precise)** what they mean. As we don't come from the same culture, we may not know their exact feelings, but we should try to understand them. To achieve this, we should **(89) _____ (inquiry)** about their viewpoints and experiences with an open mind. Asking them questions will help us get more information about their ideas. We don't need to be **(90) _____ (extraordinary)** talented to ask these questions. We don't need very unusual and special skills for that. Just ask 'why' and 'how' questions. This way, you will have more meaningful connections and better understand the world around you.

Paragraph 4:

In today's world, many people suffer from **(91) _____ (race)**. They receive unfair treatment of people in different ways. Although this situation is **(92) _____ (incredible)** important, necessary steps are not being taken to prevent this. It is extremely significant because it directly affects peace in our world. For example, discrimination against black people continues to **(93) _____ (predominant)** in many societies. As more people don't want black people to have equal life standards like them, there are often fights and chaos in these societies. Besides, because they are generally poor, many black people **(94) _____ (resident)** in underdeveloped and dangerous parts of cities. They live there because they cannot afford rents in the city center. However, **(95) _____ (wealth)** people from the other group can employ black people as servants. This shows that these rich people need the help of black people in their lives, so all individuals should protect other people's rights because we all need each other.

Paragraph 5:

These days, the **(96) _____ (concept)** of protecting the environment is more crucial than ever. It is an essential idea because many forests, animals, and plants are disappearing. And many species of wildlife, such as tigers and bees, are **(97) _____ (endanger)** due to fires, hunting, and climate change. If we don't do anything, they may soon no longer exist because there are already so few of them. To protect these species **(98) _____ (accurate)**, we need to understand their behavior and needs. To find the correct and proper way of this, scientists often use technologies such as satellite tracking and genetic analysis. Sometimes, the biggest dangers to the environment are **(99) _____ (visible)** to the naked eye. For example, we couldn't see the effects of climate change on natural life at the right time, and now we are suffering from the results. Pollution, deforestation, and climate change have serious negative effects on ecosystems, so they make it even more essential for countries, organizations, and individuals to **(100) _____ (unity)** efforts on a global scale. Together, we can work towards a better future where the beauty of our natural world is protected for generations to come.

Appendix-2 Vocabulary Post-Test

Vocabulary Post-Test

This vocabulary test includes 100 questions with multiple-choice, word completion, fill-in-the blank, and word formation parts. The aim of the test is to understand your competence in B2 level vocabulary. The total score is 100. Your answers will not affect your overall course score. Read the instructions carefully before answering the questions.

PART 1: For questions 1-25, read the sentences carefully, and choose the option that best fits the sentence.

(1) Vocabulary learning is an important _____ of language education. It is an essential part of foreign language learning because it helps you to communicate effectively.

a. fertility b. ambiguity c. interval d. aspect

(2) In winter, the flu virus can quickly _____ from person to person. Especially in crowded places like schools, it can affect more and more people in a short time.

a. adopt b. dominate c. spread d. acquire

(3) On our first date, he behaved very _____ towards me. He took me to a very luxurious restaurant and paid for everything.

a. intellectually b. humorously c. equally d. generously

(4) Teachers generally talk about the _____ of student motivation because this subject is very important to increase students' success.

a. issue b. collaboration c. mortality d. facility

(5) Buying a house is a significant financial _____ because the value of the house increases over time. In this way, you can make a good profit.

a. sincerity b. investment c. irony d. tolerance

(6) His _____ to break the marathon's world record was unsuccessful, but he was happy that he tried it.

a. possession b. association c. attempt d. restriction

(7) Public speaking courses can _____ your confidence. Your confidence will increase as you learn and practice the necessary skills to communicate effectively.

a. manipulate b. confess c. boost d. abandon

(8) Taking a deep breath before starting your presentation can _____ your stress. Your presentation will be more successful when you are free from negative emotions.

a. confirm b. release c. exceed d. attribute

(9) Doctors and researchers should carry out their experiments and trials _____. They should behave in a morally responsible manner to ensure their patients' safety.

a. persistently b. implicitly c. initially d. ethically

(10) Vedat Milor is known for his _____ taste in culinary arts. He knows how to prepare, cook, and serve food well.

a. hesitant b. artificial c. convenient d. sophisticated

(11) Sometimes, silence can _____ great sadness. Without saying a word, you can show your unhappiness.

a. express b. ruin c. distinguish d. publish

(12) Radio waves _____ information over long distances. In this way, people can listen to music and news broadcasts from around the world.

a. transmit b. anticipate c. rehearse d. postpone

(13) The selection process of team leaders was _____. It was not based on skill or experience. It was decided by drawing names from a box.

a. digestible b. supplementary c. measurable d. arbitrary

(14) Older people and children are more _____ to illnesses. As they are easily affected, it is necessary to take extra precautions to keep them healthy.

a. exhausted b. vulnerable c. insightful d. convincing

(15) The invention of the printing press in the 15th century _____ changed people's lives. When books became more accessible, a huge number of people started to become more knowledgeable.

a. vastly b. embarrassingly c. tensely d. manually

(16) Many businesses offer discounts during the holiday season to attract more customers. As people generally shop for gifts on holiday, companies increase their _____.

a. consensus b. dictation c. revenue d. resistance

(17) Having an active social life can _____ good health. It can improve the quality of your life by reducing the risk of depression.

a. promote b. investigate c. neglect d. convert

(18) She _____ deleted all the files on her computer while trying to delete the unnecessary ones. It was a mistake that made her very sad.

a. accidentally b. critically c. vaguely d. consciously

(19) At the international food festival, we tasted _____ dishes from around the world, such as sushi, tacos, and pasta. We saw many different types of food there.

a. radical b. various c. complicated d. mature

(20) Governments should _____ plastic pollution in the oceans. They can prevent this with the help of strict rules and education.

a. deliver b. propose c. eliminate d. reflect

(21) Scientists can put _____ ideas into words. They can turn their ideas into concrete materials.

a. abstract b. complementary c. deprived d. obliged

(22) Susan always takes the _____ in our group projects whenever we have a problem. She starts setting new goals for the team and organizes meetings although nobody tells her anything.

a. convention b. initiative c. assumption d. rebellion

(23) Her journey from a small village to a successful career in the city is a/an _____ story. Her unusual success is a result of her hard work and discipline.

a. official b. remarkable c. experimental d. coherent

(24) Nowadays, the cost of eating out is _____ high. Instead of spending too much on eating out, we can have similar meals for much less money at home.

a. roughly b. ultimately c. subtly d. excessively

(25) He studied for the exam _____. He covered all the essential topics, so his preparation was enough.

a. presumably b. empirically c. sufficiently d. ideologically

PART 2: For questions 26-50, read the sentences carefully, and write the rest of the letters of the incomplete word. <u>Spelling mistakes will not be accepted</u>. (0) is an example.

(0) COVID-19 is an infectious **di_sease__** that has affected many people. (You need to write "sease" to complete the word "disease".)

(26) My grandmother has a **te_____** to forget things, so we check to see whether she has taken her medicine every day.

(27) While working together on a group project, Sarah worked in close **co_____** with Tom. Their project was very successful as they shared ideas and supported each other.

(28) After their argument, Lisa and David spent some time alone in order to **ex_____** their feelings and thoughts. By analyzing their situation, they discovered the problems in their relationship and gained a deeper understanding of it.

(29) The child was so scared of the doctor that he held on **ti_____** to his mother's arm. His father couldn't take him to hospital.

(30) Un_____ internet access allows us to explore and learn about different topics without any control.

(31) Because of the **in_____** heat outside, we had to carry plenty of water. The heat was so strong that we had to wear protective clothing during our journey.

(32) Students who do poorly on school tests often **pe_____** themselves as failures. Therefore, in order to change the way they see themselves, parents should help them understand that low grades do not decrease their value.

(33) The company was in a bad situation **pr_____**. Before the new manager, it experienced a period of low productivity.

(34) Regular **ma_____** of our local park makes it a clean and enjoyable place for everyone. Therefore, we are all happy with the work that is done to keep the park in good condition.

(35) Although they traveled to the same destination, Jenny and Mark preferred to explore the city **se_____** during the day and then share their experiences in the evening. That allowed them to discover different places in the city on their own.

(36) The teacher used a dramatic **ge_____** to emphasize the importance of the historical event. She caught the students' attention with that movement.

(37) John's responsibilities **ov_____** yours, so you will share some of the work.

(38) Regular exercise and a balanced diet can help you to **st_____** your muscles and improve your overall physical health. They will make you feel stronger and more energetic.

(39) John wanted to **de_____** his love for Maria, so he planned a surprise romantic dinner with candles and music to show his deep feelings for her.

(40) During her speech, Lisa presented a **fo_____** argument. She used strong evidence and persuasive language to make her point clear and affect the audience.

(41) In the classroom, teachers encourage **ob_____** because when students follow classroom rules and do what their teachers tell them to do, this creates a positive learning environment.

(42) John felt **su_____** after receiving an email from an unknown sender. Because he didn't trust the sender, he decided not to click on any links to protect his online security.

(43) During their conversation, Susan decided to **re_____** the secrets about her family to her best friend. As she trusted her friend a lot, she told her everything.

(44) Sarah told her friends different stories about where she had been last night. Because of her **co_____** statements, her friends couldn't understand which one was true.

(45) As the marathon went on, Jane's energy decreased **pr_____**. She started the race with a lot of energy. She got more and more tired as she got closer to the finish line.

(46) Even the most challenging goals can become **ob_____** with hard work. You can turn your dreams into reality.

(47) John forgot to set his alarm clock; **co_____**, he couldn't wake up early and was late for his important meeting.

(48) His charismatic personality and confident behavior **ap_____** to many people. As he attracts other people, he is very popular.

(49) Even in stressful situations, thinking **ra_____** and making logical decisions is essential instead of reacting emotionally.

(50) The manager decided to give Mary the **re_____** for the project. He was sure that she would do a perfect job.

PART 3: For questions 51-75, fill in the blanks in the paragraphs with a correct word given in the box <u>without changing the forms</u>. There are more words than you need in each box. Use each word only ONCE. There are 5 paragraphs in this part.

Paragraph 1:

seek	**observable**	**preceding**	**implication**
obviously	**enhance**	**anxiety**	

In the **(51)** _____ years, life was significantly different from what it is today. At that time, people didn't have the technological tools we use now, such as televisions and mobile phones. However, the **(52)** _____ level was not as high as today. People were still worried about their future, but they weren't worried about the number of likes they would receive for their photos because there were no social networking sites. Moreover, social connections were **(53)** _____ stronger. People clearly had closer and more meaningful relationships as they spent quality time together with their family members and friends. However, especially with the introduction of social

networking sites, such as Facebook and Instagram, we started to see **(54) _____** changes in people's social connections. People began to communicate through social networking sites instead of coming together. Nowadays, even if people come together, they frequently check their mobile phones to see what is happening on social media instead of enjoying the moment. On the other hand, these social networking sites can **(55) _____** the quality of our lives. Lots of experts and people share valuable information that we can use in our daily lives. People can make their lives better by using these sites for their benefit. It is in their hands.

Paragraph 2:

hazardous	**guidance**	**electronically**	**misinterpret**
distinction	**surround**	**steadily**	

Exploring **(56) _____** environments, such as jungles or mountains, requires a different mindset and specialized skills. These environments involve a significant risk or danger to human health and life. Therefore, it is necessary to proceed **(57) _____**. You should move forward gradually, slowly, and carefully because one false step might have serious effects. The **(58) _____** between adventure and calculated risk-taking is crucial. The difference between them is a matter of life. However, with **(59) _____**, you can deal with these dangerous situations with greater safety. Expert advice can help you learn how to read the signs of nature and make wise decisions. That's why people who you will take advice from are significant. If their statements are unclear, you can **(60) _____** what they say. If you understand them wrongly, this may cost you your life.

Paragraph 3:

biased	**extraordinarily**	**inquire**	**intelligent**
sensitivity	**precisely**	**civilization**	

Because of globalization, developing **(61)** _____ towards different opinions is necessary. We need to have the ability to understand what other people need and feel to communicate with them effectively. As our global society becomes increasingly diverse, we shouldn't be **(62)** _____ towards different cultures. Attitudes that always favor one way of thinking without considering other possibilities can hurt other people's feelings. We may not understand **(63)** _____ what they mean. As we don't come from the same culture, we may not know their exact feelings, but we should try to understand them. To achieve this, we should **(64)** _____ about their viewpoints and experiences with an open mind. Asking them questions will help us get more information about their ideas. We don't need to be **(65)** _____ talented to ask these questions. We don't need very unusual and special skills for that. Just ask 'why' and 'how' questions. This way, you will have more meaningful connections and better understand the world around you.

Paragraph 4:

predominate	**doubtful**	**incredibly**	**wealthy**
racism	**witness**	**reside**	

In today's world, many people suffer from **(66)** _____. They receive unfair treatment of people in different ways. Although this situation is **(67)** _____ important, necessary steps are not being taken to prevent this. It is extremely significant because it directly affects peace in our world. For example, discrimination against black people continues to **(68)** _____ in many societies. As more people don't want black people to have equal life standards like them, there are often fights and chaos in these societies. Besides, because they are generally poor, many black people **(69)** _____ in underdeveloped and dangerous parts of cities. They live there because they cannot afford rents in the city center. However, **(70)** _____ people from the other group can employ black people as servants. This shows that these rich people need the help of black people in their lives, so all individuals should protect other people's rights because we all need each other.

Paragraph 5:

concept	**invisible**	**unite**	**accurately**
nutrition	**endangered**	**embarrass**	

These days, the **(71)** _____ of protecting the environment is more crucial than ever. It is an essential idea because many forests, animals, and plants are disappearing. And many species of wildlife, such as tigers and bees, are **(72)** _____ due to fires, hunting, and climate change. If we don't do anything, they may soon no longer exist because there are already so few of them. To protect these species **(73)** _____, we need to understand their behavior and needs. To find the correct and proper way of this, scientists often use technologies such as satellite tracking and genetic analysis. Sometimes, the biggest dangers to the environment are **(74)** _____ to the naked eye. For example, we couldn't see the effects of climate change on natural life at the right time, and now we are suffering from the results. Pollution, deforestation, and climate change have serious negative effects on ecosystems, so they make it even more essential for countries, organizations, and individuals to **(75)** _____ efforts on a global scale. Together, we can work towards a better future where the beauty of our natural world is protected for generations to come.

PART 4: Use the <u>correct form</u> of the words in parentheses to complete the sentences. <u>Spelling mistakes</u> <u>will not be accepted</u>. There are 5 paragraphs in this part. (0) is an example.

(0) __Unfortunately__ **(fortune)**, it rained on our wedding day, but we had a great day anyway.

Paragraph 1:

Last week we went on a school trip to a museum. A large **(76)** _____ **(major)** of the students were very excited because most of them had never been to a museum before. Our teacher told us what we would see when we arrived at the museum. The most **(77)** _____ **(fascinate)** part of the museum was the section on dinosaurs. Their skeletons were extremely interesting. There was another section that I liked a lot.

That section was on **(78) _____ (advance)** technology, and we saw highly developed robots. Some of them were in human form. I think those robots will **(79) _____ (inevitable)** become a part of our daily lives soon. If technology continues to improve like that, we cannot avoid it. I hope they won't **(80) _____ (threat)** the lives of real human beings. They can become a danger to the world if we lose control over them.

Paragraph 2:

In the world of science, **(81) _____ (recognize)** of discoveries often takes some time as scientists must prove their findings are significant. When people accept the importance of a discovery, they immediately start to use it. For example, many people have bought robot vacuum cleaners because scientists' explanations about the benefits of these robots aroused people's **(82) _____ (curious)**. They had a strong desire to learn what kind of machines they were. Once they saw that their lives became easier thanks to the robot vacuums, they started to **(83) _____ (advocate)** buying these robots on their social media accounts. As the number of people who suggested buying these robots increased, the number of people who bought them increased. In fact, scientists **(84) _____ (consistent)** try to make discoveries. They always try to uncover new knowledge and understanding. When they find out that new thing, they introduce it to their **(85) _____ (prospect)** buyers. These buyers are interested in their products, and they are potential users of these products.

Paragraph 3:

Today, urban areas are developing **(86) _____ (rapid)** with new buildings and projects. All these buildings and projects change the appearance of cities quickly. And these changes often result in **(87) _____ (dense)** populated neighborhoods. These are places where many people live close together. Streets are full of high apartment buildings, shops, and businesses, and there is generally no space for children to play. However, city planners should make **(88) _____ (sense)** decisions while planning cities. They must make logical choices and take actions to meet people's needs. They should also **(89) _____ (priority)** projects that will improve the population's well-being. They should put the projects in order of importance

and start with the ones that will benefit people the most. As a result, it won't be a problem to provide **(90) _____ (justify)** for their decisions. They can easily explain what they have done and why they have done it in that way.

Paragraph 4:

Songs often **(91) _____ (origin)** from deep feelings. They come from strong emotions. Generally, musicians who feel the music **(92) _____ (passion)** can transfer their feelings and creativity into their compositions. They are so enthusiastic about music that this is quite easy for them. They always **(93) _____ (sharp)** their skills through hours of practice because improving their skills is necessary to create new and unique melodies. However, sometimes, when they perform their songs to crowds, some people may not show the reactions that musicians expect. This can be because of these people's **(94) _____ (ignore)** about the complexities of music creation. Many people don't understand the effort, skill, and emotion that musicians put into their work. To fully appreciate a musical piece, it is important to gain a/an **(95) _____ (adequate)** understanding of the countless hours of effort musicians put into their work. If people know enough about this process, they can enjoy music more.

Paragraph 5:

Scientific research is **(96) _____ (fundamental)** about understanding the mysteries of our world. In fact, scientists basically try to discover the secrets of the world. The **(97) _____ (accumulate)** of knowledge occurs through years of study and experimentation. Sometimes, researchers find themselves **(98) _____ (trap)** in complex problems. These problems catch them in such a way that they cannot find a way out. In these moments, **(99) _____ (authority)** sources help them continue their research. These sources are reliable and are respected by many experts in the field because they include expertise from experienced researchers who had similar challenges. Once discoveries are made, it is important to **(100) _____ (distribute)** this knowledge to other researchers. If this knowledge is shared with others, they can also benefit from it.

Appendix-3 Target Words Used in the Pre- and Post-Tests

The words asked in the pre- and post-tests are 100 words selected from the B2 level vocabulary journal which includes the lexical syllabus prepared by Norbert Schmitt and Diane Schmitt specifically for the preparatory English program of Özyeğin University in 2011 by using British National Corpus (BNC), General Service List (GSL), Academic Word List (AWL), and English Profile (Vocabulary Profiler). In order to measure these words, 100 questions were prepared as 25 multiple choice questions, 25 word completion questions, 25 fill-in-the blanks questions, and 25 word formation questions. The same words and contexts were used in the pre-test and post-test, but with different question types. The list of the words used in the tests is as follows:

NOUNS	**VERBS**	**ADJECTIVES**	**ADVERBS**
tendency	examine	unlimited	tightly
cooperation	perceive	intense	previously
maintenance	overlap	forceful	separately
gesture	strengthen	suspicious	progressively
obedience	demonstrate	contradictory	consequently
responsibility	reveal	obtainable	rationally
majority	appeal	fascinating	densely
recognition	threaten	authoritative	inevitably
curiosity	advocate	advanced	rapidly
justification	prioritise	prospective	consistently
ignorance	sharpen	sensible	passionately
accumulation	originate	adequate	fundamentally
aspect	distribute	trapped	vastly

NOUNS	VERBS	ADJECTIVES	ADVERBS
issue	spread	sophisticated	excessively
investment	boost	arbitrary	sufficiently
attempt	release	vulnerable	accidentally
revenue	express	various	ethically
initiative	transmit	abstract	generously
anxiety	promote	remarkable	steadily
distinction	eliminate	preceding	extraordinarily
guidance	enhance	hazardous	obviously
sensitivity	misinterpret	biased	precisely
racism	inquire	endangered	incredibly
concept	predominate	observable	accurately
	reside	wealthy	
	unite	invisible	

Appendix-4 Weekly Activities

Activity 1: Acrostic Poems

The teacher assigns each student a different word which was covered in the previous lesson, and which is a target level word in the vocabulary journal. She asks them to write an acrostic poem about life and beauty in nature using their assigned words in their poems. She shares the instructions with an example on a Google document on which the students write their acrostic poems as well. When students finish writing their poems, the teacher gives feedback on the poems as a whole class activity. The instructions are as follows:

Write an acrostic poem about life and beauty in nature using the target vocabulary. Make sure you use your target word in your poem as well meaningfully. Also, write the definition of your word as you see in the example below.

Example: STRUCTURE (N)

Definition: the way in which the parts of a system or object are arranged or organized, or a system arranged in this way:

Silently observe the **structure** of the universe

Take this forest, these trees and animals as samples

Rare beauty you can see in the organization of the sea

Unusual harmony you will see

Come closer to listen to the birds

Telling their stories to the herds

Upper world where they all fly

Reminds me of the golden sky

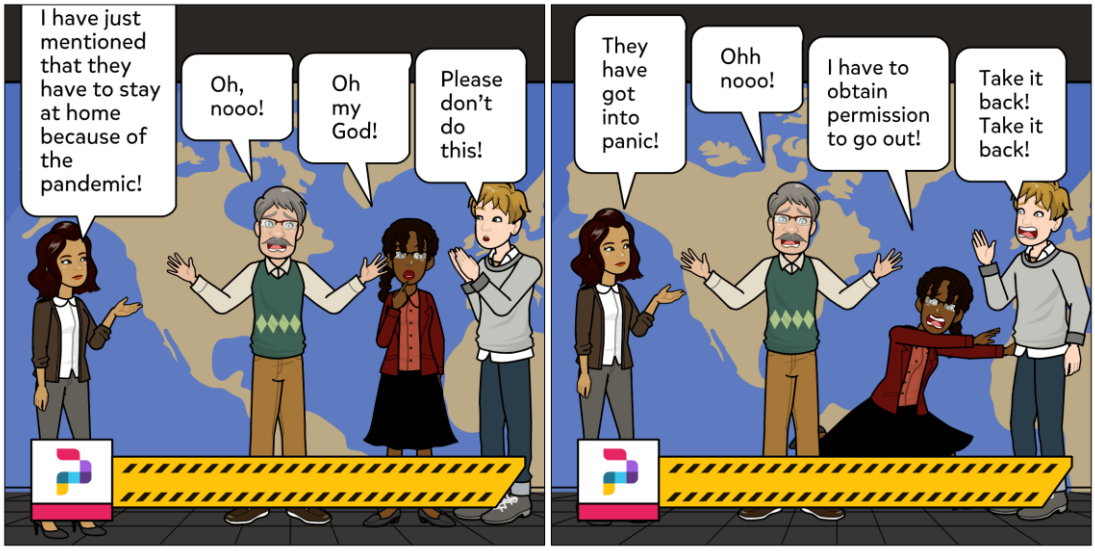
Everyone should see

Activity 2: Comic Strips

The teacher asks the students to work in pairs and choose at least three words from their vocabulary journals in order to use in their comic strips. She shares the instructions with an example on a Google document. The students use Pixton to prepare their comic strips using the link on the shared Google document. When students finish preparing their comic strips, the teacher gives feedback on them as a whole class activity. The instructions are as follows:

You are going to prepare comic strips in the context of health using words from your vocabulary journals. Please choose <u>at least three target words</u> while preparing your comics. Make sure the target words are used meaningfully in the comics.

Example: Target Words: mention, obtain



https://join.pixton.com/q8f8hh

Choose the words that you would like to learn how to use from your vocabulary journal. They can be from any unit that we have covered so far. Please write your target words on this document together with your names.

Example: Nurgül: mention, obtain

Student A & Student B: (write the words you have chosen here)

Student C & Student D: (write the words you have chosen here)

Student E & Student F: (write the words you have chosen here)

(Students' names with their words continue here.)

Activity 3: Collective Diary Writing

The teacher tells the students that they are going to create a collective diary using the Google Sites. She shares the instructions with an example on a Google document. Using the link on the shared document, the students go to the Google Sites page prepared by the teacher, they choose a photo, and write a short paragraph describing the situation in the photos and their feelings about them. After they complete the activity, the teacher gives feedback on their paragraphs as a whole class activity. The instructions are as follows:

This week we are going to use Google Sites to create a collective diary of people who live in urban areas.

In this activity, you are expected to help the people in the photos explain their feelings about urban life.

When you go to the Google Sites,

1. choose one photo to work on.

2. type your name in the parenthesis.

3. think about what you have learnt about urbanization in Pathways 3 R&W Unit 3.

4. imagine you are one of the people in the photo and describe the situation, what is happening or how you are feeling there.

5. write a short paragraph with minimum 6 sentences by using at least **3 words from your vocabulary journal** (pp. 43-49 & pp. 53-56) (Pathways 3 R&W Unit 3 & Supplementary Listening Immigration) for the photo description.

- **Here is the link for the Google Sites:**

https://sites.google.com/d/1Cb5wFOSg_vOxmZ0kHBrlkCBm1RdkxpQM/p/1NrZPR1UCwCQxL4exKDELiGQUm7qkoi0C/edit

Example:



Sample Photo: Nurgül

Massive building sites are very popular in cities which have a **dense** population as they offer many opportunities to the residents. They have their own sport centers, markets, parks, cafes and so on. Therefore, I can do whatever I want without going to faraway places in this **context**. However, you need to have a high **income** in order to live in such kind of a site because the rents and dues are very high here. Moreover, as there are so many people who live in the same site, problems are **inevitable**. We all have different perceptions, needs, and thoughts, and if we cannot reach a consensus on the common living rules, we cannot avoid the problems.

Activity 4: Short Stories

The teacher asks the students to choose a word that they find difficult and that they would like to learn how to use from their vocabulary journals. She shares the instructions with the students on a Google document. After students decide on their words, they write down their words' definitions in English, their parts of speech, an example sentence, the other forms from the vocabulary journal if there are any, and their collocations on the shared document. They also check the pronunciations of their words using an online dictionary. After this stage, the teacher gives students 10 minutes to study all the words written by them on the shared Google document individually. Then she asks the students to work in groups of three and write a short story about discovering a new world, either a distant planet or a hidden part of the Earth using at least 5 target words they have written down on the shared document. When the students complete the activity, the teacher gives feedback on their stories as a whole class activity. The instructions are as follows:

Part A: Choose a word that you find difficult and that you would like to learn how to use from your vocabulary journal. It can be from any unit that we have covered so far.

Please write your words here:

Student A: (write the word you have chosen here)

Student B: (write the word you have chosen here)

Student C: (write the word you have chosen here)

(Students' names with their words continue here.)

After you decide on your word,

1. **write its definition in English.**
2. **write its part of speech.**
3. **write an example sentence with it.**
4. **write the other forms from the vocabulary journal if there are any.**
5. **write its collocations.**
6. **check the pronunciation of the word.**

Example:

Nurgül: CONTRADICT

Definition: to disagree with something, especially by saying that the opposite is true

Word form: verb

Example: The two newspaper reports totally contradict each other.

Other forms: contradicting (adj), contradiction (noun), contradictory (adj)

Collocations: contradict the statement - contradict a story

Part B: You are going to write a short story about discovering a new world, either a distant planet or a hidden part of the Earth of about 70 words in groups of three. Please make sure that you use at least 5 target words you have written above in your stories.

Example: attempt, ignore, authority, advanced, reveal

In their **attempt** to explore the hidden cave, Mia and Tom **ignored** the warnings of the local **authority**. They prepared for weeks for this exploration. Inside, they found an **advanced** civilization hidden beneath the Earth. Their discovery was too significant to ignore. They knew they had to share this with the world, so they carefully documented everything to **reveal** the hidden wonders to the world.

Activity 5: Puzzles

The teacher puts the students in groups of three and assigns different pages from the vocabulary journal to each group. She tells the students that they are going to create puzzles choosing at least 10 words from the assigned parts of their vocabulary journals. She shares the instructions with the students on a Google document. Using the shared puzzle maker websites, the students create their puzzles, share their URL links with the class, and share the answers with the teacher. The teacher asks the students to solve the puzzles of the other groups with their group members and shares the answers of all the puzzles with the class. The instructions are as follows:

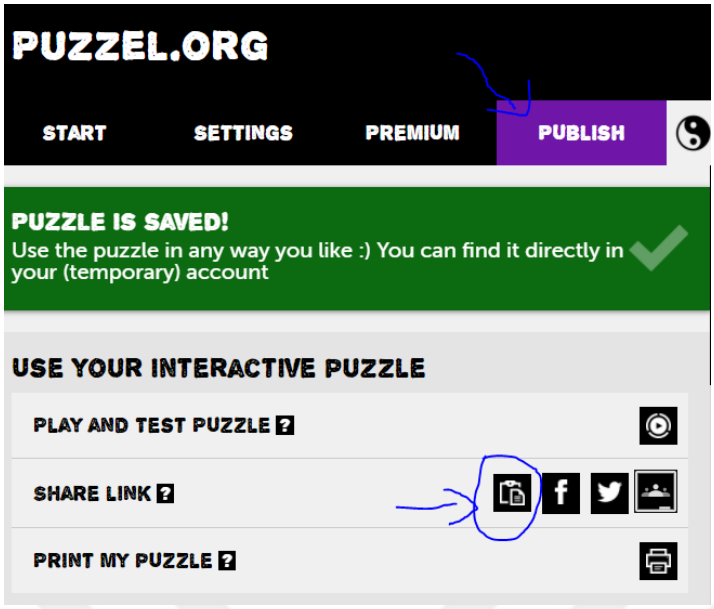
OPTION 1: https://crosswordlabs.com/

Example: https://crosswordlabs.com/view/2021-03-23-90



OPTION 2: https://puzzel.org/en/acrostic/create

Example: https://puzzel.org/acrostic/play?p=-MWJDlPEW5q3z80pPXu6



You will create puzzles related to the vocabulary you have learnt so far in groups of three. Please choose at least 10 words from the assigned parts from your vocabulary journal. Make sure you choose the words that you would like to learn.

While preparing your puzzles, please write the definitions of your target words and provide an example sentence by replacing the target word with a blank.

When you finish your puzzles, please share the URL links under your groups on this document and send your target words to your instructor via email.

Group 1: Pages 64-68 (Unit 4) (Write the students' names here.)

Group 2: Pages 53-63 (Unit 3) (Write the students' names here.)

Group 3: Pages 43-52 (Unit 3) (Write the students' names here.)

Group 4: Pages 35-42 (Unit 2) (Write the students' names here.)

Group 5: Pages 27-34 (Unit 2) (Write the students' names here.)

Group 6: Pages 7-26 (Unit 1) (Write the students' names here.)

Activity 6: Story Completion

The teacher tells the students that they are going to complete a story in pairs or in groups of three using at least 5 words that they used while preparing their puzzles last week. She shares the instructions with an example on a Google document. After the students finish the activity, the teacher gives feedback on their stories as a whole class activity. The instructions are as follows:

You are going to complete a story in pairs or in groups of three. Below you can see the vocabulary that you used while preparing your puzzles last week. Please make sure that you use <u>at least 5 target words</u> among these words in your stories.

Group 1 (Students' names): (write the words here)

Group 2 (Students' names): (write the words here)

Group 3 (Students' names): (write the words here)

Group 4 (Students' names): (write the words here)

Group 5 (Students' names): (write the words here)

Group 6 (Students' names): (write the words here)

Please read the opening sentences of a story about a character who travels back in time to a significant historical event and complete it.

Maya had a secret she had never shared with anyone. She could travel back in time by touching certain objects. One day, she found a stone with unimaginable powers.

Example: surround, incredible, guidance, alter, various

Maya had a secret she had never shared with anyone. She could travel back in time by touching certain objects. One day, she found a stone with unimaginable powers. As her fingers brushed its surface, a bright light **surrounded** her. When the light faded, she found herself at the signing of the Declaration of Independence. The scene before her was **incredible**, with leaders talking and signing the historic document. Maya realized she

needed **guidance** to navigate this significant event without **altering** history. She quietly observed the **various** discussions. Suddenly, she noticed a young messenger struggling in the busy crowd. She quickly stepped in and used her words to keep things calm and help the boy stay safe. She knew she had to be careful not to change this important moment in history.

Activity 7: Stream of Consciousness Writing

The teacher asks the students to choose at least 3 words from the assigned pages of the vocabulary journal and do a stream of consciousness writing. She shares the instructions with the students on a Google document. After students decide on their words, they go to the Padlet link and write their paragraphs individually on the Padlet wall. When the students complete the activity, the teacher gives feedback on their writings as a whole class activity. The instructions are as follows:

This week we are going to use a Padlet page to do a stream of consciousness writing. Stream of consciousness is a narrative technique that tries to describe the continuous flow of thoughts and feelings in the mind of a character, often without a clear structure or organization.

When you go to the Padlet page,

1. imagine you are the character in the photo and focus on the character's inner thoughts and feelings while waiting for a friend or family member.

2. type your name in the "Subject" section.

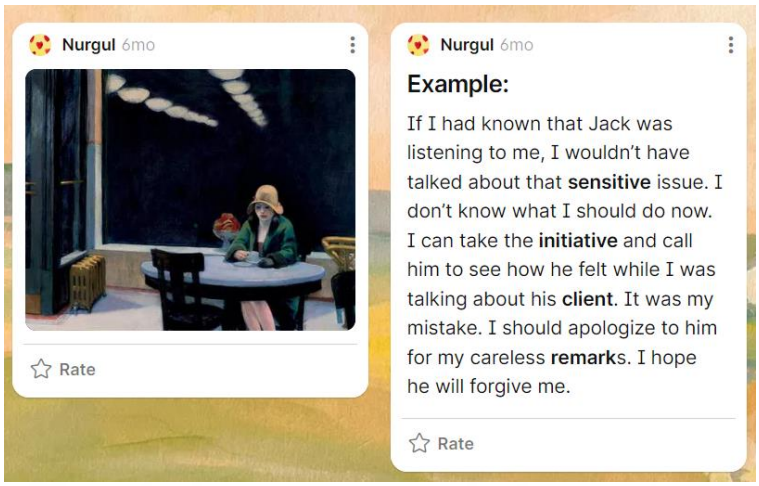
2. describe what you are thinking about or how you are feeling there.

3. write a short paragraph of about 70 words by using at least **3 words from your vocabulary journal** (Vocabulary from Units 5&6, pp. 75-93) for your description.

- **Here is the link for the Padlet page:**

https://padlet.com/nurgul_keskin/imagine-you-are-the-character-in-the-photo-and-focus-on-the--f1lu411wab4pu8cq

Example:



Activity 8: Digital Escape Room

The teacher prepares a digital game beforehand using some of the target words that will be covered on that day. She tells the students that they are going to play a game called 'digital escape room' and she shares the instructions with the students on a Google document. Firstly, the students create an account on edpuzzle.com to be able to watch the video in the game. Then the students pair up for the game. They use a Google Forms document to proceed with the game. In order to finish the game, the students watch a video on edpuzzle.com to find the first secret word, then they do a puzzle on Jigsaw Planet to find the second secret word, and finally they need to find the correct parts of speech of the given words to complete some sentences on a Google Jamboard. After all the pairs finish the game, the teacher shares the correct answers with the students. The instructions are as follows:

You are going to enter a digital escape room in pairs. The Google Forms document below will guide you in the game.

Step 1: Before you go to the digital escape room, please go to the following link and create an account on edpuzzle.com.

https://edpuzzle.com/join/finoris

Step 2: Then click on the following link to enter the digital escape room.

https://docs.google.com/presentation/d/1YcjIqFanPwz8pDMW86gWcBY0G98vApuUwXNSkfMk6cw/edit#slide=id.p

Step 3: The Google Forms Document below will guide you on how to proceed with the game. As you will work in pairs, only one student from each pair will fill in the form. The student who will type the answers onto the Google Forms Document during the game should write both his/her name and his/her partner's name on the provided space.

Please write all your answers onto the Google Forms Document.

https://docs.google.com/forms/d/e/1FAIpQLSc8S-Y621KJ0FKjmi4RZ62T1zK9dSFJMvQdQ4hLlx5knm8HnA/viewform

Appendix-5 Sample Weekly Post Activity Questionnaire

Name:

Can you please answer the questions below about the activity we did today in our vocabulary lesson?

Acrostic Poems:

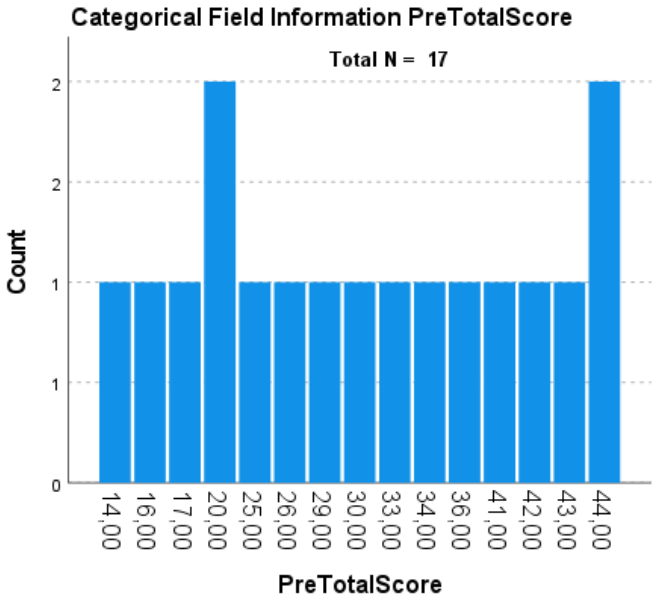
Did you benefit from this activity? Explain.

What did you find challenging? Explain.

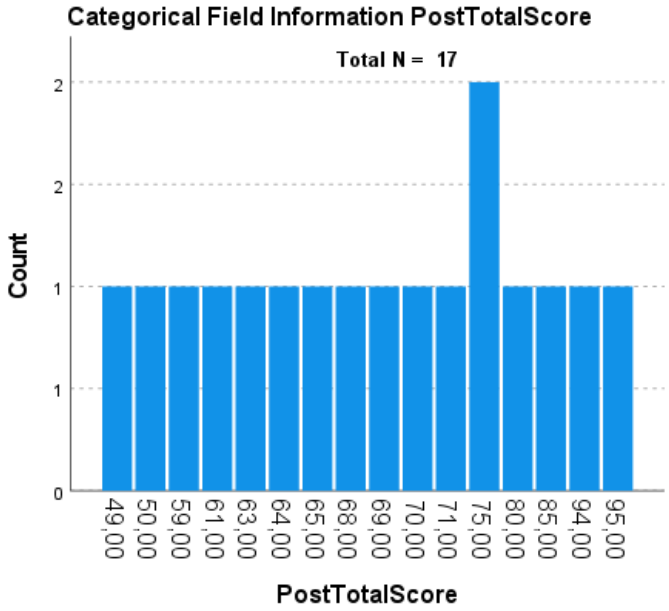
Appendix-6 The Final Questionnaire & Focus Group Interview Questions

1. What is your experience of using online application-integrated production-based vocabulary activities?
2. What skills did you practice while doing these activities?
3. What did you find challenging while doing these activities?
4. What do you think about the use of technology in vocabulary lessons?
5. How did the online application-integrated production-based activities affect your vocabulary knowledge?
6. How do you assess your performance in this project: successful or failed?
7. What do you suggest for further vocabulary improvement?

Appendix-7 Categorical Field Information about the Participants' Pre-Test Total Scores and Post-Test Total Scores

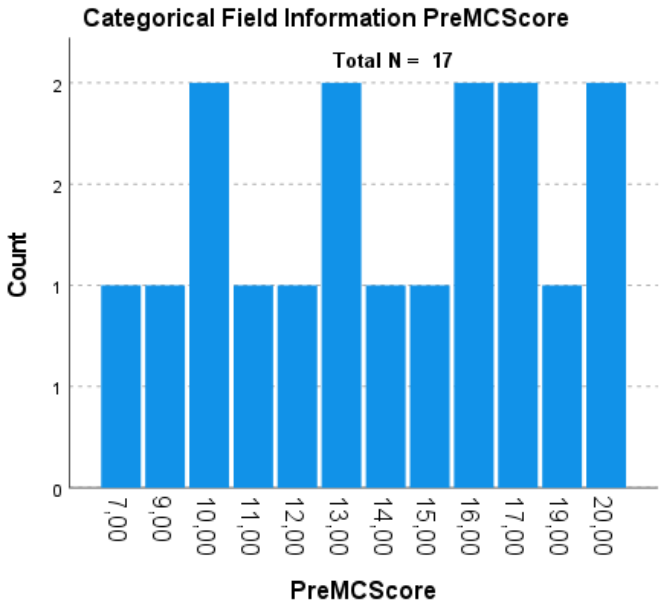


PreTotalScore field is ordinal but is treated as continuous in the test.

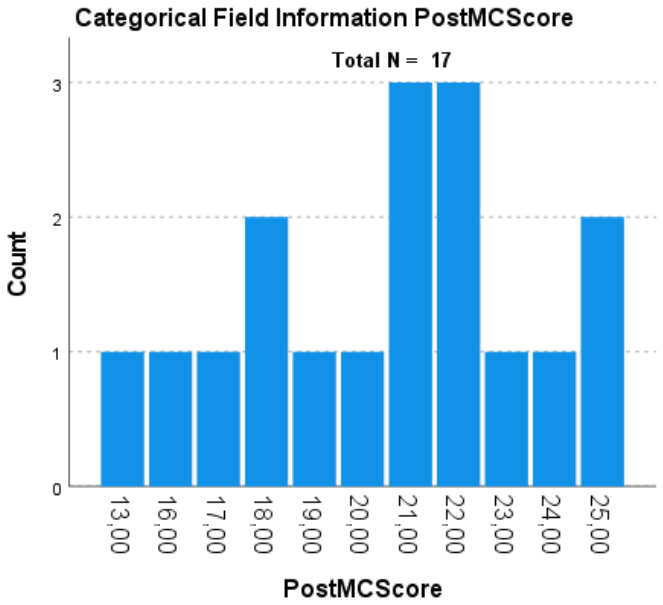


PostTotalScore field is ordinal but is treated as continuous in the test.

Appendix-8 Categorical Field Information about the Participants' Pre-Test Multiple Choice Scores and Post-Test Multiple Choice Scores

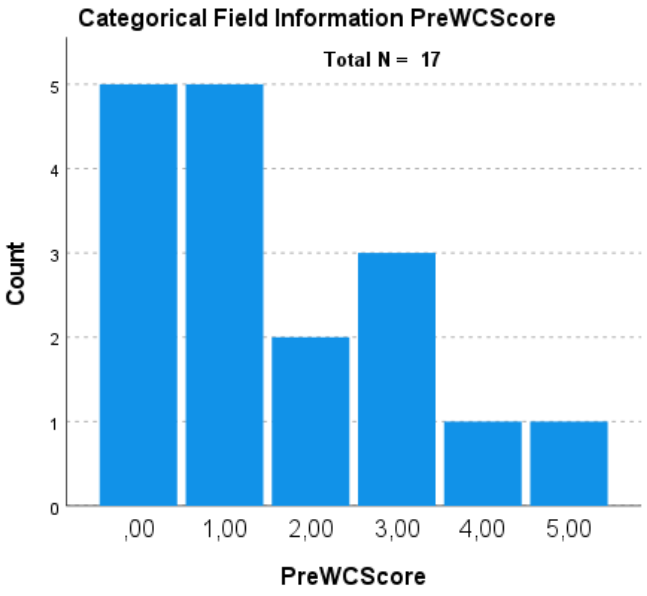


PreMCScore field is ordinal but is treated as continuous in the test.

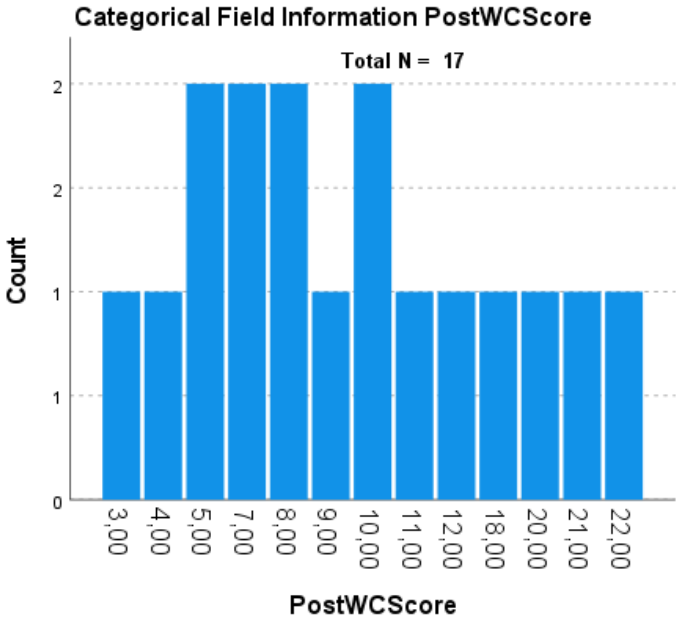


PostMCScore field is ordinal but is treated as continuous in the test.

Appendix-9 Categorical Field Information about the Participants' Pre-Test Word Completion Scores and Post-Test Word Completion Scores

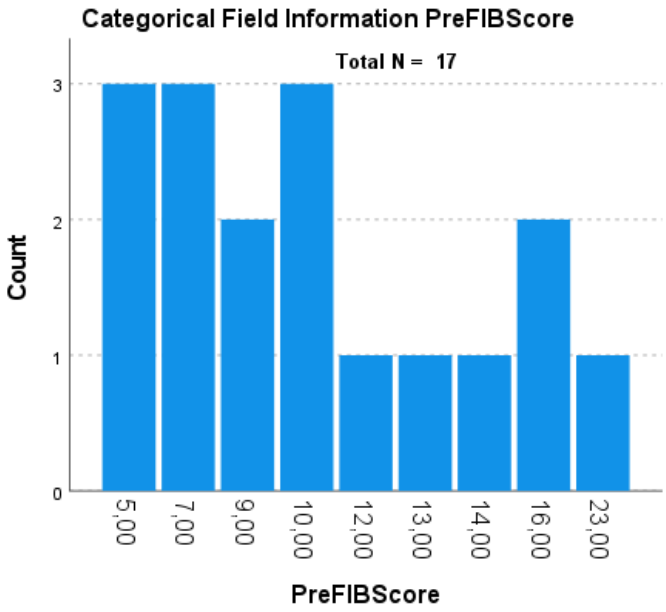


PreWCScore field is ordinal but is treated as continuous in the test.

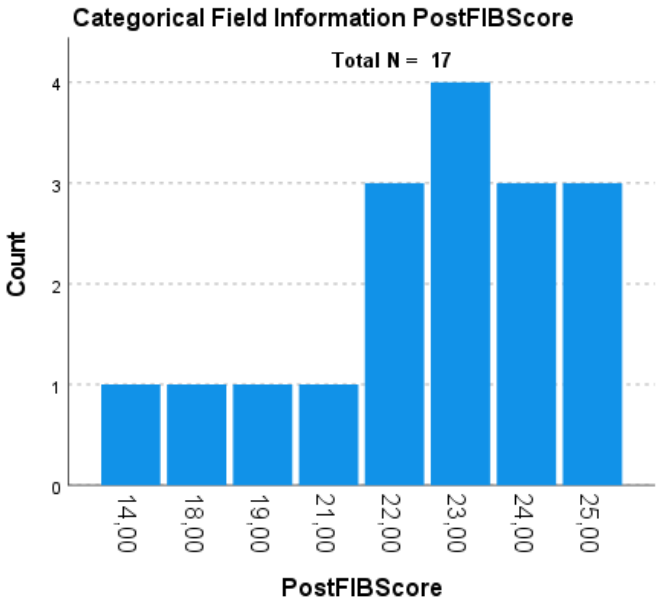


PostWCScore field is ordinal but is treated as continuous in the test.

Appendix-10 Categorical Field Information about the Participants' Pre-Test Fill-in-the-Blank Scores and Post-Test Fill-in-the-Blank Scores

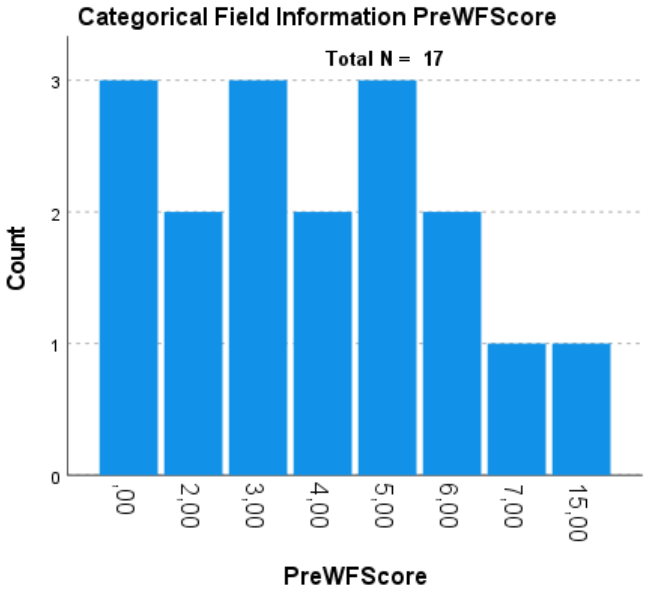


PreFIBScore field is ordinal but is treated as continuous in the test.

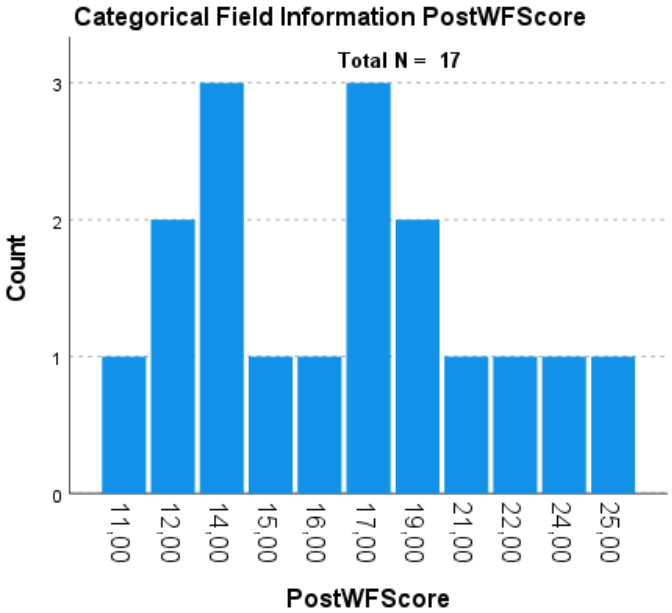


PostFIBScore field is ordinal but is treated as continuous in the test.

Appendix-11 Categorical Field Information about the Participants' Pre-Test Word Formation Scores and Post-Test Word Formation Scores



PreWFScore field is ordinal but is treated as continuous in the test.



PostWFScore field is ordinal but is treated as continuous in the test.

Appendix-12 Özyeğin Unıversity Human Research Ethics Board Meeting Minutes

Bu belge, Yükseköğretim Kurulu tarafından 19.01.2021 tarihli "Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge" ile bildirilen 6698 Sayılı Kişisel Verilerin Korunması Kanunu kapsamında gizlenmiştir.

Appendix-13 Maltepe Unıversity Ethics Committee Decision

Bu belge, Yükseköğretim Kurulu tarafından 19.01.2021 tarihli “Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge” ile bildirilen 6698 Sayılı Kişisel Verilerin Korunması Kanunu kapsamında gizlenmiştir.

CURRICULUM VITAE

Nurgül KESKİN

Education

Master	2024	Maltepe University, Department of Foreign Languages Education, English Language Teaching with thesis
Delta	2014	International Training Institute (ITI), Delta Module 1, Delta Module 2, Delta Module 3
Master	2009	İhsan Doğramacı Bilkent University, Graduate School of Education, English Teacher Education without thesis
Bachelor	2008	İhsan Doğramacı Bilkent University, Faculty of Education, English Teacher Education
High School	2004	Manisa Anatolian Teacher High School

Experience

2010-Present	Özyeğin University, School of Languages, English Language Instructor
2009-2010	İhsan Doğramacı Foundation Bilkent Erzurum Laboratory School, English Teacher

Scholarships

2004-2009	Full Education Scholarship from İhsan Doğramacı Bilkent University
2009	Full Scholarship from the State Department for Turkish Student Teacher Internship Program at Iowa State University in the USA
2007	Full Erasmus Grant from the Turkish National Agency to study at Pädagogishe Akademie Des Bundes in Tirol as an Erasmus Exchange Student