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YILDIZ TECHNICAL UNIVERSITY
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DEPARTMENT OF FOREIGN LANGUAGES EDUCATION
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MASTER'S THESIS

A MIXED METHOD LEARNER CORPORA STUDY: HYPERTEXT ONLINE EXTENSIVE READING MEDIATED L2 INCIDENTAL VOCABULARY GAINS AND READING COMPREHENSION

AYŞENUR YAMAN
19708006

THESIS ADVISOR
ASSOC. PROF. DR. SUZAN KAVANOZ

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AYŞENUR YAMAN
19708006
ORCID NO: 0000-0002-2385-5664

THESIS ADVISOR
ASSOC. PROF. DR. SUZAN KAVANOZ
ORCID NO: 0000-0001-7458-4684

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Ayşenur YAMAN tarafından hazırlanan “Karma Yöntemli Öğrenici Derlemleri Çalışması: Hiper Metinli Çevrim İçi Kapsamlı Okuma Aracılı İkinci Dilde Rastlanstısal Kelime Kazanimları ve Okuduğunu Anlama” başlıklı çalışma, **17/02/2023** tarihinde yapılan savunma sınavı sonucunda oybirliği ile başarılı bulunmuş ve jürimiz tarafından Yabancı Diller Eğitimi Ana Bilim Dalı, Yabancı Dil (İngilizce) Öğretimi **YÜKSEK LİSANS** tezi olarak kabul edilmiştir.

Danışman	**İmza**
Doç. Dr. Suzan KAVANOZ	……

Jüri Üyeleri	**İmza**
Dr. Öğretim Üyesi Burcu ÜNAL	……
Dr. Öğretim Üyesi Melike ŞAHİN	……..……

ABSTRACT

A MIXED METHOD LEARNER CORPORA STUDY: HYPERTEXT ONLINE EXTENSIVE READING MEDIATED L2 INCIDENTAL VOCABULARY GAINS AND READING COMPREHENSION

The main purpose of the research is to discover how much of the incidental vocabulary in online comprehensive reading formats turned into productive lexical use in students' oral and written products. Furthermore, in order to unveil hypertext extensive reading efficiency regarding vocabulary sphere with use of a marginally situated dictionary on the same page over dictionary use in separate tabs or hard-copy format, an online library was built by conversions of scanned pages by the researcher. A free lexical tutor website was utilized to generate a series of readers.57 public high school preparation year students aged 13-14, of which 28 were females and 29 were males, from the same institution were chosen as participants. In the study, students' knowledge, and experiences in English language and daily use were similar in language background analysis. In the light of proficiency levels and vocabulary levels data, they were randomly and variable-based equally assigned to control (n=28) and experimental (n=29) groups. The experimental group read graded readers in English with a dictionary on the same page in a hypertext tool prepared by the researcher. The control group read in the school's online library system using either an online or a hard copy dictionary format.

Hypertext format logged user looked-up vocabulary and engagement duration, as well as done exercises if there were any. Lexically unknown items from these logs were tested every week with vocabulary depth measurement tools, reading comprehension tests and written and oral summaries related to the books of mention. The participants read four graded readers for seven weeks at extracurricular times. Vocabulary Knowledge Scale mean scores were found to be higher with a statistically significant difference (p=.034) in the experimental group after the whole intervention. On examination of the learner corpus, rate of productive usage of unknown words (n=40) in learner-spoken corpus was 27.5% in hypertext group and 15% in LMS-OER. In written corpus of participants, 30% of words were used in hypertext and in the control group, 15% of words were found in previously unknown vocabulary-related profile analysis. Multiple Regression Analyses demonstrated proficiency level of participants and occurrence frequency of incidentally acquired words as having the most effect on lexical gains obtained via extensive reading in this study. Interviews revealed that participants denoted advantages such as long-lasting lexical gains, enhanced reading habit, and increased motivation. Drawbacks coded were related to the website‘s interface which requires to be developed and to be more user-friendly.

Keywords: Online Extensive Reading, Learner Corpora, Incidental Vocabulary Gains.

ÖZET

KARMA YÖNTEMLİ ÖĞRENİCİ DERLEMLERİ ÇALIŞMASI: HİPER METİNLİ ÇEVRİM İÇİ KAPSAMLI OKUMA ARACILI İKİNCİ DİLDE RASTLANTISAL KELİME KAZANIMLARI VE OKUDUĞUNU ANLAMA

Araştırmanın temel amacı, çevrimiçi kapsamlı okuma formatlarındaki rastlantısal kelime dağarcığının ne kadarının öğrencilerin sözlü ve yazılı ürünlerinde verimli bir kelime kullanımına dönüştüklerini keşfetmektir. Ayrıca, aynı sayfada ayrı sekmelerde veya basılı kopya formatında sözlük kullanımındansa, aynı sayfada yanda konumlandırılmış sözlük kullanımıyla kelime dağarcığı alanına ilişkin olarak hiper metinli kapsamlı okuma verimliliğini ortaya çıkarmak için, araştırmacı tarafından taranmış sayfaların dönüştürülmesiyle bir çevrimiçi kitaplık oluşturulmuştur. Bir dizi seviyeli okuma kitapları ile system oluşturmak için ücretsiz kelime öğretme aracı olan bir internet sitesi kullanıldı.Katılımcılar olarak aynı kurumdan 28'i kadın, 29'u erkek olan 13-14 yaş arası 57 devlet lisesi, hazırlık yılı öğrencisi seçildi. Çalışmada, öğrencilerin İngilizce ve günlük kullanım konusundaki yeterlilikleri ve deneyimleri benzerdi. Dil yeterlilik seviyeleri ve dil kelime bilgisi seviyeleri verileri ışığında, rastgele ve değişkenler eşit dağılacak şekilde kontrol (n=28) ve deneysel (n=29) gruplara atandılar. Deneysel grup, araştırmacı tarafından hazırlanan bir hipermetin aracında aynı sayfada bulunan bir sözlükle İngilizce seviyeli kurgusal kitapları okudu. Kontrol grubu ise okulun çevrimiçi kitaplık sisteminde çevrim içi ve basılı sözlük biçimini kullanarak aynı kitapları okudu. Hiper-format kullanıcılar tarafından aranan kelime bilgilerinin ve okuma süresinin yanı sıra, varsa yapılan alıştırmaları da kayıt altına alıyordu. Bu aratılan kelimelerin yani bilinmeyen öğelerin her hafta kelime dağarcığı derinlik ölçüm araçlarıyla, anlama testleriyle ve yazılı ve sözlü özetlerle test edilmiştir. Katılımcılar yedi hafta boyunca ders dışı zamanlarda dört adet seviyeli kitap okudular. Kelime Dağarcığı Bilgi Ölçeği ortalama puanlarının, tüm deneysel müdahaleden sonra deneysel grupta istatistiksel açıdan önemli bir fark (p= .034) ile daha yüksek olduğu görüldü. Öğrenen derlemi incelendiğinde öğrenen sözlü derleminde bilinmeyen kelimelerin verimli kullanım oranı (n=40) hipermetin grubunda %27.5, LMS-OER'de %15'tir. Katılımcıların yazılı derleminde, kelimelerin %30'u hiper metinde kullanılmış ve kontrol grubunda kelimelerin %15'i daha önce bilinmeyen kelimelerle ilgili profil analizinde bulunmuştur.Çoklu Regresyon Analizleri, katılımcıların genel dil yeterliliklerinin ve tesadüfen edinilen kelimelerin kitaplarda tekrar sıklığının, bu çalışmada kapsamlı okuma yoluyla elde edilen sözcüksel kazanımlar üzerinde en fazla etkiye sahip olduğunu göstermiştir.Yapılan görüşme sonuçlarında katılımcıların olumlu yanları; hipermetinli şekilde daha çok kelime öğrenme, okuma becerilerinin artması ve motivasyonun artması olarak ifade ettiği ortaya kondu. Kodlanan dezavantajlar ise web sitesinin daha kullanıcı dostu olacak şekilde geliştirilmesi gereken arayüzüyle ilgiliydi.

Anahtar Kelimeler: Çevrim İçi Kapsamlı Okuma, Öğrenici Derlemleri, Rastlantısal Kelime Kazanımları.

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Ayşenur YAMAN

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LIST OF ABBREVIATIONS

PISA	:Programme for International Student Assessment
OECD	:The Organization for Economic Co-operation and Development
CALL	:Computer Assisted Language Learning
IVL	:Incidental Vocabulary Learning
OER	:Online Extensive Reading
ER	:Extensive Reading
VLT	:Vocabulary Levels Test
VKS	:Vocabulary Knowledge Scale
BNC	:British National Corpus
MALL	:Mobile Assisted Language Learning
LMS	:Learning Management System
K12	:Kindergarten through 12th Grade
ELT	:English Language Teaching
N/A	:Non Applicable
N/S	:Not Specified
VK	:Vocabulary Knowledge
L2	:Second Language

1. INTRODUCTION

In this section, background information on reading and incidental vocabulary concepts, study's statement of the problem, its purpose andsignificance, and conceptual definitions of fundamental terms regarding research concept will be presented.

1.1. Statement of the Problem

The debate over setting and maintaining better English teaching environments has been going on for ages. 21st century and all diversities it brought have been welcomed with cheers in all realms of life. Fundamental innovations were observed in the virtual application and computer technology areas. As a natural consequence; advancements in technology entailed considerable investment in the teaching sphere, as well. Many virtual applications have been created concerning both pedagogical concerns and fun for students. Additionally, various modality utilization in classroom environment has always been advocated universally, however; of high quality, scientific practices regarding these issues are scarcely exemplified and expanded in Turkish context foreign language teaching environment for online extensive reading (OER) and written lexical item exposure facilitation. Bearing this scarcity in mind, input for next-level learning experiences can be provided using diverse nature of technology use outside the classroom.

Secondly, technology paves the way for experiential learning realizations for the generation "Z". Any teacher senses that every student is unique and has a unique way of knowledge processing and adoption. Instructors shall discover and cultivate those ways using the latest trendy applications of interest. However, how? That issue has preoccupied nearly all researchers and practitioners in Foreign Language Education (FLE) realm for ages. Furthermore, the policymakers and Ministry of National Education started to attach great importance to reading comprehension after test results of Programme for International Student Assessment (PISA) 2012, 2015 and 2018

indicated that Turkish students are ranking at the bottom nearside of the list in reading comprehension skills alike with the students from underdeveloped country even in L1 (OECD ©, 2019).

EFL instructors are mostly engaged in the reading text materials including activities to foster comprehension to improve cognition and inferencing skills of students. However, there is an ongoing quest on figuring out the best way to facilitate comprehension. Lexical quality and processing via working memory is of great importance for reading comprehension because of being the fundamental essences of it in both L1 and L2 (Raudszus, Segers, Verhoeven, 2017). There is an urgent need to create an efficient and cost-effective method to improve L2 vocabulary and reading proficiency levels congruently.

On the other hand, the amount of lexical gains via online or paper-based extensive reading underestimated and underrated in the sphere of L2 research as Krashen (2011) denoted and sensed this setback but he did not propose any tangible research supporting it in his book titled as "Free Voluntary Reading". In applied linguistics, this study will provide rock-solid proof and contribution to the degree of credibility of using extensive reading in L2 learning processes and for the teachers of L2. The necessity for a compilation of graded readers, which is very limited online without payment to realize.

Nevertheless, it is scientifically proven that explicit teaching utilization and intentional learning output of vocabulary in reading contexts lead to a greater retention span and higher acquisition scores regarding lexical components (Goo et al., 2015; Khezrlou, Ellis & Sadeghi, 2017; Leow, 2019). However, instructors are not capable of providing students with all the vocabulary in real life via formal teaching experiences alone. Most of the vocabulary taught explicitly is limited to the textbooks in a L2 curriculum, this comprises spoken and written language with limited novelty fashion than encountered in a fiction reader, and 1,000 most-frequent word band constitutes spoken language according to BNC (British National Corpus) data. On the other hand, incidental learning via extensive reading itself renders much more exposure to both above 2000 most-frequent word band lexical items that are otherwise nearly impossible to obtain via formal education system with commercially designed general L2 teaching material.

Furthermore, self-directed learning and discovery of vocabulary experientially with an urge to search for the meaning of the word via extensive reading can serve as a recurrent and an emergent way for realization of "The Involvement Load Hypothesis" (Laufer & Hulstijin, 2001) in this study.

This study signifies and revives importance of creating free OER (Online Extensive Reading) environments for Turkish learners in learning English as a L2 for both reading comprehension and vocabulary knowledge improvement as main constituents. Technology progressed and paved a lot of way, but the financial burden of payments to get applications or LMS (Learning Management System) to read emerged as a setback for learners.

This study is unique in the way that it visually scans most of the over-rated graded readers in the purchased ER LMS system and converts those into word format then using free hypertext tool."Compleat LexTutor", a data-driven web based research and vocabulary learning tool, designed and devoted to language learning community by Cobb (1997), enables marginal glossing on the same page of text wiring dictionaries like "Longman LDOCE and the new Cambridge Advanced Learner's" online. This recollection of online graded readers with hypertext glossing format transformed by the research of this study will function as a free tool for the Turkish language learners and is worldwide available on the net.

1.1.1. The Use of MALL in Vocabulary Learning and OER in Turkiye and Worldwide

As stated by Kukulska-Hulme (2009), the trend towards using mobile devices in every part of real life led to a change in language learning environments as well. From computers to portable devices, a shift was seen in foreign language teaching and learning field. Basically, in order to learn vocabulary, to read in foreign languages and to learn new languages; smartphones are widely employed in our century (Lu, 2008; Thornton & Houser, 2005).

The studies on student achievement mostly focus on students' vocabulary achievement in English Language rather than any other skills like reading or listening in Turkey. As in studies by Agca and Özdemir (2013); Sarıçoban and Özturan (2013); and Zengin

(2015), research primarily concentrates on students' vocabulary gains in English Language. There is a research gap and utilization deficiency regarding use of MALL in extensive reading in Turkiye. Instructors cannot provide students with every detail of a foreign language inside the classroom. More exposition to language is possible by equipping and introducing learners with tools to fend for themselves.

As stated by Chang, Liang, Yan, and Tseng (2013) and Kukulska-Hulme (2013, p.6.) extensive reading habit in virtual environments, especially on portable devices, should be generalized and disseminated for the benefit of language teaching along with promotion of individualized learning with pleasure.

1.2. Purpose of the Study

As Grabe and Stoller (2001) denoted, readers should apply various strategies to make most of comprehension from what they encounter in textual format. In OER, abundance of new materials even multiplies the need of clear-cut strategy uses like hyper-glossing to maximize incomprehension of input read to make meaning primarily. Paper glossing have been investigated a lot and found efficient in text formats; however both in longer textual bodies like stories and electronic gloss use issues need to be delved into stratum by stratum.

There are a significant number of studies that have examined the extent of what vocabulary is unintentionally learned while reading. However, those examined learning from reading a single separate text in L2 (Horst, 2005; Schmitt, 2010) cannot synthesize vocabulary gains in the way multiple graded readers (GR) included design can provide. The present study extends existing research by examining not only receptive but also productive vocabulary learning through continuous readings of GR. Research previously carried out in the realm of extensive reading mediated incidental vocabulary used the pretest, post-test design with researcher-chosen target words (Nation & Webb, 2011; Webb & Chang, 2015). However, this study utilizes only-post-test design with words chosen according to the participants' look-up tracks along with target words. Applying pre-test initially decreases reliability of the research nature by not considering recall issue. However, this study draws on looked-up words data for

unknown vocabulary detection, chosen from look-up tracks of students both in system and taken down on paper notes target words are determined. Individualized incidental vocabulary (IV) gain probing tests give sound information about previously unknown and via readers obtained productive vocabulary knowledge.

Moreover, only a few studies in literature aimed at proving L2 IV knowledge increase via extensive reading using multiple texts not separate single texts. (Cho & Krashen, 1994; Horst, 2005; Pigada & Schmitt, 2006). In the literature as far as probed, this design has never been used in the previous studies along with its data collection nature. It includes not only Vocabulary Knowledge Scale (VKS) to determine productive vocabulary depth and recognition simultaneously but also learner corpora analysis via written and spoken texts created by participants about the books read within the scope of this study. Previous research made use of vocabulary tests only without speaking and writing related skills mediated IV usage. Additionally, literature over IV probed mostly into text-level, lacking validity without GR usage with a low number of participant sampling. Main purpose of the research is to unveil incidental vocabulary related most fruitful modality mystery behind productive vocabulary usage in online extensive reading formats. Therefore, automatically, a second aim is to figure out the better way of OER -with hypertext glossary or without - considering utmost reading comprehension level.

This study also posed the questions below to reach determine over via hyper-texted ER (HOER) mediated IV acquisition usage presence in GR related spoken and written corpora of L2 English learners' as participants :

1. Is there a statistically significant difference between hypertext online extensive reading (experimental group) and LMS mediated online extensive reading (control group) regarding overall VKS scores obtained after reading each book?
2. Is there a statistically significant difference between hypertext online extensive reading and LMS mediated online extensive reading regarding lexical recognition and vocabulary knowledge breadth?

3. Is there a statistically significant difference between hypertext-online extensive reading and LMS mediated online extensive reading regarding lexical production and vocabulary knowledge depth?

4. What is the utilization rate of while reading looked-up words respectively in spoken and written corpora of learners in hypertext-online extensive reading group compared to LMS online extensive group?

5. Which group will have superior reading-comprehension scores after reading all of the four graded readers?

6. Which frequency type -overall word frequency in English language or immediate textual word frequency- affects incidental learnability of a lexical item more in hypertext online extensive reading?

7. To what extent do the variables proficiency level of participants, vocabulary size of them, their English learning backgrounds, and modality (HOER or LMS-OER) affect learnability of vocabulary items regarding VKS production and recognition scores together?

8. What are the impressions and suggestions of students who experienced hypertext online extensive reading (HOER) regarding learnability of incidental vocabulary items, practicality of HOER system and its contribution to the overall spoken and written language use?

1.3. Significance of the Study

This study can contribute to the literature in terms of main reasons introduced below. Face validity issue encountered in the designs of studies of similar nature in the literature was tackled immediately in our study by increasing tested words in quantity in a series of books not with a text merely. Their system constructed here rendered it possible to read same books simultaneously for language learners in a non-native learning environment, since it deploys free digital library composition created by the researcher of this study using a free software. This is a previously tried but partially completed long-term goal in the literature pronounced as a limitation of studies. Furthermore, the context of L2 vocabulary gains via glossing in online extensive reading at the K-12 level has been scarcely investigated in literature (Miyasako, 2002). Participants at tertiary level were chosen as samples nearly in all of the glossing-related

studies (Chiu, 2013, Huang, 2003; Khezrlou, Ellis & Sadeghi, 2017; Robin, 2007, Türk & Erçetin, 2012; Webb & Nation, 2017; Yanagisawa & Webb, 2022).

Hypertext systems are drawn on at tertiary level L2 textual level readings and learning and consequently, a great body of research is based on university level findings (Akyel & Erçetin, 2009; Ariew & Ercetin, 2004; Chen &Yen, 2013; Huang et al., 2009; Morrison, 2004; Yao, 2006). This study regarding its research context and participants comprises K-12 level education with high school preparation year students as participants and additionally it consists of 7-week-long extensive reading treatment period out of class, ecologically valid process of extensive reading adopted with its design.

Hyper-texted ER shall be popularized among K12 educators with evidence of mutual benefit it provides for both teachers and learners. However; in the literature, to our knowledge, no solid steps are taken towards achieving this state with graded readers; only text-level studies taking one or three weeks at most conducted. This study will be the first one both for its duration of intervention and since longer body of texts from popular fictional "Graded Readers" are chosen as input materials contrast to the previous studies with one page or two pages longer texts only design; generally in non-fiction genre.

1.4. Conceptual Definitions

Hypertext glosses: "These are, in some sense, electronic dictionaries wired to texts providing information especially meaning about the lexical items searched, generally at the bottom, marginal or in-text modes are available. This term is mostly utilized in foreign language learning and vocabulary studies. They are not provided before reading or given by the writer, but they get activated by readers 'request." (AbuSeileek, 2011; Choi, 2016; Huang, 2018; Lee, Lee, & Lee, 2016; Lee, Warschauer, & Lee, 2017).

Online Extensive Reading: "This type of reading is with texts longer, easier, mainly engaged in making meaning of what is digested (Grabe,2008), it includes pleasure as the main purpose (Waring, 2011) and hardcopy versions of books are not used. Instead, it is an online learning management system or website mediated presentation of

collections of fictional, non-fictional written materials or magazines and newspapers carrying a message to the readers."

Incidental Vocabulary Learning (IVL): When we learn words in a setting that isn't intentionally designed to teach vocabulary or words learned as by-products and obtained in a learning context "incidental vocabulary learning" takes place (Ellis, 1999; Nation, 2009; Nation, 2011).

Learner Corpora: An electronic collection of language learners' written and spoken (transcribed) products in a foreign language (Seidlhofer, 2004).

2. LITERATURE REVIEW

In this section, comprehensive information about literature background of mental lexicon, lexical frequency issue in incidental vocabulary acquisition, reading comprehension and vocabulary inter-relatedness, and previous studies on glossing and hypertext reading studies will be depicted.

2.1. Theoretical Framework

2.1.1. Mental Lexicon and Reading Proficiency Connection

The conceptual framework of this study revolves around mental lexicon‘s components. Mental lexicon is crucial for effectively comprehending reading texts (Perfetti & Stafura, 2014). The mental lexicon is composed of spoken and written language (vocabulary breadth), the semantic quality of these entries (vocabulary depth), and the strength of connection in lexical representations (semantic relatedness). Research conducted via "hypertext glossed reading" treatment often lack scrutiny over the role of those aforementioned aspects of the mental lexicon in both vocabulary proficiency and reading comprehension.

Most common 3,000 word-level is thought to be a milestone to comprehend passages at academic levels (Coady et al., 1993; Laufer, 1992, 1996; Qian, 1998). Likewise, Qian (1998, 1999, and 2002) stated that at least 3,000-word level mastery is crucial for reading comprehension achievement. Nation (2001) indicates that vocabulary and reading are mutually dependent and mutually beneficial.

2.1.2. Breadth of Vocabulary Knowledge

The quantity of words known is related to the size of vocabulary knowledge (VK); in other words the breadth of VK. Vocabulary matters much for a language acquisition (Nation & Laufer, 1995).Meara (1996) confirmed that the greater size of VK means greater success in different skills of a foreign language. Nation and Beglar (2007) designed the tool “vocabulary size test” to measure the breadth of vocabulary knowledge.

2.1.3. Depth of Vocabulary knowledge

Depth is the mastery of a word concerning not only meaning and grammatical functions but also many different usages, connotations, synonymy, hyponymy, and collocations. The most comprehensive description of this concept encompasses "form, meaning, and use" aspects (Nation 2001; Schmitt 2014) elaborated as below.

Table 1: Mastery of Word Knowledge

Mastery of Word Knowledge	
Form	What does the word sound like? (Recognition) How is it pronounced? (Production) What does the word look like? How is it written and spelled?
Meaning	What meaning does the form of word signal? What word form can be used to express this meaning? What does this concept include? What item does this concept refer to? What other words do we think of when we hear this word? What other words can we use instead of this one?(association)
Use	In what patterns do we use or must we this word? (grammar) What words are seen with this word? (collocation) What types of words must we use with this word? When, where and how often can we use this word?

Reference: Adapted from Nation, 2001, p. 27

The study by Wu Xudong and Chen Xiaoqing (2000) confirmed that the "meaning" aspect is the most evolved one related to depth word knowledge and different aspects such as meaning, collocations, and connotations efficiency related to VK enhanced in a parallel fashion. Many studies confirmed that breadth and depth are like validity and reliability, this metaphor illustrates the presence of direct proportion (Nurweni & Read, 1999; Qian, 1999; Vermeer, 2001). Schmitt (2008) however, abstains from defining a specific layer as the best indicator of VK (Vocabulary Knowledge). Since different assessment and instructional methods can lead to various results.

2.2. Lexical Frequency for Incidental Vocabulary Acquisition

Word frequency types are widely recognized in language teaching realm as "high-frequency, low-frequency, academic and technical" vocabulary classification (Nation, 1990, 2008). BNC and COCA corpora comprises most parts of English, but also new GSL (General Service List) is accepted as the most comprehensive one among all these (Dang & Webb, 2016). Dang and Webb (2014) strikingly presented that knowing first 1000 most-frequent words in a language (with lemmas) one can survive 65% or 85% of a conversation in terms of lexis. A second 1000 most –frequent ones in a language help somebody read 86% of novels and 81% of newspapers or make sense of a TV program at 89%.

It is corroborated by many researchers that 6 or 20 times a word must be recurring in a graded reader to be acquired, recognized and translated (Horst, Cobb & Meara, 1998; Pigada & Schmitt, 2006; Rott, 1999). But contextualized testing was not deployed here in these researches ,in other words in our study repetitions were evaluated along with given contexts from extensive reading books assigned here.

As another perspective, Brown (1993) scrutinized over the frequency of a word in a foreign language holistically and claimed it boosts learnability chance factor significantly more than mere repetition of words in a book or text could provide. However, earlier this one, by Saragi et al. (1978) it was also suggested that people grasp words recurring in a text environment more effortlessly.

However, Horst et al. (1998) questioned all these procedures in the table below since they did not harness longer books and extensive reading process to prove pick-ups with an incremental fashion and these early studies were designed in a weak way. Horst et al. (1998:219) additionally revealed that participants with larger vocabulary level size digested more words in number incidentally. The table below illustrates the earlier studies completed with only one book or one text based reading treatments to gauge lexical improvement.

Table 2: Researches Conducted As a Replication of "Clockwork Orange" Novel Experiment

	Saragi et al. (1978)	**Pitts et al. (1989) exp 1**	**Pitts etal. (1989) exp 2**	**Day et al. (1991) exp 1**	**Day et al. (1991) exp 2**	**Hulstijn (1992) exp 1**
Participants	20 Native Speakers	35 Non-Native	16 Non-Native	89 Non-Native	20 Non-Native	65 Non-Native
Reading Treatment	60,000 words	6,700 words	6,700 words	1,032 words	1,032 words	907 words
Duration	N/S days	60 mins	40 mins	30 mins	30 mins	N/S mins
Item number	90 Nadsat (Russian-Influenced English)	30 Nadsat (Russian-Influenced English)	28 Nadsat (Russian Influenced English)	17 English	17 English	12 Dutch
Assessment	Multiple choice	Multiple choice	Multiple choice	Multiple choice	Multiple choice	State meaning
Number of newly gained words	68.4	1.8	2.4	1.1	3.0	0.9
Words learned, mean %	75	6	9	6	18	8

Reference: Horst, Cobb and Meara, 1998 2, p.207-223

In their research "Beyond a Clockwork Orange", Horst, Cob, and Meara (1998) ignited the passion to probe into the world of estimations on how much one can memorize and utilize in extensive reading environment without apparent intention of lexical meaning grasping. Their aim was to figure out the optimal repetition time required for a lexical item to be attained and recognized. Seventy-five frequency high

and thirty-seven low frequency words were chosen taking their occurrence in the text; it was at least seven times as the inclusion criterion. 34 lower-intermediate level university students learning English as a foreign took part in their research.

There was no dictionary use allowed. Whole process comprised six sessions and participants did not have an access to the text except reading sessions. They harnessed a 45-word MC test and a word-associations test for 12 words in find the odd word format. Pre-test, post-test design was adopted and participants' vocabulary size was determined by a VLT. Findings suggested a higher proportion of gains compared to the literature statistics, given that five out of 23 words could be learned and this was overtly affected by repetition of words thus supporting use of new words in cycles in reading to teach vocabulary. Another different factor in the study regarding their intervention procedure was usage of a longer book with discrete observation over reading tasks' completion.

Additionally, eight-times or more was the optimal and regarding five-times or less contradictory findings were present. Another result of the study was that general frequency bands in a language could not guarantee the learnability in reading and vocabulary-size level higher learners can obtain lexical gains more while reading.

Horst (2005) employed a more meticulously designed extensive reading program; they gave priority to the tastes and interests of participants by scanning books of different genres to conduct a word-list frequency query but they managed finishing only first 20 pages of each book, this is one of the drawback of relying on the results from this study. In our study, all four GRs are scanned and analysed lexically. According to their research, learning gains were greater in number and durability in terms of extensive reading procedure employment with 70 GRs from different genres rather than a short text or one GR. During class time once a week for six weeks, students read silently keeping logs of the vocabulary, having pair work over books covered.

They scanned the GRs, as usual, simplified scripts include more frequent words than the original ones could have. In the results of the study, it was discovered that off-list words what means words, which are less frequent, and even not in the occurrence lists of a language. Vocabulary Knowledge Scale (Wesche & Paribakht, 1996) was deployed to collect outputs of lexical knowledge gained via ER. This study is of great value regarding its attention to the ecological validity issue by leaving preference of

books to read to the students. Our study completed a questionnaire over genres of books mostly demanded to respect this validity issue.

Pigada and Schmitt's (2006) study proved that at least 20 times an unknown word's repetition is required to be obtained. However, this study consisted of one participant –present level intermediate- reading extensively to gauge incidental vocabulary gains.

Waring and Takaki's (2003) study comprised 15 participants relatively larger in effect size. They wanted to ascertain how much of the incidentally encountered word can be kept for future use. Researchers chose 25 words recurring at least once, 14 or 15 times at most in a graded reader and in order to make sure the participants do not previously know them, they changed letters of those target words. However, here, they pretested correct words, on post-test they did changes in spelling on the sampling, which violates natural validity by administering pseudo-word including measurement tools. Participants' English levels were intermediate and they were all females whose L1 is Japanese. Three recognition tasks (recognition, translation, multiple choice) were applied at three different times, given the last round after three months, second one after a week of the first cycle, which was an immediate one. In addition, the delayed tests unveiled that below eight times repeated words cannot be recognized on the delayed one, in this case only one word acquired incidentally of 25 presented. While post-tests has shown that some vocabulary is attained via extensive reading, statistically 10 (recurring 15 times) of 25 words on immediate recognition ones and on translation task this number decreased to even 6.1 words of 25 and on delayed translation one 1.9 of target words can be remembered correctly. Multiple choice one yielded higher scores (15 words out of 25) however; they decreased in the same fashion. It is concluded from this study that fewer encounters yield recognition in spelling whereas for meaning recall, more exposure shall be deployed or contextual factors intertwined come forward more apparently in extensive reading.

Pigada and Schmitt (2006) found twenty or more times an unknown word's repetition is required to be obtained. However, this study included only one subject –present level intermediate- reading extensively to gauge incidental vocabulary gains. Nation and Webb (2011) mentioned frequency issue shall be checked not only regarding the lemmas but word family units in their book "Researching and Analyzing Vocabulary". They meant derivations or inflectional suffixes of the same word can be recognized as different words; however, when technical search is being conducted taking every

word-unit as one concept, that will eradicate the problem. Lexical occurrence frequency will be lower but more reliable this way. In our study, we will follow their recommendations over this issue.

However, Webb and Chang (2015) implemented another study measuring effect of circumstantial frequency of words in a book. As the main finding, there was not a statistically significant correlation between word attainment and frequency of the words in the graded readers utilized suggesting other factors along with frequency should be investigated, as well.

Chang and Hu (2018) investigated the same issue with a series of 10 GRs with 67 high school language learners. They grouped sampling as lower and higher-level participants, the VLT test devised by Schmitt, Schmitt and Clapham (2001) was applied. Since they did not explore recurring words learnability ratio effect and study results were proposed based on frequency levels of words in language not in the GRs covered; this fact is a disruption for the generalizability of results. Our study considers this limitation thoroughly. Translation matching style test was used to determine gain size with pre-test, post and delayed tests, treatment took 17 weeks. Words chosen from 1,000 and 2,000 frequency bands were attained by higher-level participants with a rate of 69% and 71% respectively while among lower-level students 20% was achieved in both bands. There was no significant difference between pre, post, and delayed tests in both groups' scores when matched within same level participants. They mentioned the necessity of a method to boost dictionary usage and habit formation among lower level participants since higher-level students were already employing those techniques for further research.

Our study comes into play here due to its inherent characteristic of user-friendly dictionary usage availability with hypertext book format and separate online dictionary webpages option open to access if requested by participants.

In the literature, results of studies over word frequency regarding lexical attainment are more or less consistent with these findings. However, about these studies presented above clearly it could be suggested that in addition to proving effect on learnability of lexical items in a book, some other factors could be interfering in the learning process.

2.3. Reading Mediated Incidental Vocabulary Learning

Nagy, Herman, and Anderson (1985) first introduced incidental vocabulary learning concept and they stressed the importance of reading skills to enhance vocabulary knowledge breadth. When we read a novel just for pleasure, then the words we learn from it are incidental gains. Sen and Kuleli (2015) researched vocabulary size and vocabulary depth's relationship with reading comprehension proficiency scores of 361 Turkish EFL students, and findings indicated that VK depth richness signalled a higher level of reading achievement.

When we see the same words twice or more, we learn them unconsciously (Webb & Nation, 2017). In this study, a backward style is adopted; the effect of vocabulary knowledge breadth and depth on reading comprehension will be scrutinized. Related to depth, subcategories' effect over comprehension will be measured and the most influential ones will be implied to be targeted by instructors. A study by Webb and Chang (2015) proves that when coincidence frequency increases, incidental vocabulary learning (IVL) ratio increases as well.

However; because of time constraints and low revisiting frequency levels, we may not be able to acquire the words quickly in incidental contexts (Lee & Lee, 2015; Nation 2013). Lee (2003) denoted that when the students are explicitly taught the vocabulary, they learn better. He based his assumptions on the study results he obtained. In a similar vein, according to Laufer (2003) more words are learned in intentionally designed vocabulary teaching contexts. On the contrary, if readers frequently come across certain words, then in the long haul incidental vocabulary gains might be of high quality regarding meaning and collocational knowledge aspects (Schmidt, 2010; Webb, 2007).

With a similar perspective, Webb (2007) administered 10 different tests to measure meaning, form, and use aspects of reading-mediated incidentally gained VK depth among Japanese EFL learners and results stressed that one must see a word at least 10 times before learning it unintentionally. Repetition was suggested to be crucial for IVL in this study. Webb (2007) also indicated that remembering the meaning of a word is more reliable and choosing the meaning from given options is less predictive of word meaning mastery. A recall test should be implemented rather than a recognition test in VK studies.

Vocabulary expansion incidentally occurs via reading related to the depth layer of VK (Day, Omura & Hiramatsu, 1992; Horst, Cobb, & Meara, 1998; Pigada & Schmitt, 2006; Webb & Chang, 2015). Waring and Takaki (2003) suggested that researchers should check improvement aspects in depth of pre-existing vocabulary knowledge after extensive readings with graded readers because their study over the breadth of vocabulary knowledge improved incidentally while reading one-level readers. In this study, it is aimed to shed light on "layers of VK depth "with a framework adapted from Nation (2001). With relation to form a layer of VK will be checked via spelling and pronunciation checks; meaning aspect will be exposed via synonyms, antonyms, and hyponyms; and concerning use: collocations, grammatical use and associations will be searched both before "hypertext" intervention and after using the words determined accordingly with present vocabulary knowledge levels of participants.

2.4. Generative Theory of Multimedia Learning

Generative Theory of Multimedia Learning (GTML) by Mayer (1997, 2001) proposes that when more than one modality is used human beings acquire knowledge better. The dual channels, the limited capacity, and the active processing assumptions constitute core of the theory. Dual channels propel the idea that when visual and verbal modalities are provided both simultaneously, brain decodes the message faster. Nevertheless, the limited capacity means condensed information should be presented without excessive cognitive load. This theory accepts that when supported by visuals verbal information can be digested more meaningfully and successfully. Our study advocates the same idea and incorporates use of sound and textual explanations.

2.5. Computer Assisted Language Learning in English as Foreign Language Settings

When Sharma and Barrett (2007) wrote about the concept of blended learning in their books and even this concept originated in 2000, it has enlarged and evolved since then. However, according to Mayer (2007) there is not a clear-cut definition of it. Blended learning (BL) draws on technology use both outside and inside the classroom thanks to virtual activities carefully embedded into curriculum topics but the overall percentage for the technology is 45% (Thorne, 2003).

It doesn't mean an arbitrary use of technology rather it means neatly planned online or application-based technologies such as online feedback systems over written works, online collaborative writing tasks, glossary interfaces provided with reading texts or stories especially in EFL teaching settings (MacDonald, 2008).

A flipped classroom is a transformed aspect of the blended education style where students watch videos generally shot or arranged by their teachers including the presentation stage of traditional lessons at home (Milman, 2012). Then practice stage is completed with the teacher in the face-to-face format when students come to school. Similarly, lab-blended is another type of blended approach, which involves ICT-laboratory use and learning management system used at school to obtain objectives related to a language lesson along with a face-to-face phase again. In the lab-blended type teacher supervises and helps students during autonomous and student-based heuristic activities.

Academic success promotion via a "blended approach" has been put forward by many previous studies and proved correct with supporting data analyses (Pye et al., 2015). Related to language teaching, significant enhancements in the students' language skills have been observed when the blended approach was drawn on (Adair-Hauck, Willingham & Youngs 1999; Banados, 2006; Grgurović, 2011; Khezrlou, et al. 2017; Neumeier, 2005).

Adair et al. (1999) conducted a mixed-method study with an experimental group with blended instruction and a control group with traditional lecturing style and interviews done with the treatment group. The study collected information about “listening, reading, speaking and writing” it is the most comprehensive study of technology-enhanced language learning design. They figured out that between intervention and control groups there was no scientifically significant difference regarding listening; though there is in reading and writing proficiency tests given. However, in speaking skill-related practices there was a scarcity of materials to be utilized.

In Grgurović’s (2011) research, the participants spent 74% of the time in the face-to-face mode and 26% of the time in the CALL mode. He utilized the lab-blended model for the intervention. *Lab-blended* means the instructor uses ICT laboratory or computer room to get students to complete some activities online or using an LMS.

Khezrlou, et al. (2017) implemented a quasi-experimental study with 3 intervention groups who read 3 passages, and 1st group was instructed to check for glossary while reading, the second group using the same system but wasn't let known about the necessity to check for the glossary and 3rd group which was pre-taught unknown vocabulary before reading. This was also a lab-blended version of blended approaches. Findings suggested that electronic glossing boosted reading comprehension and all intervention modalities yielded lexical gains. However, for long-term retention of lexical items explicit vocabulary teaching was the best type for unknown words' apprehension before reading a text.

Gilbert (2013) conducted a study over collaborative online reading and researching a learning management system (Moodle) with Chinese, Korean, and Japanese students of different majors in "The University of Lethbridge", Canada. Admission to this university required subtle English proficiency and for the incompetent ones, there was an English for academic purposes course. They did asynchronous readings and posted summaries and topics for the tasks and projects that were assigned. Additionally, they learned how to evaluate information presented in the websites and constructed reliable information collection strategies.

Reading, speaking and writing skills' instruction via CALL based techniques inside and outside the language classroom found to be more supportive (Pardo-Gonzalex, 2013). Sharma (2007) highlighted that in CALL approach, teacher figure cannot be perceived as substituted by computers; and dominance of face-to-face instruction invariably prevails in language teaching lessons. Traditional lecturing and CALL are hand in hand within this design, neither ignoring each other.

2.6. Glossing and Hypertext Glosses

Glossing is giving any type of information to expand scope of a term in a textual context (Nation, 2001). Paper glossing or modality of glosses in paper format has been inspected pretty much. A study by Webb and Nation (2017) defended use of hypertext-glosses regarding motivation increased thanks to the availability of handily checking words. According to the previous information over results of the scientific experiments, proximity of glosses in pop-up format proved to be the most effective in incidental learning and but not promoting durability of gains (Chen, 2014 ; Jacobs et al., 1994; Nation, 2001).

Schmitt (2001) proposed the Noticing Hypothesis and framework of glossing bears many similarities with it on the ground that glossing increases attention paid to searched lexical item thereby increasing recognition degree. Even place of glosses are of importance for attainability of words according to the recollection and discussion of studies by Zhen and Ma (2021) which were conducted previously. In their study they looked into the relationship with positioning of glosses and their effects in results of connected studies from literature. They ensured that there is an interfering effect of dictionary location in reading mediated lexical gains favouring marginal ones as the most efficient ones. However, in these studies glosses were ready-made while in the present study participants themselves interacted with reading material and created hypertext items according to their queries.

2.7. Effect of Learner Proficiency and Assessment Methods on Lexical Gain

Zahar et al. (2001) proposed that lower proficiency level students needed to encounter words more frequently to acquire them than higher proficiency ones. Participants were 144 secondary school students of different proficiency levels.

Many studies delved into the learner proficiency and gloss use relationship. Nonetheless, no significant difference is proven as for low success level or high success level in foreign language variable effect among samples. One the most prominent studies in this area in literature is by Horst (2005).

In their study Chang and Hu (2018) unveiled that 69% of the words which were in the band between 1.000 and 2.000 was recognizable among higher English proficiency students while vice versa was the case for the lower level students with 20% of target vocabulary learned incidentally in extensive reading. They used 10 different GRs at level one.

To gauge vocabulary gains or to check comprehension levels via extensive reading , researchers should be alert against interfering effects of measurement tool. Pervasively; summaries , recall tasks and multiple choice comprehension tests are administered in studies of IV and ER. According to Nation (2001) L1 or L2 usage doesn’t account for any difference in learnability.

2.8. Involvement Load Hypothesis

This tenet claims that when a learners needs to learn something new, he /she searches for it and evaluates what is presented already about the issue worthy of mention according to himself/herself. However, incidental learning must be present to operate this hypothesis. Hulstijn and Laufer (2001) devised a formula to calculate effect-size of activity type on IV boost. Actually, they aimed at figuring out to what extent more gains are possible incidentally when a subject feels a need to learn ,an urge to search and in the end evaluate the products. They all compose "Involvement Load Hypothesis" in a harmony.

According to the effectiveness index, predictability of incidental vocabulary acquisition occurrence could be calculated regarding activity types involved in teaching. It is mostly employed to prove the effect of general language proficiency level over new vocabulary intake chances in an incidental fashion. Because when effectiveness level of a treatment is the same, one can see the difference which is between low-level and high-level students more clearly without doubting the used method credibility variable.

The accountability of this calculation was tested and corroborated by many different studies (Hulstijn & Laufer, 2001; Kim, 2008; Kolaiti & Raikou 2017). However, there are contrasting results claiming that not only involvement load quality determines incidental lexical acquisition from an activity but also frequency and testing type also affects gains.

The crucial issue here is to keep these testing variable affect stable like "word frequency and activities" in Yanagisawa and Webb's (2022) research. There are fluctuating research findings on this topic since different variables such as tasking quality, day of test implementation , students' proficiency, for example composition writing leads to more long-lasting gains compared to fill-in-the-blanks activities (Kim, 2008; Webb, 2007, 2008; Zou, 2017).

Figure 1: Effectiveness Index

	Hulstijn and Laufer (2001)			Kim (2008)			
	Reading with glosses	Fill-in-the-blanks in a text	Composition-writing	Reading with glosses	Fill-in-the-blanks in a text	Composition-writing	Sentence-writing
Need: × 20.9	1	1	1	1	1	1	1
Evaluation: × 8.3	0	1	0	0	1	0	0
Varied use (sentence): × 15.3	0	0	0	0	0	0	1
Varied use (composition): × 23.3	0	0	1	0	0	1	0
Frequency: × 9.4	1	1	1	1	1	1	1
Mode (Spoken): × −9.8	0	0	0	0	0	0	0
EI	30.3	38.6	53.6	30.3	38.6	53.6	45.6
Order of effectiveness	3	2	1	4	3	1	2

Reference: Yanagisawa and Webb, 2022, p.1302.

In this study, researcher benefited from reading not with glosses but with hypertext marginal glosses only retrieved when demanded, assuming that eases to reach search level of hypothesis mentioned above and will enhance learnability level of incidental vocabulary.

3. METHODOLOGY

This part of the study presents information about sampling, research design, data collection tools, intervention procedures, interview protocols, data collection process and data analysis procedures.

3.1. Research Methodology

This is a mixed-method sequential explanatory design study with quantitative analysis and data collection conducted before qualitative data collection procedure. Regarding Ivankova, Creswell and Stick's (2006) description and possibility of procedural order in the design aforementioned can vary depending on quantitative or qualitative data collection and analysis sequence. Initially, in this research after the intervention, quantitative data collection and analysis parts were conducted and qualitative data was analyzed and compiled later. Owing to this design data collection triangulation and reliability of results could be double-checked. In addition, there is no pre-test in this study to protect reliability of post-tests, to keep equivalence variant static between two groups and states, students' logs of look-ups were harnessed to determine target words which were all unknown to the participants and checked by them according to the records of online extensive reading systems of Lextutor. For control group on X-reading system students kept written logs of words looked up and updated them whenever they used a dictionary-online or hard copy dictionary- while reading. Scrutinized by the researcher regarding state of being searched by all participants the target words assigned among all the words looked-up by both groups. The everyday role of researcher in this study setting was being an English teacher of main course lessons for 14 students of sampling.

3.1.1. Participants

57 high school students constitutes participant sampling of this study, who were graduated with honour from their secondary schools and scored nationally the highest or about the highest scores on entrance exam of Turkish high schools to study at the

school of our research place, a Religious Vocational High School in Istanbul. A biodata form was administered to decide on equity of control and experimental groups' participants regarding their background experiences of learning English, staying abroad status, ,exposure to English at home or being tutored at home for English and technological device access frequency along with technology acceptance. This data would be effective in controlling interfering variables by keeping them constant in all groups. They were distributed randomly to the experimental group and the control group from four different English language-centred preparatory classes. Convenience sampling employed with participants chosen from English preparatory classes that is within reach of the researcher. 57 high school students, consisting of 29 males and 28 females were aged between 13-14. After obtaining research ethics committee approval from the university of researcher, consent from participants' parents and students themselves along with formal research permission from Turkish Ministry of National Education was collected firstly.

The school administrator permission was got before launching the project. In order to check the homogeneity of groups, a placement test and a VLT administered. Participants from A2, A2+ and B1 threshold level and from VLT 1000 and 2000 most frequent vocabulary knowledge level from four different classes were equally distributed to experimental and control groups who normally covered the same subjects with the same books, still learning L2 with the same syllabi and conditions. Participants of control and experiment groups are living in the same town, same type of religious vocational school with the same purpose of getting educated: being a proficient English speaker. Initially, a language background analysis with a technology usage/acceptance form application conducted to define the level of equivalence regarding previous language experiences and exposition to English as the target language apart from school instruction. Language Background Profile findings are listed below in the table and they were used to determine homogeneity of experimental and control groups.

English language proficiency analysis to place students into groups and vocabulary level tests were carried out. While assigning participants into groups, intact classes are not utilized since the researchers aimed at gaining the equity between groups, balance to achieve it entailed fair distribution of English Background and VLT high students to the groups. In the very beginning, students are given numbers as names for ease in

categorization and assignment to control and experimental groups. It was found that no participant got tutoring to learn English. However, after the first week of intervention five students and on the other week, six more students could not complete reading each book in a week task and their data was excluded from the study.46 students accomplished reading all four GRs along with carrying out the specified tasks.

Table 3: Language Learner Background Information and Biodata Form Results

		Frequency	Percent
Gender	Female	27	47.30%
	Male	30	52.70%
Age	13-14	57	100 %
Age onset for Learning English	Pre-School	1	1.76 %
	Primary School	56	98.24%
Hours Spent Learning English Language in Secondary School	4 hours	48	84.22%
	10 -12 hours	9	15.78%
Hours Spent Learning English Language in Primary School	2 hours	57	100%
Type of Secondary School Graduation	State School	52	91.23 %
	Private School	5	8.77 %
Current sum of hours weekly spent to learn English	20 Hours a week 5 Reading Writing 5 Speaking Listening 10 Main Course	57	100 %
Staying Abroad More Than 3 Months	France (8 months, a little French spoken) (Participant 7 from experimental group)	2	1.14 %
	Italy (6 Years, Italian spoken) (Participant 1 from control group)		
Parents Speaking English As a Foreign Language	English Language	6	10.52 %
Technology Usage and Device Availability	Internet connection	57	100 %
	Mobile devices	57	100 %
Total		57	100 %

3.1.1.1. Overall Proficiency Levels

According to the results of Oxford Quick Placement Test and scores on e-school system processed by teachers, students were grouped as A2, A2+ and B1. Out of 57 students, 29 students were A2+, eight participants were at A2 level and 20 of them were B1.

Out of 46 participants left, seven were at A2 level which corresponds to 15,2 % of sampling ,19 were A2+ level which corresponds to 41,3 % of all samples and 20 were B1 threshold in other words accounting for of 43,5%. These 20 students were distributed as 10 to the experimental group and 10 to the control group. The same process utilized for the other levels.

Table 4: Proficiency Levels of Sampling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A2	7	15.2	15.2	15.2
	A2+	19	41.3	41.3	56.5
	B1	20	43.5	43.5	100.0
	Total	46	100.0	100.0	

3.1.1.2. Vocabulary Levels of Participants

Next step was to apply this test to ensure homogeneity and to check current vocabulary knowledge state of participants in English as a foreign language. If a participant got 86% or higher at a certain level of this test, which consists of five different levels from English language based on their frequency of usage, it means they are proficient enough at this frequency level of words. K-1 symbolizes first 1000 most frequent words, K-2 means second 1000 most frequent words in English and this continues like that until K-5 level in this tool. In line with findings from VLT test, 15 participants were at K-2 frequency level and 40 participants were at K-1 level among 57 participants. Equal distribution of these students to each group was guaranteed employing these results. Nearly 95 % of English is represented by first 1000 words

level according to Webb (2017) in this test designed by him. When 46 participants, who completed all readings and tasks, were examined and 30 students were found to be at 1000 words level and their distribution was found nearly even in control (n=16) and experimental groups (n=14). They accounted for the 65.2 % of all participants. Seven participants whose VLT is at 2000 words level were found in the experimental group and seven participants whose VLT is at 2000 words level were in the control group.

Table 5 : Vocabulary Levels Test Results

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 1000 words level	2	4.3	4.3	4.3
	1000 level	30	65.2	65.2	69.6
	2000 thousand level	14	30.4	30.4	100.0
	Total	46	100.0	100.0	

3.2. Data Collection Tools and Analysis Procedures

In this section tools utilized to obtain data and their scorings will be depicted in a detailed way. Analysis procedures will be narrated with intervention steps.

3.2.1. Tools Utilized to Assign Participants to Control and Experimental Groups

In order to randomly assign students to groups, the necessity to allocate some outliers to each group equally arouse. Tools and administration processes described below will provide overarching details over them.

3.2.1.1. Oxford Quick Placement Test (OQPT)

Pen and paper format transformed into an online test was administered to see qualifications of students and to choose parallel proficiency level students to be placed in those experimental groups. The online test format was found by the researcher on "ProProfs Quizzes" website, which creates results automatically assigning test-takers to a level using the algorithm suggested by OQPT test developers. The participants sat

this test to be tracked in terms of proficiency levels by the school administration, as well.

According to the results, overall English proficiency levels were quite similar in the distribution of four different classes. Thus intact classes from those similar prep-classes are chosen to progress with a special purpose of including ones who have a tendency towards extensively reading in English. To experimental group and control group right after an orientation period lasting one week, HOER and OER interventions were given. In the orientation period, 1000 and slightly above frequency-level graded readers are used and especially this period provided participants with a chance to get used to online extensive reading modalities' technical dynamics. Construct validity issue is a matter of concern in language studies as denoted by Brown (2008), based on experience and judgement of the researcher and advisor in this study, OQPT found valid in gauging English level of foreign language learners regarding skills inclusion and evaluation nature of it.

3.2.1.2. Language Background Profile

This tool was adopted to collect information about participants' language learner background profiles. It is adapted using Bilingual Language Profile by Birdsong, Gertken and Amengual (2012).

It was implemented to evaluate the presence of covariant before grouping and putting the convenient participants into the study. If present, those covariant can lower the reliability of our study we should attain detailed information before assuming that our participant groups are of the same background to some extent. Turkish translation of the form is present on University of Texas at Austin's website, and some parts taken and adapted from it was used to compile participants' language background profile. Different from the original one , second part includes a biodata form will be administered to decide on equity of control and experimental groups' participants regarding their background experiences of learning English, staying abroad status, ,exposure to English at home or being tutored at home for English and technological device access frequency along with technology acceptance. This data will be effective in controlling interfering variables by keeping them constant in all groups.

The second part of the tool serves for procuring percentages of technological familiarity and accessibility to the internet. This tool aims at figuring out readiness to

technological treatments and it was administered to the hypertext treatment group before the intervention starts. It is designed by Hao (2016) and Turkish translation format is composed by Durak (2017) to figure out technology acceptance level with reliability and validity control. Turkish scale's Cronbach Alfa value 0,978 regarding internal consistency. Researchers of the previous literature are inclined to administer of prior blended instruction experiences. This scale was distributed in Turkish since it is participants' native language to prevent potential misunderstandings.

This scale is five-dimensional: computer/Internet self-efficacy, self-directed learning, and learner control, motivation for learning, and online communication self-efficacy. In this study, a 5-point Likert scale to score items from "completely disagree" (1) to "completely agree" (5) is inserted in the "Technology Usage Readiness Scale" completely similar to the way in Hao' study (2016). The highest scores indicate ultimate use of technology and having access to Internet proportionally with a greater degree.

3.2.1.3. Vocabulary Levels Test

This study administered Vocabulary Levels Test (VLT) designed by Webb, Sasao and Balance (2017) to keep vocabulary proficiency level similar between experimental and control groups.

Additionally, it was employed to choose graded readers according to proficiency levels of students and to ensure the possibility of providing comprehensible input for the participants. In order to determine the general vocabulary proficiency level of participants in terms of word-frequency categories, Vocabulary Levels Test (VLT) was conducted before starting any treatment and training in experiment and control groups. There is a chance of using some parts of VLT that is because it is made up of five parts, students don't have to do the entire test, because there is no total score. The scores were calculated separately at every level (Webb, Sasao, & Balance, 2017). But, in this study the 4.000 and 5.000 level items will be included. Schmitt, Schmitt, and Clapham (2001) points to the fact that 26/30 words or higher means the cutting point for mastery of a level. It's been found valid and because by the creators of this VLT; Messick's (1989, 1995) scheme and design was followed to validate this tool since it is thought to be a useful mean of validation by researchers in language testing (Bachman, 1990; Bachman & Palmer, 1996; Chapelle, 1999; McNamara, 2006; Read

& Chapelle, 2001). The Rasch reliability of this VLT is denoted as 0.96 (Webb, Sasao, & Ballance, 2017). Permission to use this scale was obtained via emailing to the material developer Webb. This scale was devised using BNC /COCA list of Nation's (2012).

If the general level is above 1,000 frequency level or between 1,000 and 2,000 frequency levels, then frequency-based readers will be utilized and the first one will be "A Puzzle for Logan" chosen from Cambridge graded readers. This book is at 2000 words frequency level of vocabulary in English language. This book will leave a place for incidental vocabulary learning, too.

3.2.2. Data Collection Tools Used for Intervention

This section is dedicated to description of tools used while implementing treatment of hypertext.

3.2.2.1. The Vocabulary Knowledge Scales (VKS)

Wesche and Paribakht (1996) defined a reliable framework to design vocabulary knowledge scales probing into depth of word mastery. Framework of Wesche and Paribakht's (1996) VKS is as follows:

I. I do not remember having seen this word before.

II. I have seen this word before, but I don't know what it means.

III. I have seen this word before, and I think it means__ (synonym or translation)

IV. I know this word. It means_____ (synonym or translation)

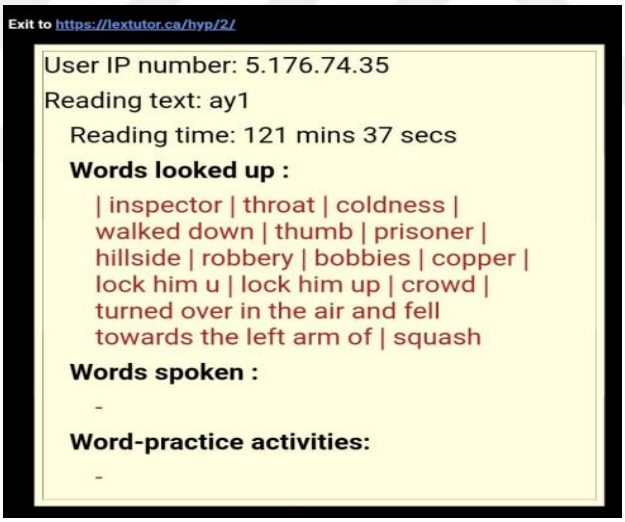
V. I can use this word in a sentence: _____ (If you do this section, please also do Section IV.)

This framework was adopted and adapted for target words evaluation regarding depth layer in VK gained through the graded reader. In addition, other forms of questions are included to test form, use and collocational knowledge deeply. While creating those questions, Nation's (2001) categorization and his questions directed to inquire about depth of target VK are adapted. This scale's scoring extends from ultimate novelty to the little acknowledgment of the word, little thought of its importance and to the capacity to utilize the word in setting with syntactic and semantic precision. Level I determines that students have no idea about the next three levels, II, III, and IV measure the genuine utilization of the word in a sentence signalling for depth level of a target word. The participants can show their degree of information for each. VKS

scoring permits classes I and II to give scores zero for 1st level and one for 2nd level for self-revealed word information but in order to assign higher scores we need much more solid proof of collocation-use and synonym-knowledge.

For the correct reports at the 3rd level we can assign score two. Correct reports over the 4th part corresponds to score three. Related to the 5th stage, in the event that words are utilized in the correct setting however with wrong language (grammatical problems) at that point score four will be given. Score five is given where the target word utilized effectively both linguistically and semantically. This tool's schema is employed to prepare IV detection post-tests of four graded readers' target words along with individually look-up ones. The pretesting stage is not present in this study in order to prevent after effect of seeing words once in pre-test. Instead, target words are chosen from the look-up words using logs of the system and student-taken notes in the control group.

Figure 2: Sample Student Look-Ups



3.2.2.2. Tasks for Data Collection on Extensive Reading Mediated Incidental Lexicon's Productive Use

An at least 200-word summary of the book written by the participants in both groups. To carry out a corpus linguistics research this data is obtained each week after participants finish reading via either way.

3.2.2.3. Reading Comprehension Post-Tests Only Design

RC tests are designed to measure the comprehension levels of students regarding each GR, sequentially. Four reading comprehension tests in total are administered, after 1st week of interventions first GR finish and the first RC test is applied. This test comprises two parts; the first part tests surface-level comprehension with multiple-choice format consisting of five questions and those require low- level processing; figuring out specific information explicitly given in the text is enough.

The second part of the test is designed to test deeper- level comprehension. In the previous researches, phrase cloze-tests are utilized to test deep comprehension (Cunningham & Stanovich, 1998; Sadeghi & Taghavi, 2014). This part consists of accompanied questions in parentheses such as "Who?, What?, When?, How? , Why?" to direct students. Students write a recall of events happened in each GR. Written recalls are appropriate tools to check comprehension.

Scoring will be "one" point for each correct answer provided exactly as in the text for the first part of RC tests and "zero" for the wrong answers. As to the second part, paraphrased structures and re-statements and correct possible inferences from GRs are accepted as correct; of course, words from the book can be used. Since this part is in a cloze-test format with possible paraphrased and definite answers, two different scorers who are researching in the spheres of English Language Teaching and Reading Skills scored the RC tests in order to achieve inter-rater reliability by checking the correlation of scores given to the same paper by two different scorers. Cronbach-Alpha values were defined for those tests and item analysis were executed to check item discrimination and test reliability of the first parts.

Experts from the ELT department checked content validity of RC tests and approved question techniques. In other words, summary and quiz questions measure what is meant to be gauged regarding reading skill. This ensures content validity.

3.2.2.4. Tasks for Spoken Corpora Collection

One-minute length voice records of both groups on interesting chapters and events of the GR assigned to keep track of spoken productive usage of target vocabulary and look-ups regarding incidental vocabulary acquisition. Records are accumulated via WhatsApp and stored by the researcher since in person speaking sessions would take more time and create reluctance by overwhelming research participants with data

collection procedures. Deadline is set as every 10th day since they started reading every Monday and were supposed to finish in 10 days.

3.2.3. Online Extensive Reading Learning Management System

X reading platform had already been purchased and benefited institutionally on demand from all of 27 OER group students and it was employed in control group. All these students were the ones who were interested in extensive reading and willing to buy a LMS. The ones with socioeconomic problems aided with grants by school administration. X reading is a platform which includes virtual copies of simplified materials such as novels, graded readers of fictional and non-fictional genres by different publishers such as Cambridge, National Geographic, Collins, McMillan, Herbling etc.

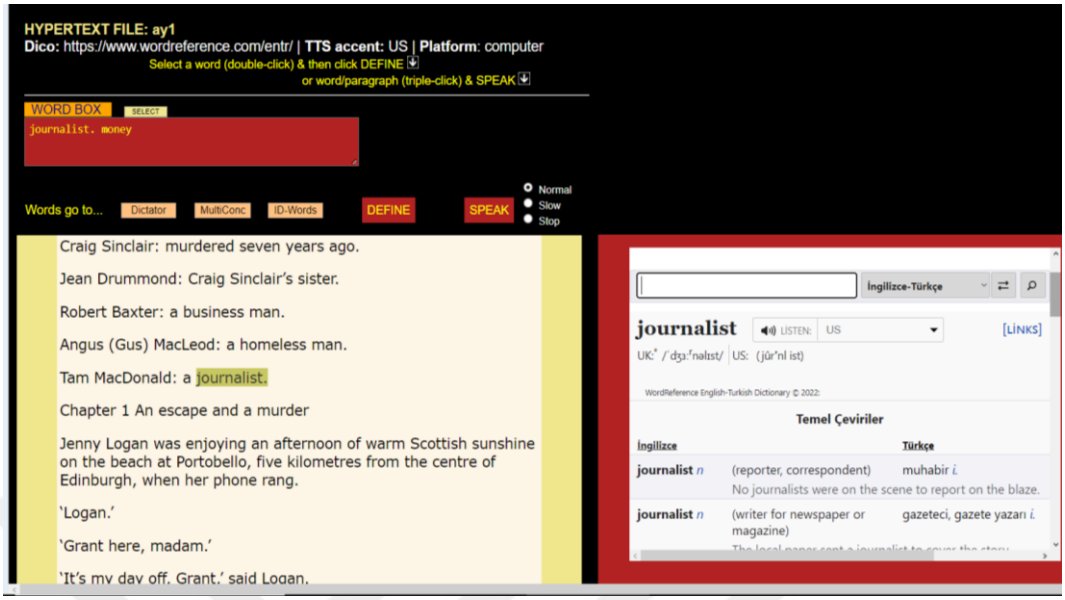
3.2.3.1. Compleat Lextutor Online tool to create Hypertext

Researcher prepared hyper-texted glossary activated version of the GRs, which are already present in X-reading LMS supra mentioned. 30 other students in experimental group that is HOER to access the second GR used a link provided by the researcher.

It is a free tutoring website enabling lexical analyses and library construction with hypertext creation feature wired to "Wordreference" online dictionary and it offers media inclusion to the books or texts service such as videos.

Additionally it provides users and content creators with tutoring activities machine-created automatically over vocabulary items glossed. Online dictionary provided both correspondences in Turkish and English Languages along with pronunciation button and sample sentences retrieved from corpus of English native speakers. Hypertexts include extensions from other websites such as dictionaries and corpora (BNC or COCA). Dictionary and collocation-use examples based on corpora namely the authentic dialogues of native speakers are in machine-readable forms. You click on build hypertext section and by pasting your text on the board given; in comparison to the paper-based chapters many studies concluded that those hypertext with visual and text forms are promoting comprehension by supporting incidental vocabulary growth (Sakar & Ercetin, 2005; Sato & Suziki, 2010; Yeh & Wang, 2003).

Figure 3: Hypertext Program Screen Layout



Nation (2001) proposes that glossing renders it possible to use texts above vocabulary levels of students and promotes further vocabulary gain. Paribakht and Wesche (1997) and Zimmerman (1997) offer that intentional and incidental vocabulary learning both be activated to get a long-lasting impact and to increase remembrance rate. When readers look up the meaning in the L2-to-L2 or L2-to-L1-both present simultaneously-dictionary while reading and the website automatically prepares exercises with those words. Completing exercises designed by the website using the words checked by the individual, the tutoring website promotes individualized learning, too.

3.2.4. Intervention

Piloting took place before commencing the study and it was conducted for two reasons: to test the validity and reliability of the RC and VKS in the context of EFL classrooms and to find out other practical matters such as the appropriateness of the test materials and the amount of time required to complete the tests. These tests were administered to 13 participants who had a similar proficiency level to the whole sample.

Previous studies regarding IV gains determined the possibility acquiring as 5% to 15% of the words provided in the text (Kuhn & Stahl, 1998; Nagy, Herman & Anderson, 1985; Nation, 2001; Scott, 2005; Stahl & Nagy, 2006). Skipping the meaning attachment procedures, learners try to comprehend the text. This fact requires a

practical way to look up words while reading. Next, four different graded readers were assigned to participants according to the preference scoring of book titles and subjects by participants of the study. This method was employed in order not to violate the choice freedom availability of extensive reading, in other words to obtain ecological validity issue of the ER concept.

Experimental group sampling used hypertext online book tool with right side located embedded marginal dictionary extension, which enables choosing and looking up words in English –Turkish correspondences and with in-sentence usage examples and control group used X-reading LMS without any in-text or marginal glosses.

3.2.5. Interview

Dörnyei (2007) and, Heigham and Croker (2009) proposed using qualitative approaches to consolidate deductions made via quantitative ones. Semi-structured questions are mostly preferred to lead samples and researchers to the same direction. In this study, researcher prepared semi-structured questions after scanning the literature for mostly intrigued feedback from participants over online extensive reading. Considering all these factors to check negative and positive effects and impressions of intervention a five-question interview was constructed by researcher. Interview questions were piloted before the conduction over Arabic prep students who also have seven lessons of English. They are also using X- reading system and familiar to the concept. According to the feedback from students over intelligibility of questions and communication, mishaps shed light on the final version of the interview items.

The main purpose of doing this type of data collection is to apprehend the insights about students' affective needs in this technological modality of instruction, their opinions and feelings towards a hypertext construction environment in extensive reading programs and to get an invaluable suggestion for further successful practices of this approach. There is a number of quantitative studies in the literature while there is also scarcity of qualitative studies related to hypertext glossing while doing extensive reading. However, participants' thoughts and feelings involve a tremendous amount of potential for innovation and they offer further development of this approach in a realistic way.

3.3. Intervention and Data Collection Procedure

1. Before application pilot testing of all materials were carried out on Arabic majoring preps from the same school who also have seven hours of English weekly and at taught with the same A2 -B1 level main course book "New Enterprise" by Express publishing. Amendments were made according to the mishaps encountered during the piloting process. In order to prevent any information transfer about content of the tests and tools utilized different target words from only "A Puzzle for Logan" graded reader. For validity reassurance of VKS test, they were shown to a professor from English Language Teaching Department in a state university in Turkiye. Cronbach-Alpha value was calculated in this study to ensure reliability using SPSS 22.

2. Consent from participants and parents was obtained using forms before commencing the process. Written confirmation papers obtained before launching orientation process for system usage.

3. Language Learner Profile, Vocabulary Levels Test and Quick Placement Test of Oxford were conducted before creating groups to gain homogeneity between groups of control and experimental.

4. All these tests and forms scored and evaluated by two different raters ,the first one is the researcher of this study and has been an English teacher for 11 years in state secondary and high schools ,who is also doing a master's degree in English Language Teaching (ELT) department in a state university in Istanbul, Turkiye. Second rater is a research assistant at ELT department in a state university in Burdur, Turkiye. He has been researching in linguistics realm and holding a master's degree in ELT, he is still majoring in Educational Sciences as a doctorate student at a state university in Isparta.

5. According to the results from these tests, participants were grouped into experimental and control groups.20 of the participants who got B1 proficiency level were distributed as 10 to the experimental group and 10 to the control group. Also their secondary school English lesson hours found to be greater in number than the A2+ students, even distribution minimized co-variate presence known to the researchers in this study. VLT results revealed presence of 15 students at level 2000-word and rest of students were at 1000-word level. Eight of these students assigned to experimental group and seven of them sent to the control group. All these students were the same

students with overall proficiency higher ones, apart from one participant whose proficiency is higher but VLT at 2000-word level.

6. Whats-app groups were set for each group to send information about the course of project and to send access codes to library systems - Lextutor in experimental group , X-reading online extensive reading LMS in control group -.

7. With regard to book genres and levels of books to be chosen for intervention, VLT test results were taken into account. Accordingly, 26.31 % of 57 participants were at 2000 words level and 73.69 % of them were at 1000 words level. Carver (1994) stated that knowing even 98% of words in a novel or text does not guarantee comprehension and 2% unknown words of full text or novel can make it hard to grasp core of the text. Carver (1994) suggested that only 1% of words should be unknown in order to ensure comprehension. While choosing four GRs, researchers paid attention to stick to this suggestion. VLT used in this study was devised according to Nation's (2012) BNC/COCA list by sparing space for comprehension and incidental vocabulary learning.

8. "Vocabulary Profile Analysis" via Lextutor tool was employed to portray lexical specifications of graded readers to be used in this study. Thanks to it, words above participants' vocabulary level could be present to leave space for incidental vocabulary learning. Four GRs were chosen regarding every variable such as VLT levels of students and for their comprehension possibility choosing books covering items at 95 % from 1000-words for example accepted as easy for students at 1000-word level at VLT. This ensures comprehensibility regarding aforementioned research findings. If 95 % is achieved at or above 2,000 frequency level then these readers will be utilized since only 15 out of 57 of the participants in this study are at 2000-word level. The first one will be "The Fire on the Mountains" prepared by Meister and Nation (1979). This book is at 2000 words frequency level for the 95 % of vocabulary in it and 98 % of words covered in here are at K-2 level. According to the findings from Laufer's (1995) study, if students know 95% of words in a text then comprehension level could be at level of 60 % however, Nation (2001) suggested that if the reader knows 98 % of words, it ensures nearly 70% of comprehension of a text. Nation is one of the most prominent and influential people in teaching reading skills in English. This book will leave a place for incidental vocabulary learning, too.153 words from different families that is.

Table 6: Vocabulary Profile Results of "Fire on the Mountain"

Frequency Level	Families (%)	Types (%)	Tokens (%)	Cumulative Token (%)
K-1 :	153 (96.8)	171 (96.07) Coverage 95 %	466 (97.5)	97.5
K-2 :	3 (1.9)	3 (1.69) Coverage 98 %	8 (1.7)	99.2
K-4 :	1 (0.6)	1 (0.56)	1 (0.2)	99.4
K-5 :				
K-6 :	1 (0.6)	2 (1.12)	2 (0.4)	99.8
Off-List:	??	1 (0.56)	1 (0.21)	100.00
Total (unrounded)	158+?	178 (100)	478 (100)	≈100.00

"Types" section stands for words themselves and their occurrence as once separately and if they are repeated "Tokens" count it as many times as they occur altogether. If a word is repeated three times, it adds up to the total word count as three separate words in token calculation. However, "Types" concept does not take repetition of words into account. In total, this book has 478 tokens and 178 types and of which 171 types are from most frequent 1000-word list and this means since most of students in the study are at 1000-word level, this book is comprehensible for them.

Table 7: Vocabulary Frequency Analysis of Words in "A Puzzle for Logan"

K-3	K-4	K-5	K-6	K-8	-off-list
6_factory	8_packet	4_flats	2_rugby	5_loch	2_angus
4_journalist	9_sergeant	3_hen			4_fingerprints
5_nod	3_stadium	3_id			2_ure
4_palace	5_trousers	6_madam			
3_puzzle	2_whiskey	2_pizza			
4_tennis					

As a second GR "A Puzzle for Logan" was opted after Vocabulary Profile Analysis (VPA). It has 14935 words in total and 1247 types that means 1247 different words. This book has 112 words from second 1000 most frequent words list and 13 words from the third 1000 (K-3) most frequent words list , 15 words from K-4 list, 11 words from K-5 ,2 words from K-6, one word from K-8, one word from K-9, one word from K-11, 1 word from K-22 and 10 off-list words.

These are illustrated in the table below. Target words are chosen by collecting records of student look-ups and checking their overall frequency levels in English Language. It was deducted from look-up analysis that words from second most 1000 frequent words are also widely searched by the participants.

Consequently, words from this list were also put into target word category.

Table 8: Vocabulary Profile Analysis of "A Puzzle for Logan"

Frequency Level	**Families (%)**	**Types (%)**	**Tokens (%)**	**Cumulative token (%)**
K-1 :	694(83.9)	1080 (86.61) Coverage 95	14279 (95.6)	95.6
K-2 :	92 (11.1)	112 (8.98) Coverage 98	538 (3.6)	99.2
K-3 :	11 (1.3)	13 (1.04)	31 (0.2)	99.4
K-4 :	13 (1.6)	15 (1.20)	35 (0.2)	99.6
K-5 :	11 (1.3)	11 (0.88)	24 (0.2)	99.8
K-6 :	2 (0.2)	2 (0.16)	3 (0.0)	
K-8 :	1 (0.1)	1 (0.08)	5 (0.0)	
K-9 :	1 (0.1)	1 (0.08)	1 (0.0)	
K-11 :	1 (0.1)	1 (0.08)	1 (0.0)	
K-22 :	1 (0.1)	1 (0.08)	1 (0.0)	
Off-List:	??	10 (0.80)	17 (0.11)	99.91
Total (unrounded)	827+?	1247 (100)	14935 (100)	≈100.00

Chosen lexical items to be measured regarding this study from this graded reader are: Inspector 16_(K-2), loch 5_(K-8), beggar 1_(K-2), nod 5_(K-3), prisoner 7_(K-2), crash 1_(K-2), handle 1_(K-1), robbery 7_(K-2),neat 1_(K-1),journalist 4_(K-3).

This book includes 106 families of words from K-2 frequency level and that corresponds to 10.61% of all word families at this level.

Table 9: Vocabulary Profile Analysis of "How I Met Myself"

K	f	Cumulative%
K-1	13643	97.3
K-2	237	99.0
K-3	18	99.1
K-4	14	99.2
K-5	48	99.5
K-16	29	99.7
OFF (0.21)	≈100	

"How I Met Myself" GR book has 97.3% words from K1 level, which leaves space for comprehension.Target words were chosen regarding the analysis of vocabulary profile.Wordsare"doppelganger_28(K16),district_8(K2),goulash_1(K16),mend_1(K6),cellar_20(K5),revolution_3(3),courtyard_1(K5),halves_1(K1),vest_1(K5),neither_1(K2).

Table 10: Vocabulary Frequency Analysis of Words in "How I Met Myself"

K-3	K-4	K-5	K-6	K-16
1_communist	3_ambulance	20_cellar	2_rugby	28_doppelganger
1_contents	1_ambulances	1_courtyard	1_mend	1_Goulash
1_eastern	1_anniversary	8_flats		
4_entrance	1_cinema	2_multinatio		
5_explosion	2_diary	nal		
1_international	2_explode	7_pest		
1_journalist	2_intelligent	4_tailor		
1_receptionist	1_trousers	1_vest		
3_revolution	1_wit			

Our last GR is Sleepy Hollow and it is at a higher level than the other books since 98% of book is covered at K5 level of vocabulary frequency. Since there is an accumulation of knowledge and learning taking place, every week with 20 hours of English in control and experimental groups the coverage of words was expanded to next frequency levels regarding lexical items.

Table 11: Vocabulary Profile Analysis of "The Legend of Sleepy Hollow"

Frequency Level	Families (%)	Types (%)	Tokens (%)	Cumulative Token (%)
K-1 :	326 (88.3)	404 (87.64)	1537 (92.1)	92.1
K-2 :	28 (7.6)	30 (6.51) Coverage 95	56 (3.4)	95.5
K-3 :	1 (0.3)	1 (0.22)	4 (0.2)	95.7
K-4 :	5 (1.4)	5 (1.08)	23 (1.4)	97.1
K-5 :	4 (1.1)	4 (0.87) Coverage 98	16 (1.0)	98.1
K-8 :	2 (0.5)	2 (0.43)	3 (0.2)	98.3
K-9 :	1 (0.3)	1 (0.22)	4 (0.2)	98.5
K-11 :	1 (0.3)	2 (0.43)	10 (0.6)	99.1
K-13 :	1 (0.3)	1 (0.22)	1 (0.1)	99.2
Off-List:	??	11(2.39)	14(0.84)	100.00

Target words chosen from this analysis and student look-ups were "daredevil_1(K13),brunt_4(K9),pumpkin_2(K8),crane_12(K5),howl_1(K5),owner_1(K1),buried_1(K2),cannon_1(K5),tassel_10(K11), hollow_18(K4).

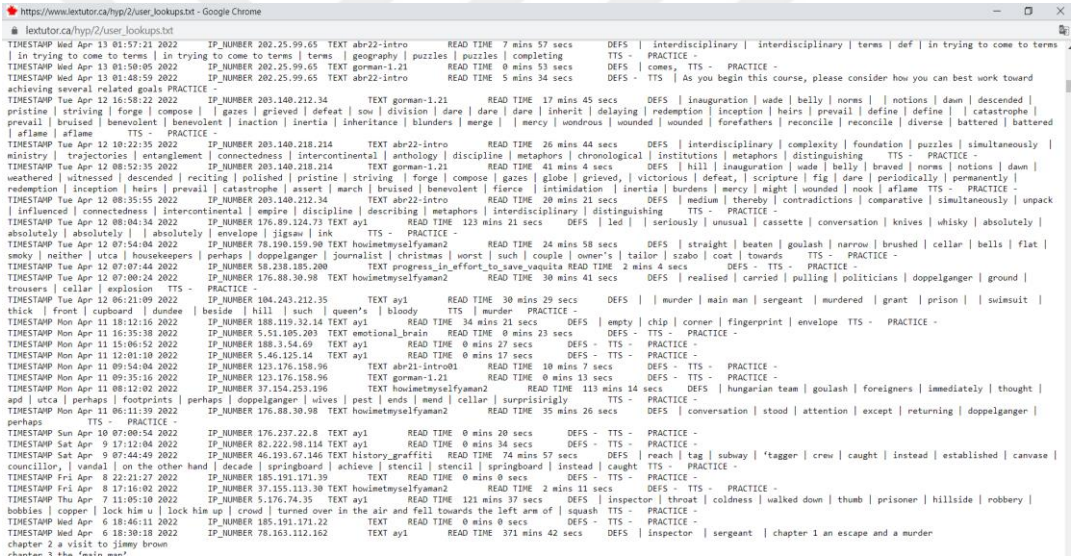
9. There is no pre-test in this study since once words are provided with participants, risk of searching for and wondering them also entails. Previous knowledge of students regarding vocabulary is achieved via tracks of system Lextutor since there is feature of storing look-ups of all students. The system tracks even their demands of listening to the story or requesting extra activities over looked-up words. It was rendered possible in experimental group, however in the control group logs of looked-up words were obtained by making students keep a record of lexical item searches and counted on their reliability of reflecting reality. Only post-test design enabled researchers to eliminate carry-over effect of pre-tests. Lana (2009) discovered that pre-test stage increases hawthorn effect and results from intervention may not be able to attain success in reflecting reality ,results without and with pre-test fluctuate according to his study. Students can see the looked-up words in the format below after finishing reading.

10. Logs of sampling were scrutinized and words looked up by everybody in both groups were chosen as post-test items. General tendency of both groups were

searching for the words that are at least one level above and at most 16 levels above their current vocabulary levels, which were determined using VLT.

11. Students are tracked via IP numbers since system was working in this way as shown below in the figure. While collecting data and matching all vocabulary tests and reading comprehension data, those IP numbers were utilized to define participants. Those numbers were assigned by the system randomly not violating personal information confidentiality by not exposing real IP numbers of devices. When a participant uses the dictionary feature his or her queries are stored with time stamps in this system. Students in the control groups were tracked via LMS X-reading however, for the look-ups, participant logs on a notebook are utilized since X-reading system only logs time spent reading and reading speed.

Figure 4: Sample Student Look-up Tracks



12. For each book, 10 days were allocated as time span to read. First book starting on Monday, participants started reading one book and in 10 days they were supposed to finish it, since afterwards they took Reading Comprehension(RC) Test in multiple-choice format first and then Vocabulary Knowledge Scale to test learnability extent of the words they looked up. Right after that ,they recorded their voices -for one minute at least, one and half minutes at most- talking about the most surprising and best parts of the book according to them and sent voice-records to the researcher immediately via WhatsApp during the one lesson period spared for data collection. Lastly, they wrote a 150-word summary of the book given leading questions as denoted above, on WhatsApp again this data sent to the researcher at the same lesson period.

This summary was used to analyse both comprehension and usage frequency of newly acquired vocabulary. This same cycle of data collection was repeated for all four graded readers for seven weeks. Students were served cake and coffee during this period in order to leave a positive effect on students as to the research process itself and to sustain applicability of data collection procedure for other books and not to bore student since four different activities are implemented during the same lesson over the book they read.

Table 12: Intervention and Data Collection Timeline

Intervention Stages	Implementation Date
Orientation for Systems in Both Groups	02.05.2022
1st Graded Reader	03.05.2022-13.05.2022
RC test+ VKS test + Spoken Corpora Collection+ Written Corpora Collection	13.05.2022
2nd Graded Reader	15.05.2022-25.05.2022
RC test+ VKS test + Spoken Corpora Collection+ Written Corpora Collection	26.05.2022
3rd Graded Reader	27.05.2022-06.06.2022
RC test+ VKS test + Spoken Corpora Collection+ Written Corpora Collection	07.06.2022
4th Graded Reader	07.06.2022-17.06.2022
RC test + VKS test + Spoken Corpora Collection+ Written Corpora Collection	17.06.2022
Interview with randomly chosen participants	17.06.2022

3.4. Qualitative Data Collection Procedure

To provide an answer to this question an interview with 13 volunteer participants was conducted. Interview request was made to all 23 participants of hypertext experimental group, however only 13 students consented to attend this interview. Lazaraton (2002) and Richards (2000) stressed the criticality of using qualitative methods to reach learning experiences narrated first-hand. A detailed interview protocol including probable questions to be directed by the respondents and all sentences, answers to be uttered by the interviewer were determined and documented beforehand.

Since students tend to answer in a way that they believe their teacher would be happy.

If the researcher teacher does the interview; answers can be biased and can fail in reflecting the reality. Because of this fact, the interview was conducted by another person who is reliable and experienced in research studies, a colleague in academy from ELT department, not working in the same school with students. The interviewer got permission to record the interviewee's voice and additionally, this would ensure that no leading interventions to obtain an approved answer were present..

3.5. Data Analysis Procedures

In this section both quantitative and qualitative analysis process will be depicted and analysis tools used will be mentioned.

3.5.1. Quantitative Data Analysis

This mixed method study has a dichotomous nature. Initially, analyses about quantitative processes will be describe below.

1. Is there a statistically significant difference between hypertext online extensive reading (experimental) group and LMS mediated online extensive reading (control) group regarding overall VKS scores after reading each book?

To analyze this research question overall VKS scores were written in a codebook on SPSS 22 system, taking Pallant's (2020) recommendations as yardstick for system use. VKS is a semi-structured test for reliability of results from this tool Cronbach-Alpha (Cronbach, 1951, Duhachek & Iacobucci, 2004) analysis was recommended in the literature and it was conducted in the study for the VKS version with target words and value was 0.891. As proposed by Cortina (1993) 0.70 at least must be achieved to ensure item reliability 0.80 and greater values are widely acceptable. This fact ensures reliability of out VKS. VKS scores were transformed into scores over one hundred since each test of 4 GRs were out of 50 points with a possibility of getting 5 points most and 0 points at least as mentioned in data collection tools section.

Table 13: Reliability Factor Analysis Result of VKS in the Study

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.891	.891	40

Since there is no pre-test and all target words are commonly searched words in both groups, no paired test need arouse. Two compare two groups, independent t-test is chosen as a parametric test in many designs in the literature as suggested by Pallant (2020) as well.As expected and required an "Independent Samples T-test" was executed with total average scores obtained using four different VKSs with 40 target vocabulary items in total. Additionally overall scores computed were used for all parts in them for four different GRs to assess breadth and depth of lexical gains altogether. Sum value of these four tests are used as one overall VKS score in analysis in control and experimental groups of this study to compare both groups on this basis.

2. *To what extent does hypertext OER with marginal gloss yield incidental vocabulary gains regarding lexical recognition and vocabulary knowledge breadth compared to the control group?*

With an aim to reach the answer for this research question, on VKS answers of students only first 4 levels were taken into account with the highest possible score given 3. Those levels corresponds to I. II. III. and IV. levels in our scale. Independent samples T-test was opted for here by the researcher.

3. To what extent does hypertext-OER with marginal gloss yield incidental vocabulary gains regarding lexical production and vocabulary knowledge depth compared to the control group?

Since on VKS scale only V. part is related to lexical production level with the statement of "I can use this word in a sentence:_____".

Only production related sections in VKS were calculated here and they scoring values were four at least five at most for each target item of 40 words. According to the normality analysis, score distribution was suitable for parametric analysis. Independent samples T-test was opted for here by the researcher.

4. What is the utilization rate of while reading looked-up words respectively in spoken and written corpora of learners in hypertext-online extensive reading group compared to LMS online extensive group??

Frequency analysis and Vocabulary Profile analysis were conducted to answer this question. Query went on with descriptive analysis.

5. *Which group will have superior reading-comprehension scores after reading all of the four graded readers?*

After normality checks of RC scores of both groups, an Independent Samples T-test was chosen for analysis conduction.

6. Which frequency type -overall word frequency in English language or word occurrence frequency in GR-affects incidental learnability of a lexical item more in hypertext online extensive reading treatment?

Multiple Regression Analysis was conducted here to calculate variables' effect weight on the dependent variable lexical item learnability.

7. To what extent do the variables proficiency level of participants, participants' vocabulary size, their English learning backgrounds, and modality (hypertext-online extensive reading) of OER affect learnability of vocabulary items in this study?

Multiple Regression Analysis was conducted here to calculate independent variables' effect weight and extent on the dependent variable of lexical item learnability in this study.

3.5.2. Qualitative Data Analysis

In this section, analysis procedure and processes about interview data collected will be depicted with techniques used to code interview findings. The only qualitative research question in this present study is given below.

8. What are the impressions and suggestions of students who experienced both hypertext online extensive reading (HOER) regarding learnability and retention of IV, practicality of HOER, its contribution to the overall spoken and written language use?

To provide an answer to this question an interview with 13 participants, who were willing to take part in from hypertext group, was conducted. Interview request was made to all 23 participants, however only 13 students consented to attend this interview. Thematic analysis was conducted using MAXQDA 2022 by both coders since it was suggested by Bryman (2012) to notice all themes and codes computer programs ease researchers' workload.

1st Coder is the researcher of this study and has been an English teacher for 11 years in state secondary and high schools, who is also doing a master's degree in English Language Teaching (ELT) department in a state university in Istanbul, Turkiye.

Second coder is a research assistant at ELT department in a state university in Burdur, Turkiye. He has been researching in linguistics realm and holding a master's degree in ELT ,he is still majoring in ELT as a doctorate student at a state university in Isparta.

Cohen's Kappa value was computed on MAXQDA to define reliability level and congruence level of qualitative findings as codes and themes, which are nominal things being analysed by two different people. Interrater reliability was achieved via this value, it was .88. Cohen's Kappa value is suggested to be closer to +1 and the value is generally between -1.0 and +1.0 (Wood, 2007). Closeness to -1 depicts a wide disagreement between two raters and it is not acceptable in our case. Transcriptions of the recordings were done in a blinded fashion that means two transcribers -one of them is the researcher-were not in contact during procedure and they carried out a content analysis and define common emerging themes both denoted in the previous literature and this research. All these transcriptions were translated into English since native language of participants was Turkish. Denoted by Dornyei (2007) a researcher must be over-cautious about not leading interviewees' thoughts or utterances towards expected results and their matchings, since this might cause a biased data collection procedure. While implementing the interview since researcher has also teacher role to some of the participants, other researcher friends took part in and conducted this process. Numbers from one to 13 were assigned to participants in order not to violate confidentiality of participants.

4. FINDINGS

In this section, results and findings with figures and tables regarding both quantitative and qualitative data will be presented with standard deviations, means, and significance values via relevant analysis tools.

4.1. Quantitative Data Results

This part is dedicated to analysis findings of quantitative data collected. Research questions from first one until the seventh one were associated with this part.

4.1.1. Is There a Statistically Significant Difference between Hypertext Online Extensive Reading (Experimental Group) and LMS Mediated Online Extensive Reading (Control Group) Regarding Overall VKS Scores Obtained After Reading Each Book?

According to our research hypothesis, there is a statistically significant difference between hypertext online extensive reading (experimental) group and LMS mediated online extensive reading (control) group and this fact suggests that Hypertext OER yields more incidental vocabulary gains than only OER situation regarding overall VKS scores after the reading intervention with GRs. In this regard, statistics about the mean score of experimental group illustrates that 73.48 was the value. In addition, in control group, it corresponds to 59.48. When the issue that most of the words assessed here were chosen from student look-ups and before intervention not known proved that, incidental vocabulary gains are possible in both extensive reading programs of control and experimental groups, amplifying learnability degree with hypertext modality.

4.1.1.1. Normality Analysis

With an aim to decide on usage of parametric or non-parametric test Normality Analysis with tests of Saphiro -Wilk and Kolmogorow Smirov was conducted.

Table 14: Tests of Normality for VKS Scores

	Kolmogorov-Smirnova			Shapiro-Wilk		
VKS Overall	Statistic	df	Sig.	Statistic	df	Sig.
	.094	46	.200*	.952	46	.057

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

Skewness and Kurtosis levels were calculated using normality plots and analysis in SPSS 22. Q & Q plots were generated as well using aforementioned statistical package. According to Tabachnick and Fidell (2013) kurtosis and skewness values between ±1.5 exemplify an acceptable level of normality. Regarding George and Mallery (2012), they claimed that ±1.0 value for psychological and psychometric research is immaculate. Below on the table it is seen all values are between ±1.0 and it is scientific to deem distribution of scores as normal to use parametric test for analysis stage

Table 15: Skewness and Kurtosis Values of VKS

Descriptives				
			Statistic	Std. Error
Vocabulary Knowledge Scores Overall	Mean		66.48	2.978
	Kurtosis	-.341	.350	
	Skewness	-.929	.688	

In the light of these results, as a parametric test an "Independent Samples T-test" was executed between control and experimental groups.

Table 16: T-Test Results Regarding 1st Research Question

	Hypertext OER		**OER**				
	M	**SD**	**M**	**SD**	**t(44)**	**p**	**Mean Difference**
Vocabulary Knowledge Scores Overall	73.48	2.976	59.48	2.976	2.482	.034	14

To test our hypothesis that there is are statistically significant difference between vocabulary knowledge test results of experimental and control groups showing the fact that experimental intervention enabled acquisition of lexical items incidentally more in quantity and with higher scores. Table above clearly depicts that there is a statistical difference between overall VKS production and recognition scores of experimental

control groups, the experimental one with more gains ($p < 0.05$). Experimental group (M =73.48 SD = 2.976) compared to the 23 participants in the control group (M = 59.48 SD =2.976) demonstrated higher vocabulary knowledge scale scores, and this difference was statistically significant, t (44) = 2.482, p = .034.

4.1.2. Is There a Statistically Significant Difference between Hypertext-OER and LMS-OER Regarding Lexical Recognition and Vocabulary Knowledge Breadth?

Second probe in this study is related to recognition aspect of vocabulary knowledge acquisition, which includes no depth analysis and production. Experimental group (M = 76.96 SD = 14.980) compared to the 23 participants in the control group (M = 63.48 SD =25.425) demonstrated higher recognition scores, and this difference was statistically significant, t (44) = 2.190 p = .034. Mean scores are 76.96 in experimental group and in control group, it is 63.48. Significance level here shows that there is a statistically significant difference between groups and recognition scores are higher in the experimental group again with significance value of p = 0.34 ($p < 0.05$). As a result, suggesting a superiority in accepting our hypothesis that hypertext modality yields more lexical gains regarding correct meaning frequency in quantity and recognition.

Table 17: T-Test Results of Recognition Scores

	Hypertext OER		OER				
	M	**SD**	**M**	**SD**	**t (44)**	**p**	**Mean Difference**
Recognition scores	76.96	14.980	63.48	25.425	2.190	.034	13.48

Recognition scores took correct answers into account and no depth analysis was conducted, however, hints by students demonstrated by students regarding recall of seeing a word before in readings accepted as a lower level of recognition. This process was extensively narrated in recognition test scoring procedures part.

4.1.3. Is There a Statistically Significant Difference between Hypertext-OER and LMS –OER Regarding Lexical Production?

Normality analysis of production scores, which probed into depth of vocabulary gains in this study, shows normal distribution of scores. This fact enabled use of parametric

statistic T-test use to compare two groups on this basis. Skewness, -,141 and ,350 and Kurtosis -,818 and ,688 were regarding distribution of production scores in this study and values were between ±1.0 value for psychological and psychometric research is immaculate (George & Mallery, 2012).

Table 18: Descriptive Analysis for Production and Depth Scores of Both Groups

Descriptive Analysis			
		Statistic	**Std. Error**
Production Scores	Mean	53.74	3.698
	Median	52.50	
	Variance	628.997	
	Std. Deviation	25.080	
	Minimum	0	
	Maximum	95	
	Range	95	
	Skewness	-.141	.350
	Kurtosis	-.818	.688

To compare groups on that basis, an Independent Samples T-test was conducted.The findings suggested that production level of vocabulary gains were greater in the experimental hypertext group and control group also made progress in use of unknown words before extensive reading learned via graded readers. However, statistically significantly experimental group outperformed the control group in usage of target words semantically and syntactically correct in sentences. Mean score of experimental group was 63.13 (n =23) and for control group it was 44.3 (n =23).

Table 19: T-Test Results for Production Scores Comparison

	Hypertext OER		**OER**				
	M	**SD**	**M**	**SD**	**t(44)**	**p**	**Mean Difference**
Production scores	63.13	19.12	44.3	27.13	2.713	.009	18.78

It could be inferred from the statistical results above with the p = .009, there is evidence over superiority of hypertext system in vocabulary knowledge gains regarding productive use of target words in sentences. Our null hypothesis was rejected given the statistics above and there is a difference between control and experimental groups

favouring hypertext modality group outperforming OER-only control group for production layer of vocabulary knowledge. Experimental group (M = 63.13 SD = 19.12) compared to the 23 participants in the control group (M = 44.3 SD =27.13) demonstrated higher production scores, and this difference was statistically significant, t (44) = 2.713, p = .009.

4.1.4. What is the Utilization Rate of While Reading Looked-up Words?

In this section, data analysis results of tasks assigned right after participants finished reading each book will be presented for both spoken and written collections.

4.1.4.1. In Spoken Learner Corpus

This corpus was constructed via accumulation of voice recordings made by participants about the most interesting parts of all four books one by one. Transcripts of these recordings were prepared and no grammatical corrections were made since the main aim was to unveil usage frequency and depth of target words from GRs.

4.1.4.1.1. Frequency Analysis of Target Words in the 1st Graded Reader

The first GR in this study was “Fire on the Mountain” and target words chosen from this book were as follows:

alive_2(K2),knives_4(K2),mirror_3(K2),screw_6(K2),leaf_1[K4],thunder_1[K4], government_1(K1) ,pot_1(K1) ,bridge_3(K2), ruphi_3(0ff-list).

With students’ speaking tasks collected -voice records- transcripts, the vocabulary profile analysis was performed for the first GR. It was found that, of target words “alive”, “thunder”, “bridge” was used in the spoken corpus of experimental group with frequency of alive 85 %, thunder 43.47 % that is 10 participants out of 23 used thunder in their spoken tasks and “bridge” 21.73% while telling the most interesting parts of the book. Here it can be concluded that free from the overall frequency of target words in English Language, necessity of using the word came first and the most related words with the plot protagonist came forward. In control group only “alive” from target words list was utilized by five participants with an average proportion of 21.73%.

4.1.4.2. Frequency Analysis of the Target Words in the 2nd Graded Reader

Target words and their frequency of occurrence were as follows in the books: Inspector 16_(K-2), loch 5_(K-8), beggar 1_(K-2), nod 5_(K-3), prisoner 7_(K-2), crash 1_(K-2), handle 1_(K-1), robbery 7_(K-2),neat 1_(K-1),journalist 4_(K-3).

Table 20: Frequency Analysis of Spoken Corpus of 2nd GR

Occurrence frequency in GR " A Puzzle For Logan"	Usage Frequency Of Target Words in Spoken Corpus of Participants	Sample Transcripts
Inspector16_(K-2)	Experimental Group(*n*23) 43.47% (*n*=10)	*"Inspector Logan came and then he saw a man." (experimental group, participant 7)*
	Control Groups(n23) 30.43% (*n*=7)	*"Then Inspector Logan realized that he was the wrong person."(control group, participant 2)*
prisoner 7_(K-2),	Experimental Group(n23) 56.52 % (*n*=13)	*"The prisoner was actually not the guilty person"(experimental group, participant 22)* *"There was a prisoner, but he wasn't guilty."(experimental group, participant 7)* *"The prisoner was wrongly there."(experimental group, participant 11)* *"The prisoner was not the right person."(experimental group, participant 12)* *"Prisoner was innocent."(experimental group, participant 17)*
	Control Groups(n23) 47.82% (*n*=11)	*"Logan understood prisoner was not the murderer."(control group, participant 1)* *"…then the prisoner Ronnie escaped prison and Logan*

		thought he killed the lady"(control group, participant 6) *"Ronnie was a prisoner and everybody thought he killed Sinclair and lady"(control group, participant 3)*
robbery 7_(K-2),	Experimental Group(n23) 13.04 % (*n*=3)	*"There was a robbery...hmm... and they called (.) Logan."(experimental group, participant 4)*
	Control Groups(n23) 0 % (*n*= 0)	
journalist 4_(K-3).	Experimental Group(n23) 4.3 % (*n*1)	*"He or she was a journalist."(experimental group, participant 22)*
	Control Groups(n23) 0 % (*n*=0)	

With students' speaking tasks collected-voice records- transcripts, the vocabulary profile analysis was performed for the first GR. It was found among target words Inspector (K-2), prisoner (K-2), and robbery (K2) were used by participants from each group at least once and journalist (K3) only once used by a participant from hypertext group while retelling an interesting part for them from the book. However, the usage frequency of other words were 0% in spoken corpus.

This could be because of the length of records was 1 minute at least and 1 and half minutes at most and that fact hindered opportunity of obtaining more possibilities of usage samples or target words. However, data collection process was packed with multiple tasks so in order to prevent quits from the system, the duration of spoken corpus construction kept short.

4.1.4.2.1. Frequency Analysis of Target Words In the 3rd Graded Reader

The frequency levels of words from third GR as follows:

doppelganger_28(K16),district_8(K2),goulash_1(K16),mend_1(K6),cellar_20(K5), revolution_3(3),courtyard_1(K5),halves_1(K1),vest_1(K5),neither_1(K2).

It was found that doppelganger_28 (K16) and cellar_20 (K5) were used by participants from both group in spoken corpus. With the frequencies respectively 100 % (n 23) in experimental and 60.86 % (n14) in control group for this “doppelganger” lexical item, which is again related to the protagonist of our book. Moreover, occurrence frequency in GR was very high regarding this word since it was repeated 28 times. 30.43 % (n 7) for the lexical item “cellar” in experimental group and 17.39 % (n 4) in control group were the utilization rates obtained. Regarding the other target words no encounter of word usage was seen in Vocabulary Profile Analysis of spoken corpus for “How I Met Myself” graded reader. Tendency towards utilization of most frequently occurred word usage in spoken corpus was detected here as well. It can be concluded that when a word occurs more in a GR, it is more possible to be learned by the readers.

“Are Doppelgangers real?”(experimental,2)

“Yesterday i saw a person who look like me. Its so weird. I thing she is my doppelganger.”(experimental,5)

“I haven't meet with my doppelganger.”(experimental, 6)

“I saw my doppelganger again last night.”(experimental,7)

“He saw doppelganger of him after school.”(experimental,8)

“The person who sees his doppelganger has a bad experience. ”(experimental, 9).

“The man saw him doppelganger.”(experimental, 10)

“I wanna see my doppelganger because I Wonder .”(experimental, 13)

“When he saw his doppelganger, he was shocked.”(experimental, 14)

Doppelganger came to bar. (experimental, 15)

“I met with my doppelganger.”(experimental, 16)

"I will see his doppelganger."(experimental, 18)

"My doppelganger is real,oh!"(experimental, 19)

"The woman saw her doppelganger."(experimental, 20)

"It is a doppelganger."(experimental, 23)

"He saw his doppelganger, he thought about why he was looking just exactly like hisself."(Control,2)

"He saw his doppelganger second time at same location."(Control, 3)

"In the story, the main character has a doppelganger."(Control, 4)

"I wonder if his doppelganger is that complicated."(Control, 13)

"He saw his doppelganger at second time."(Control, 16)

"The boy was doppelganger to him."(Control, 21)

"I met my doppelganger."(Control, 22)

4.1.4.2.2. Frequency Analysis of the Target Words In The 4th Graded Reader

Vocabulary profile analysis of target words from 4th book was as follows: "daredevil_1(K13),brunt_4(K9),pumpkin_2(K8),crane_12(K5),howl_1(K5), owner_1(K1),buried_1(K2),cannon_1(K5),tassel_10(K11), hollow_18(K4).

With students' speaking tasks collected -voice records-and their transcripts, a vocabulary profile analysis was performed for the 4th GR "The Legend of Sleepy Hollow". It was found that, of target words "hollow" and "tassel", were used in the spoken corpus of experimental group with frequency of hollow 100 %, tassel 43.47% that is 10 participants out of 23 learners used thunder in their spoken tasks in experimental group while telling the most interesting parts of the book. Here it can be concluded that free from the overall frequency of target words in English Language

,necessity of using the word came first and the most related words with the plot protagonist came forward and occurrence frequency contributed to productive usage and acquisition of words incidentally learned via extensive reading. In control group hollow was used with a frequency percentage of 30.43 % ,found in seven participants' spoken production from control group.

When all results of frequencies are taken into account, it could be proposed that at least twice a word was encountered in extensive reading to be used in spoken production in control group and in hypertext group. 18 times of occurrence was required to guarantee spoken production in hypertext group in terms of lexical items acquired incidentally via extensive reading in this study. However, in control group even 28 times of occurrence could not guarantee spoken production. The table below summarizes usage frequency of 40 target words in spoken data collected in both groups.

Table 21 : Summary of Incidentally Gained Word Usage in Spoken Corpus

	Target Words Used in Spoken Corpus	**Total Number of Words Used**	**Percentage**
Hypertext-OER Group	Alive (K-2), Thunder (K-4), Bridge, Inspector (K-2), Prisoner, Robbery, Journalist, Doppelganger, Cellar, Hollow, Tassel	11	27.5 %
LMS-OER Group	Alive, Inspector (K-2), Prisoner, Doppelganger, Cellar, Hollow	6	15 %

4.1.4.3. Analysis of Written Corpus

In written corpus analysis, the same cycle went on regarding productive use of target words. That meant, occurrence in the text or graded readers mattered most for incidental vocabulary gains' productive utilization. The second deduction made via analysis of written corpus is plot related important vocabulary that is used to describe main events in a reading text, is productively used by readers in their utterances and

writings. Right below, there is a selection of book summaries written by participants from both groups.

4.1.4.3.1. Summary Examples from "A Puzzle for Logan" Written Learner Corpus

This book is about murdery. *Inspector* Logan and her asistant officer Grant work on murdery but one of them was 7 years ago and one of them is new. In some day the *prisoner* named Ronnie Campbell escaped prison on the same day a women named Morag Mackenzie found dead. So *inspector* and her assistant thought Connie Campbell killed Morag Mackenzie Then they started to work on him after that they found some hints about him for example his car color,his dominant hand So *inspector* Logan and officer Grant solved problem they find True murder murder is a man named Robert Baxter. 7 years ago Baxter killed a man named Craig Sinclair because he stolen Baxter's money and police though Ronnie Campbell is murder then they send him to prison but now *inspector* Logan illuminated murdery then Robet Baxter killed Ronnie Campbell.At the and *Inspector* Jenny Logan and her assistant sergenant Grant was show the Truth and solved problem This book about murder. *Inspector* Logan and her asistant officer Grant work on murdery but one of them in 7 years ago and one of them is new In some day the prisoner named Ronnie Campbell escaped prison on same day a women name Morag Mackenzie found dead so *inspector* and her assistant though Connie Campbell killed Morag Mackenzie Then they started to work on him after that. They found some hints about him such as his car colour, his dominant hand, etc. So *inspector* Logan and officer Grant solved problem. They find True murder. Murder is actually a man named Robert Baxter.7 years ago Baxter killed a man named Craig Sinclair because the man stole Baxter's money. Though the police thought Ronnie Campbell is murder then they send him to prison. But now inspector Logan illuminated murdery, Robert Baxter killed Ronnie Campbell at the end. *Inspector* Jenny Logan and her assistant sergenant Grant showed the truth and solved the problem. (B1 threshold, experimental group, participant 2)

Inspector Jenny Logan was in her off day. She left from beach and went to police station for *prisoner* Ronnie Campbell. While they were looking

Campbell, they found a young woman's body. And they thought it could be related to Campbell and the murder seven years ago. They searched the young woman's body and they learned woman was Morag Mackenzie who gave information about Campbell. And they started to speak with suspects and some people who has information about this murders or this people. They talked to many people and they searched some suspects. Finally, they caught Campbell with the help of Logan's *journalist* friend. Campbell admitted many things and they found and proved murderer with other information. Campbell was innocent and the murderer was businessman Baxter. (B1 threshold level, experimental, participant 7)

The book is about the illumination of two murders that happened 7 years ago and recently .*Inspector* Lagon ,her assistant Grant, her boyfriend Tam illuminate it .Seven years ago Craig Sinclairs was killed by the gun and he found in a factory . And now Morag Makenzie was killed by the knife in the park .And pollice firstly suspects Ronnie Compbell who was the murderer of Craig Sinclairs .Because he had escaped from the prison .But he is not only person that pollice suspects . Also Lagon suspects Jimmie Brown who is Morag s boyfriend .Lagon and Grant go to his house. And they ask him some question but he says he does not know anything .Only he says the Main man who is his girlfriend s boss .They find stolen cd s in the house ,then they arrest him. Lagon doesnt know main man but Grant knows .The main man is mr Baxter .Then they go to his house and they asked him some question but he says he doesn t know anything .Then Lagon s boyfriend Tam call her and he says ı found the Ronnie Cumpbell then they go and catch him .he say sı did not kill anyone .he says ı didn t kill Siclair .Logan starts to look for the old murders .she goes to factory and she sees an old man .he says ı saw the murder and murderer .he says the murderer s car s numbers .And logan calls the baxter to the pollice station .and proves that he is the culprit .And he explains everything .He had killed a man seven years ago because he had stolen his money and and he blamed it on Campbell .And he killed Makenzie .Makenzie was a false witness in cumpbell s case. thats why main man was paying her .When Ronnie escaped from the prison she had threaten him .Then

she was killed. And now Ronnie is not a *prisoner*. (A2+ level ,experimental group ,participant 12)

4.1.4.3.2. Summary Examples from "How I Met Myself" Written Learner Corpus

At a typical day when John Taylor was going his house suddenly a man knocked him over and continued to run, John fell over into the snow and shouted 'hey, watch where you're going' the man turned to John and said sorry at that time John realized that the man looks like himself and he started to follow him. The man went into a bar but when John went in he didn't see the man he asked to barman but he said anyone came to bar before you. John drunk a wine and after that he went to home. Every day John went to that street and waited after that he went to bar and drunk wine, one day Andrea (who is John's wife) asked John that what's happened to you and John told everything to Andrea. After that they asked the man to housekeepers but they didn't find him. When he was reading about life after dead he found that what happened to himself has a name *doppelganger* : a ghostly double of a living person, who comes to give messages about danger or to offer advice. At One year after John's meeting with his *Doppelgager* he and his wife were waiting for the *doppelganger* and same thing happened *doppelganger* knocked him down then continued to run.After that John started to search newspapers of past years and he found that at 1945 at the end of the war there was a crime. A bomb fell into the wine *cellar*, which John went when he looking for hi doppelganger and a woman and her daughter were died at there and her husband was runned to there but he found them died. John decided to tell it to Andrea but he couldn't. 2 years after his meeting this day John arrived home late and when he arrived he saw a message from Andrea they were at wine *cellar*. He went to there ,there are so many peoples in front of wine cellar a bomb exploded at there and John thought Andrea and Kati were died but after then he saw they at the street and he became happy. Then Andrea explained everything. John's *doppelganger* pointed street to Andrea to go away and that's why she survived. (A2+, experimental group ,participant 21)

John is a man who lives with his wife Andrea and they has a daughter called Kita. One day a man knocked out John, while running and said "sorry" to John. When John saw his face he was shocked because man looked just like John. After a research John found out the man John saw was his *doppelganger*. After that he also learnt that seeing your *doppelganger* means an interesting thing. Sometimes doppelgangers come to you to warn you about something important or dangerous. He was always trying to understand the message but he forgot taking care of his family. So Andrea got angry with him. After two years in the same date which John met himself first, Andrea and Kita went to their friend's shop that was the exact place where *doppelganger* was seemed. There was an explosion near the shop. When John got there he thought his family died in explosion but his doppelganger saved them before explosion. (B1, experimental group, participant 8)

4.1.4.3.3. Summary Examples from "The Legend of Sleepy Hollow" Written Learner Corpus

There are four characters in the story and their names are Brom, Katrina, Ichabod and the ghost who doesn't have his head (I don't know his name). According to some sayings, the ghost who didn't have head was a soldier searching his head. Katrina was a beautiful girl and she liked to take men's attraction. Ichabod was a teacher at the school of Sleepy *Hollow*, and the residence of the town was liking him. Students didn't like him because he beat them when they do something which Ichabod can find something to beat them. He gave singing lessons for Katrina. And Brom was a handsome and strong man. He always wanted to marry with Katrina.(Btw, Ichabod too.) One day Ichabod was invented to a party of Katrina's family. He rented a horse to go to party. In the party, he danced with Katrina. At the end of the party, Katrina and Ichabod talked a bit, but no one heard. Ichabod sadly left the party house. On the way of his home, the ghost followed him, and Ichabod tried to escape. There was a bridge, Ichabod went across the bridge thinking he would get off from the ghost. When Ichabod went across, the ghost throw a *pumpkin* that was in his/it's hand. It hit Ichabod's face, then Ichabod's world became black. After that, peasants found the horse and the *pumpkin,* but not Ichabod.

> Some of peasants considered the ghost killed Ichabod, some of them considered Ichabot got so sad for Katrina's propose. When this story was told, Brom smiled (experimental group, participant 17).

It can be concluded from the analysis that when a lexical item is related to the main event or character, incidental vocabulary gains could be most probably used in productive ways more frequently.

Overall-English language frequency-high words (K1, K2 for this study) were mostly used in written corpus by students from both groups when these high frequency words-even they were previously unknown and looked-up by all participants from each group- occurred even twice.

However; overall frequency in English language low words (K3,K4,K5,K8,K16) were found to be repeated at least twice (pumpkin_2, K-8) to be used in written production in hypertext group.

While in control group without hypertext, those low-frequency words in English language required 16, 18, 20, and 28 times of occurrence and repetition to be productively used by learners according to the examination of learner written corpus for incidentally gained target words. Since in hypertext system there was a box constantly showing previously searched vocabulary items, attention and involvement load could have increased.

Participants' target word usage-frequency was categorized into three parts. When five or fewer participants used a word out of 23 people in each group, this word was accepted as low-frequency word in learner written corpus. When more than five participants used one of the target words, this word was accepted as a high-frequency word in learner written corpus according to the group that word usages belong to.

The table below summarizes written usage of incidentally gained words. In hypertext-group, 12 words out of 40 target words were present in written productions of participants,in summary format describing events from the chosen books. It corresponded to 30 % of target words.

In LMS-OER, in other words, in control group, six of 40 target words were used and it corresponded to 15 % of all target words. Consequently, it could be deduced from these findings that more words were productively utilized by hypertext-group learners as opposed to control group learners.

Table 22: Vocabulary Analysis of Target Words in Learner Written Corpus

	Learner Written Corpus High Frequency	Learner Written Corpus Low Frequency	Never Used Target Words
Fire on the Mountain: alive_2(K2), knives_4(K2), mirror_3(K2), screw_6(K2), leaf_1[K4], thunder_1[K4], government_1(K1), pot_1(K1), bridge_3(K2), rupiah_3 (0ff-list).	**Experimental Group** Alive_ 18 Bridge_ 7 **Control Group** Alive_15	 Screw _1 NA	Leaf, Government, Pot, Knives, Mirror, Rupiah, Thunder
A Puzzle for Logan: Inspector 16_(K-2), loch 5_(K-8), beggar 1_(K-2), nod 5_(K-3), prisoner 7_(K-2), crash 1_(K-2), handle 1_(K-1), robbery 7_(K-2), neat 1_(K-1), journalist 4_(K-3).	**Experimental Group** Inspector _23 Prisoner _14 Journalist _8 **Control Group** Inspector_23 Prisoner_ 10	 Robbery _2 NA	Beggar, Handle Neat, Crash, Nod, Loch
How I Met Myself: doppelganger_28(K16), district_8(K2), goulash_1(K16), mend_1(K6), cellar_20(K5), revolution_3(3), courtyard_1(K5), halves_1(K1), vest_1(K5), neither_1(K2).	**Experimental group** Doppelganger_ 20 Cellar _15 **Control Group** Doppelganger_15 Cellar_8	 NA NA	District, Goulash, Mend, Revolution, Courtyard, Halves, Vest, Neither,
The Legend of Sleepy Hollow: daredevil_1(K13), brunt_4(K9), pumpkin_2(K8), crane_12(K5), howl_1(K5), owner_1(K1), buried_1(K2), cannon_1(K5), tassel_10(K11), hollow 18 (K4).	**Experimental group** Hollow _23 Pumpkin _15 **Control Group** Hollow _15	 Tassel _5 NA	Daredevil, Brunt, Howl, Owner, Buried, Cannon, Crane

4.1.5. Which Group will have Superior Reading-Comprehension Scores after Reading all of the Four Graded Readers?

Reading comprehension test results were scored by two different scorers and interrater reliability was high at .80. After normality analysis, scores showed normal distribution and an independent samples *t*-test was conducted to compare reading comprehension difference between experimental and control groups. Mean score was 92.17 (n =23) for the experimental group and 79.13 (n=23) for the control group. The difference was proven statistically not significant with a *p.* value of .44, which is higher than *p* value parameter, p >.05.

These findings below suggested that hypertext online extensive reading and without hypertext online extensive reading have no statistical difference with regard to reading comprehension levels of graded readers read throughout this study process despite the mean difference of 13.04 points between two groups overall comprehension scores.

Table 23: Independent Samples T-Test Results for Reading Comprehension

	Hypertext OER		**OER**				
	M	**SD**	**M**	**SD**	**t(2.96)**	**p**	**Mean Differerence**
Reading Comprehension	92.17	11.66	79.13	17.55	5.168	.44	13.04

The 23 participants who received the hypertext intervention (M = 92.17, SD = 11.661) compared to the 23 participants in the control group (M = 79.13 SD = 17.558) demonstrated higher reading comprehension scores, however this difference was not statistically significant t (2.968) = 5.168, p= .44. Our hypothesis that claims Hypertext-OER boosts reading comprehension more than OER-only situation was rejected and the null hypothesis that accepts there is no difference between two groups regarding reading-comprehension improvement was accepted according to the statistics above.

4.1.6. Which Frequency Type -Overall Word Frequency in English Language Or Immediate Textual Word Frequency- Affects Incidental Learnability of a Lexical Item More in Hypertext Online Extensive Reading?

In order to answer 6th research question, analysis results of multiple regression is presented below. It depicts the effect of occurrence of target words in graded readers and frequency of target words in English language. Enter method of entry utilized while processing data in linear regression analysis in SPSS 22 tool. Diagnostics analysis for collinearity was run and there was not multi-collinearity problem in variables. A significant regression model was obtained via this analysis F (2, 38) =4.369, p= .029 and this model explains (R^2=.34) 34 % of variance on lexical gains. However, since scale intervals were of different values in variable, the value $R^2_{adjusted}$ = .26 was taken and it showed that predictors explained 26 % of variance in constant variable lexical gains.

Table 24: Multiple Regression Analysis of Frequency and Occurrence

	Unstandardized Coefficients		Standardized Coefficients			
	B	**SE**	**β**	**t**	**p**	**95% CI**
Constant	18.99	2.32		6.85	.000	[14.08 , 23.90]
Occurrence In GRs	.69	.24	.63	2.08	.010	[0.19, 1.20]
Frequency General	-.31	.40	-.16	-.65	.447	[-1.18, .54]

Note. CI= Confidence Interval,

Note. Constant=4.369, F (2, 38) =10,182 , p=.029, $R^2_{adjusted}$ =.26

When occurrence variable in GRs is increased by one standard deviation, learnability of lexical items increases .63. β =.63, t (34) = 2.08, p=0.10, p^2=.32.That means occurrence frequency in a text affects learnability of a lexical item in positive way. In other words, our hypothesis that the more times a word occurs in a text, the more it can be learned. $R^2_{adjusted}$ value is .262 explaining 26.2% of change in learnability of lexical items in this study occurrence and overall frequency in English language explains. This data suggests that there are other variables affecting learnability of words in hypertext extensive reading program.

4.1.7. To what Extent do the Variables Affect Learnability of Vocabulary Items regarding VKS?

A multiple regression analysis was computed to predict lexical gains of both groups based on variables proficiency levels, vocabulary levels, prior English education and modality (HOER and OER). Enter method of entry utilized while processing data in linear regression analysis in SPSS 22 tool. Diagnostics analysis for collinearity was run and there was not multi-collinearity problem in variables. A significant regression model was obtained via this analysis F (4, 41) =10.182, $p<.001$ and this model explains ($R^2_{adjusted}$ =.449) 45% of variance on lexical gains.

Table below depicts the effect of proficiency levels, vocabulary levels, English background of participants and modality change in groups as hypertext OER and only OER regarding participants on gains of target words in English language. The R^2 value of .498 showed that predictors explained 49.8% of variance in constant variable learnability of words. Adjusted R-value is assessed in multiple regression analysis when more than one variable effect is evaluated. Adjusted R Square value is .449 explaining 44.9 % of change in learnability of lexical items in this study proficiency levels and modality of reading explain. However, since intervals of scales utilized to measure each variable were at different scale intervals, standardized beta values were interpreted and in all these variables. When the others are kept constant, the variable proficiency level predicts dependent variable lexical gains positively and statistically significantly, β =.45, t (41) = 3.78, $p<.001$, p^2=.20.

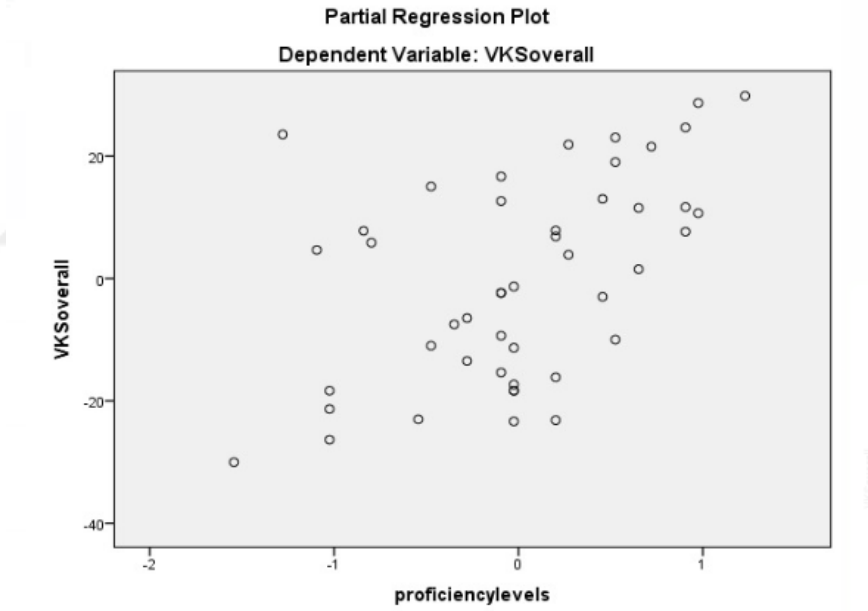
Table 25: Multiple Regression Results of Variables on Lexical Gains

	Unstandardized Coefficients		Standardized Coefficients			
	B	**SE**	**Beta (β)**	**t**	**p**	***R²***
(Constant)	72,532	14,888		4,872	,000	.498
Proficiency Levels	12.804	3.386	.456	3.781	.000	
Vocabulary Levels	5.890	4.401	.156	1.338	.188	
Prior English Education	7.899	5.033	.188	1.570	.124	
Modality	11.131	4.453	.279	2.500	.017	

*Note. Constant=4.379, F (4,41)=10,182 ***, p<.001, $R^2_{adjusted}$ =.449*

When proficiency of students is increased by one standard deviation, learnability of lexical items increases .456 with $p<.001$. That means English proficiency level of readers affects learnability of a lexical item in positive way. In other words, our hypothesis that proficiency level of reader affects recognition of vocabulary items positively and significantly was accepted. On the other hand, modality – hypertext-OER or LMS-OER extensive reading- variable explains 28 % (rounded as suggested in statistics) of lexical gains in this model, β =.27, t (41) = 2.50, p= .017, p^2=.02. Hypertext OER modality predicted scores of recognition vocabulary in a significant and statistically positive way. This data suggests that there are other variables affecting learnability of words in this extensive reading program.

Figure 5: Effect of Proficiency Levels on Vocabulary Gains



As seen on the figure, there is a linear relationship between lexical gains and proficiency levels of students indicating that higher language level in language learning can leave more space for extra learning and in vocabulary attainment scores; there is an effect of proficiency levels in a positive way.

4.2. Qualitative Research Findings

Qualitative part of this study probes into the perceptions and suggestions of participants to gauge after effect aspect of study intervention. With this aim, content analysis and themes as to these concepts will be presented in the next section.

4.2.1. What are the Impressions and Suggestions of Students Who Experienced Hypertext Online Extensive Reading?

According to the data obtained via semi-structured one-to-one interviews, some recurrent themes and codes were determined.

Table 26: Codes and Themes from Interview Findings

Themes	Subcategories	Codes
Hypertext OER System Related Positive Aspects (72%)	Vocabulary Acquisition (33)	Seeing Lexical Items in Sentence (2) Looking up for unknown words easily(9) Being able to track your unknown words via look-ups (1) Technological Ease in Hypertext Glossing (6)
	Reading Comprehension(1)	Understanding the Plot Easier(1)
	Motivation (14)	Offline Reading Opportunity (1) Willingness to go on hypertext reading (13)
Hypertext OER System Related Challenging Aspects (17%)	Health Related Problems (3)	Eye-health problems (1) Screen time length (1)
	Technical Challenges(4)	Physical Tiredness (1) No User Profiles (1) Internet Connection Need (2) Mobile Device Requirement (1)
	Demotivation (1)	Tasks Completed After Extensive Reading(1)
Hypertext OER System Related Suggestions (11 %)	Technical (5)	Web Page Interface Update (4) A Screen-Counter for Reading Amount (1)

4.2.1.1. Vocabulary Acquisition

When Hypertext OER System Related Positive Aspects in interview data were interpreted, Vocabulary Acquisition as main category and subcategories regarding this category were; ,seeing lexical items in sentence, looking up for unknown words easily ,being able to track your unknown words via look-ups, technological ease in hypertext glossing. Participant utterances were as follows:

4.2.1.1.1. Seeing Lexical Items in Sentence

Dictionary embedded into hypertext system enabled learners to see words searched in sentence examples along with L1 and L2 definitions on each query. Below example utterances, which were obtained via interview, related to sentence formations with looked-up word were presented:

> *"Hypertext also helped me a lot in terms of vocabulary learning when I read sentences." (Participant 3)*
>
> *"I've made some progress in the positive direction because I see the word in a sentence and look at its meaning." (Participant 7)*

4.2.1.1.2. Looking up for Unknown Words Easily

With the highest frequency among codes, feature of hypertext dictionary in both L1 and L2 was the mostly approved and benefited one when interview utterances were examined carefully.

> *"It was easy to read with hypertext because I can look up the meaning of words I don't know whenever I want." (Participant 4)*
>
> *"I learned many phrases and words thanks to the books." (Participant 8)*
>
> *"It's even easier to look up words in Hypertext, and it helps me to study later by seeing all the words I don't know at the end."* (*Participant 1)*
>
> *"I did not need to use a dictionary each time thanks to hypertext." (Participant 9)*
>
> *"I think it was pretty good, it helped me learn both words and various phrases." (Participant 5)*
>
> *"I learned unfamiliar words easily" (Participant 13)*

"There were many new words. It is nice to be able to look up words right away in the system I am reading and see what words I have searched after I have finished reading. But unfortunately I couldn't study these words much later, so I may have forgotten some words right now." (Participant 12)

"It is difficult to look up the meaning of the words normally...that new system makes it easier." (Participant 11)

4.2.1.1.3. Being Able to Track Your Unknown Words via Look-ups

In the system, there was a box in located right above the book text where participants can see which words they looked up in marginally situated online dictionary. This fact attracted attention of readers and channelled it to the words searched by them.

"There wasn't much that made my job difficult, the best part was that I can see the words that I looked up in search box, I repeated them." (Participant 2)

4.2.1.1.4. Technological Ease in Hypertext Glossing

In online extensive reading, readers have to resort to online dictionaries or paper-format dictionaries to learn meanings of lexical items and to process plot of books or texts. However, in hypertext system, they could check meaning of every word they needed. In interview session, participants mostly mentioned this fact and the ease it made possible.

"It was difficult to look at the translation. But hypertext made my job easier." (Participant 11)

"I read it with hypertext. What I liked most was that I could easily look up words. But, it was a platform that I really benefited from in terms of vocabulary." (Participant 10)

"When I encountered a word in the book many times, it stayed in my mind, and at the same time, I could see the words I forgot thanks to the dictionary in hypertext." (Participant 3)

"The positive aspect is being able to see the words directly in a sentence." (Participant 8)

"Being able to quickly look up meaning of words with hypertext is a great advantage." (Participant 5)

"The situation that made my job easier was being able to easily learn the meanings of the words and there was nothing that made my job difficult." (Participant 6)

4.2.1.2. Reading Comprehension

In this section, reading comprehension theme based codes will be analysed. Positive feedback over this theme is examined below according to the codes they correspond to.

4.2.1.2.1. Understanding the Plot Easier

Main aim of doing extensive reading for readers is generally grasping the message and events happening, discovering how the plot unfolds. In this study, this target proved successful.

> *"When I understand words and meanings, I recognized the events going on easier." (Participant 4)*

4.2.1.3. Motivation Theme Related Subcategories

Motivation theme based codes and findings after hypertext extensive reading experimentation and experience will be given here.

4.2.1.3.1. Offline Reading Opportunity

In the system, readers were able to reach books when the hypertext page was left open. However, as predictable hypertext dictionary system was inactive in the event of internet disconnection. Nevertheless, participants expressed satisfaction regarding this function.

> *"What makes it easier is to be able to read the book while offline." (Participant 13)*

4.2.1.3.2. Willingness to Continue Hypertext Reading

It is apparent from the statements below that participants are willing to go on reading on this system. Consequently, it could be attributed to the hypertext usage when codes are inspected; the most intriguing concept while reading is seen as unknown word presence.

"Of course, I would like to, it is a good opportunity to improve myself, and looking up words in the dictionary for words one by one that I do not understand in normal books can cause a loss of motivation after a while, but there is no loss in hypertext." (Participant 7)

"We are seriously improving on the positive, learning patterns, vocabulary and the natural world of English by reading. After a while, it also improves our fluency in terms of language in daily life." (Participant 3)

"It also helped me a lot in terms of creating order as a person who likes to read." (Participant 1)

"What makes it easier is that the books are free and I can read from many technological devices." (Participant 9)

"I can keep improving my English." (Participant 4)

"Yes, I love reading books, especially when it is in English; I think it is more attractive and very useful for me. We should definitely continue."(Participant 2)

"Yes, I would like it; it is very good in terms of time saving." (Participant 11)

"Yes because it also helped us to improve my English vocabulary." (Participant 13)

"I would like it because it's a pretty easy method." (Participant 5)

"Yes, I would because it is good for learning vocabulary." (Participant 8)

"Yes, I would. Because it is very easy for me to look up words. "Yes I would, because I can read it anywhere because it is from my phone and it helps me." (Participant 10)

"It was one of the most important applications that contributed to my English, plus reading a book is not only useful for language development, but also useful in places such as general culture." (Participant 12)

4.2.1.4. Hypertext OER System Related Challenging Aspects

Participants went through some obstacles and problems while reading on this system. This section will present qualitative findings about challenging sides of hypertext.

4.2.1.4.1. Health Related Problems

Inevitable increase in screen time and duration in online extensive reading trigged ophthalmological discomfort according to participants.

> "*My eyes hurt while reading." (Participant 5)*
>
> *"The complicating thing is that it's tiring when you look at the phone a lot sometimes, but it's also a good aspect since I can read anywhere." (Participant 11)*
>
> *"It wasn't bad for me; it was just when I read a long book, staring at the screen for a long time made me tired." (Participant 8)*

4.2.1.4.2. Web Page Interface Update

The interface in hypertext system was creating hypertext according to requests of readers. That is its outlook is not eye tiring with underlined blue style, which is normally expected in hypertext. On the system, all book was given on only one page going downwards with following pages of the GRs.

> *"It was pretty good but interface needs to be improved a bit more, hypertext was very functional in terms of learning" (Participant 3)*
>
> *"Also, while reading the book, it does not show how much you have read. It would be nice to have such a feature." (Participant 1)*
>
> *"But it would be better if the software was improved a little more." (Participant 13)*
>
> *"Graphic of hypertext could be more user friendly." (Participant 10)*

4.2.1.4.3. Technical Challenges

There was no profile log in system for participants and they criticized not being able to track their logs when they close the webpage. However, researchers or teachers were able to follow each move of participants via look-up tracks section.

> *"Once I accidentally closed the tab and time started over, all the words I looked up were gone. This is really the worst part of the system." (Participant 10)*
>
> *"The negative aspects are not being able to choose the level ourselves at first." (Participant 7)*

"What makes it difficult is that I don't have a specific profile section." (Participant 5)

"The most difficult thing is that everything goes when you close the tab." (Participant 4)

"Sometimes when I stopped reading, the next time I read it, it would not continue from the same place." (Participant 13)

4.2.1.4.3.1. Demotivation

Data collection procedure and tasks, which were vital for interpretation of intervention, were demotivating for one participant interviewed.

"Just the homework stuff after reading the book was a bit of a challenge for me, writing recaps and recording audio etc. Other than that, it's okay." (Participant 7)

4.2.1.4.3.2. Internet Connection Need, Impossibility of Offline Dictionary use

Students were able to go on reading offline but hypertext-glossing system was synchronized with an online dictionary so internet connection was necessary for dictionary use.

"Difficulty using system website is its being online." (Participant 3)

"Without entering the platform, an exam is applied to each student and a book is read according to that result." (Participant 10)

When overall expressions are evaluated and reflectively thought, positive themes' frequency is greater than negative aspects. It can be concluded that students perceived the hypertext system useful and practical and willingness to use it in their future life while doing extensive reading with books was quite higher in proportion. All 13 participants were enthusiastic about going on reading on this platform. 72% of all codes were around positive aspects of hypertext system, only 17% was cumulated around negative aspects.

5. DISCUSSION AND CONCLUSION

In this section research conclusion regarding findings of the present study and previous studies of same research area in literature will be compared and discussed.

5.1.1. Discussion for 1st Research Question Findings

First research question concerned whether there is a significant difference between hypertext or without hypertext reading in gaining incremental vocabulary from readings. Results about study question of vocabulary knowledge scores and modality change in online extensive reading rendered it possible to interpret superiority of hypertext system while doing extensive reading. An adapted version of VKS by Wesche and Paribakht (1996) comprising 40 target words -10 from each GR- was administered to obtain the results. As in studies by Webb and Nation (2017), in our study, findings statistically supported that presence of a looking-up system in marginal hypertext gloss form contributes to incidental vocabulary amount obtained by readers. Since common words from student look-up tracks were chosen to be assessed and in control group without hypertext substantial gains were achieved, it can be claimed that online extensive reading with GRs also facilitates incidental vocabulary learning processes. However, beyond plain OER, glossing extension added systems redeem much improvement in both quality and quantity of newly learned vocabulary items.

With regard to resorting to dictionaries or glosses while reading a text Çakmak and Erçetin (2018) claimed that glossing gives learners a chance to notice a word easily. Chang and Hu (2018) stressed the necessity of a method to boost dictionary usage while reading GRs to increase vocabulary acquisition levels mainly obtained via books read.

Regarding this urgency, hypertext system can live up to expectations of ELT professionals based on results from the study. There is a statistically significant difference favouring hypertext group in our study, indicating availability of techniques to make students gain more incidentally while doing extensive reading. Ünal (2020) with immediate recall tests results from her study pointed out similar results in her study with a stress on glossing mode as pop-up windows with lexical annotations being

the most efficient one in reading experiences. Additionally results regarding 1st research question are in line with electronic glosses on incidental vocabulary gains via reading.

5.1.2. Discussion for 2nd Research Question Findings

This research question was about recognition and breadth of vocabulary gains via hypertext or without hypertext OER. Results corroborated possibility of acquiring more vocabulary item in quantity in terms of recognition aspect in other words recalling meaning correctly according to VKS scale, since findings showed a statistical difference between two group of study, hypertext participants over scoring in recognition aspect. To elaborate issue from another perspective, exact number of lexical gains can be pronounced. Out of 40 target words 25 words were gained on immediate recognition scale in experimental group, however in control group 16 words out of 40 words were acquired.

Waring and Takaki (2003) conducted a similar recognition test in a study of incidental vocabulary gains in extensive reading and 10 words out of 26 target words were obtained by participant learners in their study. Even in literature, the number of gains was lower than their findings (Horst, Cobb & Meara, 1998; Pigada & Schmitt, 2006; Rott, 1999). Horst, Cobb and Maera (1998) proposed that 5 out of 23 words could be learned according to their research findings. Findings of this research question was in line with previous studies, however, amount of word gains shows difference with previous findings. When our study is taken into account, this increase might be because of the fact that in our study participants are of a high profile background in mathematical sciences and studying discipline might have boosted scores thanks to their attention paid to reading. Saragi et al. (1978) found that out of 90 target words, participants in a study with Clockwork Orange novel learnt 68.4 and they chose this book since there are Russian English words that can be assessed even with native speaker English sampling. This proportion from that study was closer to the value found in the present study. Another aspect of recognition issue is the assessment method. In many studies, multiple-choice tests were utilized by the researchers, which was vice versa in this study. Vocabulary knowledge scale measures meaning recall and participant statements on remembering or having seen the word of mention before. On the one hand, this data collection tool is stronger since chance factor is eliminated mostly here. Additionally, meaning, synonym or antonym recall demand in its nature

can be detrimental to sensitivity of difference between production and recognition. However, only a few studies harnessed graded readers or novels while reaching those results, single texts with their nature lacking motivating learners (Cho & Krashen, 1994; Horst, 2005; Pigada & Schmitt, 2006). Results indicating vital role of hypertext glossing were aligned with results in this study and as proposed in other studies proximity of glossing tool increased learnability even online dictionary use was within the reach of participants in control group (Chen, 2014; Jacobs et al., 1994; Nation, 2001).

5.1.3. Discussion for 3rd Research Question Findings

Production aspect of vocabulary gains was measured via 3rd question and results signalled statistical differences between experimental and control groups concerning only production scores from both groups. Production was measured via VKS and providing a sentence with target words was crucial for this tool. Grammatically, syntactically and semantically correct sentences as answers were assigned the highest score while meaningfully correct but grammatical or morphological error containing answers were also accepted. Production levels of target words (n 40) in both groups were examined and 22 words out of 40 were used at sentence production level in hypertext-group. Additionally, in control group findings pointed out 13 words from target lexical items were productively used in sentences at VKS scale. Interpretation of findings indicated that 55 % of target words was incidentally gained in hypertext system and 32.5 % of target words was incidentally gained in LMS-OER at production level.

Studies referring to production outcomes of incremental lexical gains found via extensive reading activities were conducted by Nation (2009) and by Waring and Takaki (2003). They also supported the idea that vocabulary items previously known by students also become long lasting and deep learned when encountered while reading. Yamamoto (2011) in his study measuring productive vocabulary gains reach to the result that receptive vocabulary expands faster than productive one while reading books extensively and findings of 3rd research question matches with this statement regarding lower mean scores in both groups than recognition scores.

5.1.4. Discussion for 4th Research Question Findings

Pigada and Schmitt (2006) found 20 times at least one word must be encountered to be recalled by the learner in a reading context. In the present study findings overlap with theirs notifying necessity of more than once encounter as a crucial factor and relatedness of the words to the protagonist of the story to be recognized and recalled. Despite the fact that recognition can occur and is tested in many studies, overall production in a context has not been researched much. Corpus created by student data with summaries and speaking sessions depicted necessity of a word usage to get critical understanding of a plot while doing extensive reading came first in the present study. Participants mainly used target words based on their occurrence and depiction quality in retelling events happened in a text. According to Laufer's (1998) study participants tend to use same level frequency words in their writings.

However in our study students also made use of high frequency words and when inspected those words are found to be mostly reoccurring ones in context of GRs.In literature there are a few studies researching productive incidental vocabulary gains in writing and even scarcely found in speaking. In spoken language, most frequent 1000 words are mostly utilized on a daily basis. However, speaking tasks assigned to gather information in the present study were not about daily life and target books were of mention. As a result of that, general frequency higher target words' usage frequency in speaking data of participants might have decreased. The most solid reason of target word use in speaking was again found related to occurrence frequency and being related to the main character or main events. Attention issue here could have interfered in. Data of spoken corpora unveiled that usage occurred in speaking when occurrence frequency was two times or above with high-frequency words and with low frequency words at least 16 times in control group. With high- frequency words twice occurrence was enough and with low-frequency words 10 times of encounter was enough for spoken production in hypertext group. When at least 18 times a target word occurred, nearly all speakers used it, if main character relationship with the words was also present in the hypertext group.

5.1.5. Discussion for 5th Research Question Findings

This research question aimed to shed light on reading comprehension improvement thanks to hypertext system but there was no substantial and statistical difference

regarding control group results. However, in both groups reading comprehension level was higher with half of the questioned content of GRs' digestion. There are studies in literature describing increase in reading comprehension thanks to glosses used in reading interventions. Sen and Kuleli (2015) searched VK depth and reading comprehension relationship and found depth as a factor affecting and increasing comprehension levels in reading environments. Different from their study, this study looked into hypertext's facilitating factor effect on comprehension of read GRs. The construction-integration model (Kintsch, 2004; Kintsch& Welsch, 1991) suggest that learners related prior information and experiences to comprehend a mental picture of what they read. Additionally, sometimes hypertexts can make reading process complex by loading students with a lot of information (Sung, Wu, Chen & Chang, 2015). However even the mean difference was not statistically different between control and experimental groups, there was a difference at all at experimental group 92 was the mean (M = 92.17, SD = 11.661) compared to the 23 participants in the control group with 79 mean score (M = 79.13 SD = 17.558). Closeness of hypertext group reading scores to 100 demonstrates attainment of roughly 9 points out of 10 regarding plot and comprehension of graded readers.

5.1.6. Discussion for 6th Research Question Findings

This question related results showed whether overall frequency of words or occurrence frequency of them in reading in English language affect lexical gains more. According to the results, occurrence frequency found more effective in incidental vocabulary learning, which supports Horst Cobb and Maera (1998)'s findings. Webb and Chang (2015) proved that their study results suggested coincidence frequency surpassed overall frequency level of a lexical item in affecting incidental vocabulary acquisition. Web and Nation (2017) defined incidental vocabulary learning as gains obtained in small quantity over seeing words repeatedly many times before acquiring. As an example from second graded reader word "doppelganger" has an overall frequency level of K-16, in other words, it is a low-frequency word but since it is repeated 26 times inside the graded reader, its attainability level increased greatly according to the present study results.Actually, incidental-learning concept itself involves the nature of repetition to occur. Within the light of all these suggestions, it could be proposed that in extensive reading environments to some extent repetition must be present to lead to incremental vocabulary gains.

5.1.7. Discussion for 7th Research Question Findings

This research question aimed at figuring out the most effective research variable on incidental vocabulary learning via reading. Proficiency level was found as a statistically significant effect on vocabulary learning from readings in the present study. These finding are in line with previous researches by Webb and Chang (2015), they found that students who know are more proficient in a language can attain more incidental -vocabulary via reading. However, their study also proposed that language vocabulary level higher students could acquire more vocabulary incidentally while reading. This result does not overlap with present study finding that proposing current vocabulary size levels of students do not have a statistically significant effect on incidental vocabulary gains. Some other variables and factors can also interfere in learning process as Pellicer-Sánchez (2016) also suggested that the degree to what extent one reader pays attention to a word also affects learnability, which was not questioned in the present study. Another variable prior English education difference was not found meaningful as an effect on incidental vocabulary acquisition.

5.1.8. Discussion for 8th Research Question Findings

This question probed into the perceptions and experiences of participants having hypertext extensive reading treatment. Positive and negative aspects of system and intervention along with practical and challenging technical sides have been discussed by participants in the interview.

Positive aspects of hypertext system accounted for 72 % of all codes from interview findings; only 17% was around negative aspects. Participants in this study expressed the need to search meaning on dictionaries while reading and Involvement Load Hypothesis (Laufer & Hulstijn, 2001) defends a similar tenet and when need arises, involvement and attention increases and this fact entails acquisition of searched vocabulary items. Interview statements proposed that this study's participants deeply felt the urge to use dictionary while reading long before they underwent this research. In the previous literature there is not much information about experiences and perceptions of participants using glossing systems while reading, results were pervasively quantitatively obtained (Webb & Chang, 2015; Webb & Nation 2017). 11% of codes were about suggestions to improve hypertext-reading system.

5.2. Conclusion

In this section overall findings of present research with implications for instructors and teachers, limitations of the study and suggestions for further research over the same variables will be presented and discussed.

5.2.1. Overall Results

The list below serves as a condensed version of results denoted in findings chapter.

- In hypertext mediated online extensive reading system, incidental vocabulary gains regarding overall vocabulary knowledge, vocabulary breadth and vocabulary depth were greater in quantity and quality compared to only learning management system mediated online extensive reading.
- When production levels of target lexical vocabulary items were looked into hypertext mediated extensive reading effect was positively seen on incremental vocabulary gains since productive usage of newly acquired target words were greater in this experience.
- As to the reading comprehension levels and plot digestion, no statistically significant difference between hypertext modality and without hypertext modality was observed; however, there was a difference in terms of mean scores of reading comprehension dependent variable.
- Furthermore, occurrence frequency of target items in graded readers as a variable was found to be more effective over attainability of lexical items compared to frequency of target items in target language.
- When proficiency levels, English backgrounds, vocabulary levels and modality change (hypertext-OER or only-OER with online or hardcopy dictionary use) variables were taken into account on their effect on incidental vocabulary gains all of these variable were able to explain 49.8% of change and effect. It was also found that proficiency levels had the main effect and modality following it with a lesser effect caused the difference between these two groups. It can be inferred that proficiency level higher language learners obtain more vocabulary items incidentally while reading GRs and hypertext facilitates and affects acquisition of new words incidentally in extensive reading.
- Another finding from the study pointed out that when text collection of participants obtained in written way were looked into, occurrence frequency

and relatedness to the main character or event factors were encountered. In textual corpus by participants of this study, most occurring words in this case 28 times -even if their general frequency levels in English language were signaling a lower chance of coincidence- from GRs were 100 % deployed by the learners in hypertext group. However, proportion of using incidentally learnt words in extensive reading program was 12 out of 40 vocabulary items in hypertext group. Usage percentage was 30 % in written corpus of students regarding incidentally obtained target words.

- In spoken corpus, which was constructed via spoken collection of tasks related to GRs, vocabulary profile analysis showed that at least twice a high-frequency word must be encountered in hypertext-extensive reading to be recognized and at least 10 times occurrence for low-frequency words was required to be productively used in terms of lexical items. 11 words out of 40 target items were uttered in voice records of students while they were telling the most interesting parts of story with a short summary. In other words, that means usage percentage of target items was 27.5 % in hypertext group. It means in written production incidentally learnt words occurrence is more common than in spoken production. In control group, spoken data indicated usage of six words with a percentage of 15 %. However, longer spoken data must be collected to claim that this is fully correct. One of the limitations of this study can be counted as this fact mentioned above.
- Participant feedback and perceptions illustrated that students felt the necessity of a practical glossing technique for vocabulary acquisition while doing extensive reading. Statements from the semi-structured interview showed that positive impressions and some constructive suggestions were made along with a demand to go on reading on this platform in the future. Main themes were vocabulary acquisition, reading comprehension, motivation, health issues, demotivation and technical issues. Concisely, positive feedback outscored negative statements in interview findings with a proportion of 72%.

5.2.2. Implications

Vocabulary knowledge is usually perceived as a superficial meaning recognition by many teachers and students. On the contrary, with this study, teachers can recognize levels in the mental lexicon and enable students to gain the utmost level of using a

word in a sentence while teaching target vocabularies.

English language teachers can benefit from the results of this study by getting new insights about incidental vocabulary obtained via reading.

Technology use in the classroom environment has many different types and techniques and thanks to the results of this study, teachers can define the most appropriate way of using it and getting most of it in reading lessons.

Extensive reading have been researched and proved effective for adolescents and tertiary level students; however, this research contributes to the literature by expanding its usage with teen learners. Apart from the numerical values, language teachers can get ideas about perceptions of students related to different blended teaching environments.

Electronic-glossing mode in extensive reading has been suggested for so long, but in practice implementations in language lessons are scarce in number; hopefully, this study can enlighten its presence and prove the practicality of it with achieved objectives.

Developing autonomous students with upper reading-comprehension abilities is one of the long-lasted objectives of the era regarding the education of young learners. Therefore, this study serves the goal of creating student-centred classes providing two different appealing modes for Z generation's progress in language learning.

Reading a book is always assumed to be done at home, individually. Nevertheless, with this research, reading lessons can be implemented at school with a bit of scaffolding and neat lesson designs can strengthen linguistic knowledge and enhance vocabulary knowledge.

Reading should not always be assumed as a free-time activity; even it has plenty of possibilities to obtain further knowledge of language when done in a blended modality with the help of a teacher. Technology use in language classrooms is thought to be practical only when a teacher uses the technological devices. After a rigorous orientation stage, student-centred technology use yields a great leap in reading and vocabulary areas of language learning. With hypertext extensive reading, it is worth the time spent at home when knowledge in English expands. Further studies can include student reflection parts with logs to provide more information about student experiences.

5.2.3. Limitations

The participants in this study were highly motivated and inclined to learn the English language and generally, they possibly have above average level of English proficiency than high school students since they are in EFL prep-classes.

Given this fact, control and experimental groups should compromise true-beginner learners or intact and non-intentionally chosen for English language education classrooms from K12 education levels. This fact enhances the external validity and generalizability of the study results. However some of the participants had long hours of English education via private schools, but they are a few in quantity.

Another issue to be considered is that research institution accepts students with Turkish High-School Entrance Exam and generally 1st % and 2nd % percentile level students with higher school life profile regarding academic success study in this research place. This study might have presented overestimated results regarding diligence and willingness of students to read since they already have a habit of reading in their native language.

Quasi-experimental designs lack the randomization and with the absence of randomization in this study, there is a risk to generalize the results. As a result, all results should be approached cautiously and adapted accordingly with specific contexts.

There is no delayed post-test implementation and results were only interpreted via immediate gains. In spite of all the cautions taken to get similar groups of control and experimental; when the case is human it is impossible to control every variable.

The positive effect of learning from other English lessons and maturation effects should be kept in mind while evaluating the study results.

Although all of the groups have the same book the same teacher and the same lessons with the same curriculum, some external circumstances can create differences among groups.

Longer duration of spoken records should be obtained to evaluate spoken production related to graded readers in the future studies. Delayed VKS usage as post-test also lacked in the previous studies and in this study.

5.2.4. Suggestions for Further Studies

Delayed post-tests should be applied to see long-lasting effect of hypertext system. A mixed-ability school should be defined as the research place for glossing and reading research. Data collection tasks should take less time and be conducted in a more enjoyable environment or way by motivating learners.

Automaticity measurement associated with target words gained via hypertext could be inspected in the following studies. Longer speaking activities in terms of duration should be conducted to obtain more comprehensive data about spoken production of vocabulary items gained via extensive reading. Eye-tracking study type can be adopted to keep a log of incidentally acquired words' maturation levels and automaticity levels to understand learning processes going on in human mind while learning a lexical item.

A more comprehensive electronic library could be composed with scanned books not only graded readers but also novels of original kind. Different genres should be included in extensive reading programme apart from fiction genre.

Regarding spoken and written learner corpora collection, accumulation of longer texts and voice-records in research can lead to generalizations that are more accurate over vocabulary learning which takes place incrementally.

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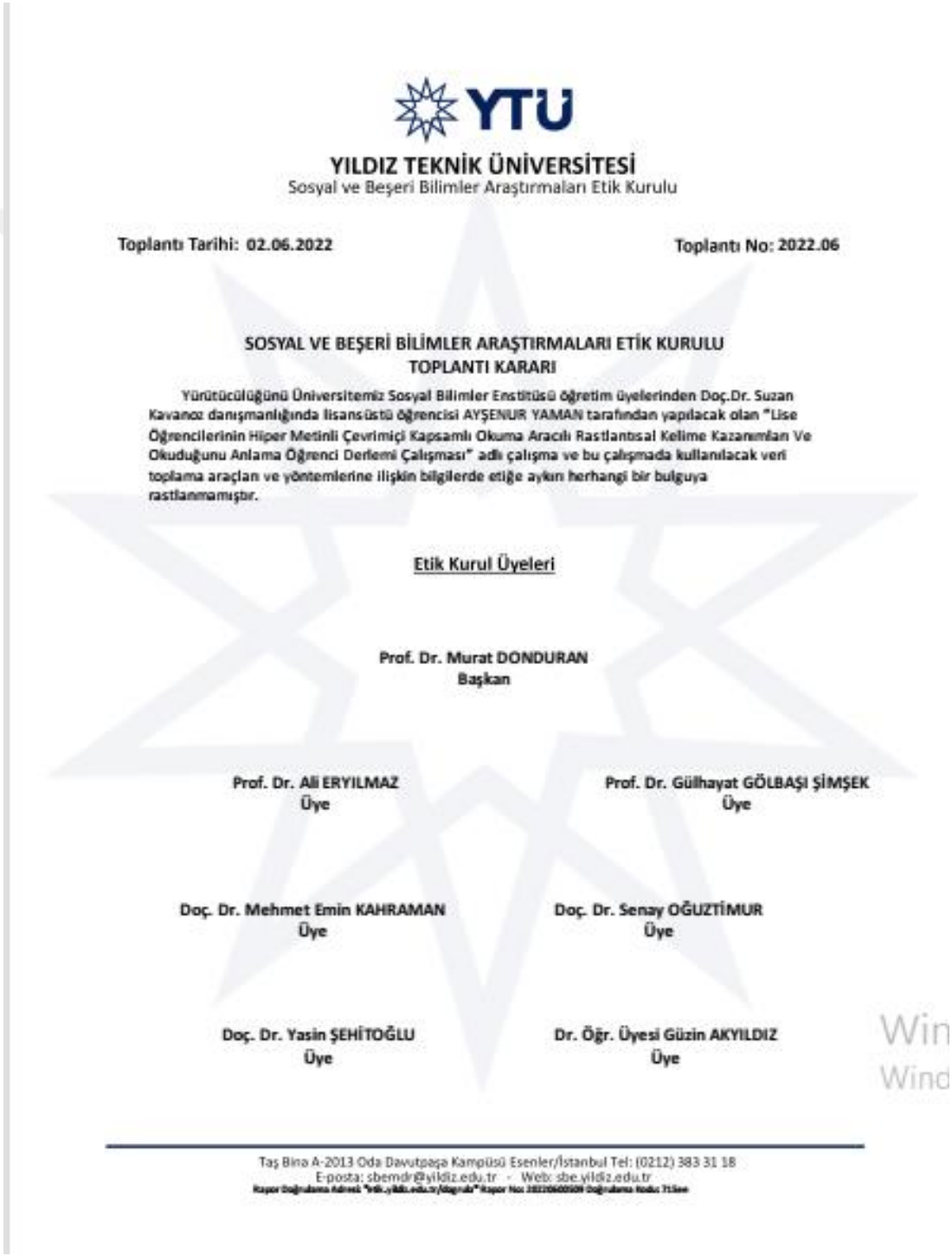
APPENDICES

Appendix 1. Ethical Approval



YILDIZ TEKNİK ÜNİVERSİTESİ
Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurulu

Toplantı Tarihi: 02.06.2022 Toplantı No: 2022.06

SOSYAL VE BEŞERİ BİLİMLER ARAŞTIRMALARI ETİK KURULU
TOPLANTI KARARI

Yürütücülüğünü Üniversitemiz Sosyal Bilimler Enstitüsü öğretim üyelerinden Doç.Dr. Suzan Kavanoz danışmanlığında lisansüstü öğrencisi AYŞENUR YAMAN tarafından yapılacak olan "Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları Ve Okuduğunu Anlama Öğrenci Derlemi Çalışması" adlı çalışma ve bu çalışmada kullanılacak veri toplama araçları ve yöntemlerine ilişkin bilgilerde etiğe aykırı herhangi bir bulguya rastlanmamıştır.

Etik Kurul Üyeleri

Prof. Dr. Murat DONDURAN
Başkan

Prof. Dr. Ali ERYILMAZ
Üye

Prof. Dr. Gülhayat GÖLBAŞI ŞİMŞEK
Üye

Doç. Dr. Mehmet Emin KAHRAMAN
Üye

Doç. Dr. Senay OĞUZTİMUR
Üye

Doç. Dr. Yasin ŞEHİTOĞLU
Üye

Dr. Öğr. Üyesi Güzin AKYILDIZ
Üye

Taş Bina A-2013 Oda Davutpaşa Kampüsü Esenler/İstanbul Tel: (0212) 383 31 18
E-posta: sbemdr@yildiz.edu.tr · Web: sbe.yildiz.edu.tr

Appendix 2.Approval by Ministry of Turkish National Education

T.C.
İSTANBUL VALİLİĞİ
İl Milli Eğitim Müdürlüğü

Sayı : E-59090411-20-50241864 24/05/2022
Konu : Anket ve Araştırma İzni (Ayşenur YAMAN)

VALİLİK MAKAMINA

İlgi : a) Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 21.01.2020 tarihli ve 2020/2 sayılı genelgesi.
b) Yıldız Teknik Üniversitesinin 25.04.2022 tarihli ve 2204250068 sayılı yazısı.
c) Müdürlüğümüz Araştırma ve Anket Komisyonunun 20.05.2022 tarihli tutanağı.

Araştırma Konusu	: Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları ve Okuduğunu Anlama: Öğrenci Derlemi Çalışması
Araştırma Türü	: Anket
Araştırma Yeri	:
Araştırma Yapılacak Kişiler	: Lise Öğrencileri
Araştırmanın Süresi	: 2021 - 2022 Eğitim ve Öğretim Yılı

Yukarıda bilgileri verilen araştırmanın; 6698 sayılı Kişisel Verilerin Korunması Kanununa aykırı olarak kişisel veri istenmemesi, öğrenci velilerinden açık rıza onayı alınması, yüz yüze eğitime geçmiş olan kurumlarımızda, Covid-19 tedbirlerinin araştırmacı ve ilgili kurum idarelerince alınması, bilimsel amaç dışında kullanılmaması, bir örneği Müdürlüğümüzde muhafaza edilen mühürlü ve imzalı veri toplama araçlarının kurumlarımıza araştırmacı tarafından ulaştırılarak uygulanması, katılımcıların gönüllülük esasına göre seçilmesi, araştırma sonuç raporunun kamuoyuyla paylaşılmaması ve araştırma bittikten sonra 2 (iki) hafta içerisinde Müdürlüğümüze gönderilmesi, okul idarelerinin denetim, gözetim ve sorumluluğunda, eğitim ve öğretimi aksatmayacak şekilde, ilgi (a) genelge esasları dâhilinde uygulanması kaydıyla Müdürlüğümüzce uygun görülmektedir.
Makamınızca da uygun görüldüğü takdirde olurlarınıza arz ederim.

Levent YAZICI
İl Milli Eğitim Müdürü

OLUR
24/05/2022
Dr. Hasan Hüseyin CAN
Vali a.
Vali Yardımcısı

Ek:
1- İlgi (b) Yazı ve Ekleri (10 Sayfa)
2- İlgi (c) Tutanak (1 Sayfa)

Bu belge güvenli elektronik imza ile imzalanmıştır.
Adres : Binbirdirek Mah. İmran Öktem Cad. No: 1 Sultanahmet Fatih İstanbul Belge Doğrulama : https://www.turkiye.gov.tr/meb-ebys

Appendix 3. Parent Consent Form

Veli Onam Formu

Sayın Veli;

Benim adım Ayşenur YAMAN. Yıldız Teknik Üniversitesi ,Yabancı Diller Eğitimi bölümünde Yüksek Lisans öğrencisiyim. Danışmanım Doc.Dr. Suzan KAVANOZ gözetiminde "Karma Yöntemli Öğrenici Derlemi Çalışması: Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları ve Okuduğunu Anlama" adlı bir çalışma yürütmekteyim. Bu 01.05.2022 ve 31.05.2022 tarihleri arasında yapılacak bir araştırma uygulamasıdır.

Araştırmanın Hedefi: İngilizce dilinde bireysel çevrimiçi yaygın okuma etkinlikleri esnasında aynı sayfada verilen çevrimiçi sözlük yardımıyla edinilen kelimelerin , üretimsel kullanıma dönüşme oranlarının bulunması ve
Araştırma Uygulaması: Anket / Görüşme / Bilgisayarlı Test Uygulaması şeklindedir.Araştırma T.C. Milli Eğitim Bakanlığı'nın ve okul yönetiminin de izni ile gerçekleşmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Çocuğunuz çalışmaya katılıp katılmamakta özgürdür. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamaktadır. Çocuğunuzun katılımı **tamamen sizin isteğinize bağlıdır**, reddedebilir ya da herhangi bir aşamasında ayrılabilirsiniz. Araştırmaya katılmamama veya araştırmadan ayrılma durumunda öğrencilerin akademik başarıları, okul ve öğretmenleriyle olan ilişkileri etkilemeyecektir.Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir.
Uygulamalar, genel olarak kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden çocuğunuz kendisini rahatsız hissederse cevaplama işini yarıda bırakıp çıkmakta özgürdür. Bu durumda rahatsızlığın giderilmesi için gereken yardım sağlanacaktır. Çocuğunuz çalışmaya katıldıktan sonra istediği an vazgeçebilir. Böyle bir durumda veri toplama aracını uygulayan kişiye, çalışmayı tamamlamayacağını söylemesi yeterli olacaktır. Anket çalışmasına katılmamak ya da katıldıktan sonra vazgeçmek çocuğunuza hiçbir sorumluluk getirmeyecektir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa sormaktan çekinmeyiniz. Çalışma bittikten sonra bizlere telefon veya e-posta ile ulaşarak soru sorabilir, sonuçlar hakkında bilgi isteyebilirsiniz. Saygılarımızla,

Araştırmacı : AYŞENUR YAMAN -İngilizce Öğretmeni

Velisi bulunduğum ..... sınıfı ..... numaralı öğrencisi .....'in yukarıda açıklanan araştırmaya katılmasına izin veriyorum. (Lütfen formu imzaladıktan sonra çocuğunuzla okula geri gönderiniz*).

…./…../…… İsim-Soyad/ İmza:

Appendix 4.Participants Informed Consent Form

DENEKLERİN GÖNÜLLÜLÜĞÜ **....**/…/2022

VE

AYDINLATILMIŞ ONAM FORMU

LÜTFEN BU DÖKÜMANI DİKKATLİCE OKUMAK İÇİN ZAMAN AYIRINIZ

Sizi "Karma Yöntemli Öğrenci Derlemi Çalışması: Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları ve Okuduğunu Anlama:" başlıklı **araştırmaya** davet ediyoruz. Bu araştırmaya katılıp katılmama kararını vermeden önce, araştırmanın neden ve nasıl yapılacağını bilmeniz gerekmektedir. Bu nedenle bu formun okunup anlaşılması büyük önem taşımaktadır. Eğer anlayamadığınız ve sizin için açık olmayan şeyler varsa, ya da daha fazla bilgi isterseniz bize sorunuz.

Bu çalışmaya katılmak tamamen **gönüllülük** esasına dayanmaktadır. Çalışmaya **katılmama** veya katıldıktan sonra herhangi bir anda çalışmadan **çıkma** hakkında sahipsiniz. **Çalışmayı yanıtlamanız, araştırmaya katılım için onam verdiğiniz** biçiminde yorumlanacaktır. Size verilen **formlardaki** soruları yanıtlarken kimsenin baskısı veya telkini altında olmayın. Bu formlardan elde edilecek bilgiler tamamen araştırma amacı ile kullanılacaktır.

1. **Araştırmayla İlgili Bilgiler:**
   a. **Araştırmanın Amacı:** Çevrimiçi kapsamlı okuma formatlarında ilgili tesadüfi kelime dağarcığınının, öğrencilerin sözlü ve yazılı ,metinlerinde ve cümlelerinde, üretimsel kelime kullanımına dönüşmesinin; hipermetinli sözlük içeren modda ve hipermetinsiz ayrı sekmelerde sözlük kullanımı içeren çevrimiçi okumalardaki varlığını ortaya çıkarmaktır.
   b. **Araştırmanın İçeriği:**. Bu yarı-deneysel, nitel-nicel karışık metodlu araştırmada Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları ve Okuduğunu Anlama seviyeleri araştırılmaktadır.Sözlü ve Yazılı metin incelemesi ve bilgisayarlı test uygulamaları yapılacaktır.
   c. **Araştırmanın Nedeni:** □ Bilimsel araştırma X Tez çalışması
   d. **Araştırmanın Öngörülen Süresi:** 60 Gün
   e. **Araştırmaya Katılması Beklenen Katılımcı/Gönüllü Sayısı**: 57

2. **Çalışmaya Katılım Onayı:**

Yukarıda yer alan ve araştırmadan önce katılımcıya/gönüllüye verilmesi gereken bilgileri okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. **Çalışma hakkında yazılı ve sözlü açıklama aşağıda adı belirtilen araştırmacı tarafından yapıldı, soru sorma ve tartışma imkanı buldum ve tatmin edici yanıtlar aldım. Bana, çalışmanın muhtemel riskleri ve faydaları sözlü olarak da anlatıldı.** Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım.

Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Katılımcının
Adı-Soyadı:.....
İmzası

Appendix 5. Vocabulary Knowledge Scale Adapted from Wesche and Paribakht 's (1996)

Post-Test to Measure the Depth and Breadth of Target Vocabulary Knowledge (VKS)

Target Vocabulary = Looked-up Words	I. I don't remember having seen this word before.	II. I have seen this word before, but I don't know what it means.	III. I have seen this word before, and I think it means (synonym or translation).	IV. I know this word. It means(synonym or translation).	V. I can use this word in a sentence: (If you do this section, please also do Section IV).

All of the Target Words

Fire on the Mountain:

alive_2(K2),
knives_4(K2),
mirror_3(K2),
screw_6(K2),
leaf_1[K4],
thunder_1[K4],
government_1(K1),
pot_1(K1),
bridge_3(K2),
rupiah_3 (0ff-list).

A Puzzle for Logan:

Inspector 16_(K-2),
loch 5_(K-8),
beggar 1_(K-2),
nod 5_(K-3),
prisoner 7_(K-2),
crash 1_(K-2),
handle 1_(K-1),
robbery 7_(K-2),
neat 1_(K-1), journalist 4_(K-3).

How I Met Myself:

doppelganger_28(K16),
district_8(K2),
goulash_1(K16),
mend_1(K6),
cellar_20(K5),
revolution_3(3),
courtyard_1(K5),
halves_1(K1),
vest_1(K5),
neither_1(K2).

The Legend of Sleepy Hollow:

daredevil_1(K13),
brunt_4(K9),
pumpkin_2(K8),
crane_12(K5),
howl_1(K5),
owner_1(K1),
buried_1(K2),
cannon_1(K5),
tassel_10(K11),
hollow 18 (K4).

Appendix 6.Turkish Version of Vocabulary Knowledge Scale

Hedef Kelimeler = Sözlükten Bakılan Kelimeler	I. Bu kelimeyi daha önce gördüğümü hatırlamıyorum.	II. Bu kelimeyi daha önce görmüştüm ama ne anlama geldiğini bilmiyorum.	III. Bu kelimeyi daha önce görmüştüm ve sanırım anlamı (eşanlamlı ya da çeviri)	IV. Bu kelimeyi biliyorum. Anlamı (eş anlamlı veya çeviri)	V. Bu kelimeyi bir cümlede kullanabilirim: (Bu bölümü yapıyorsanız, lütfen Bölüm IV'ü de yapın)
alive					
knives					
mirror					
screw					
leaf					
thunder					
government					
pot					
bridge					

Appendix 7.Turkish Version of Language Background Profile
Yabancı Dil Deneyim ve Kullanım Anketi Formu

Birdsong, Gertken and Amengual (2012) , Bilingual Language Speaker Profile 'dan ve Leonard (2021), Language Background anketinden uyarlanmıştır.

Değerli Katılımcı ,
Benim adım Ayşenur YAMAN. Yıldız Teknik Üniversitesi Yabancı Diller Eğitimi Bölümünde Yüksek Lisans öğrencisiyim. Danışmanım Doc.Dr. Suzan KAVANOZ gözetiminde "Karma Yöntemli Öğrenici Derlemi Çalışması :Lise Öğrencilerinin Hiper Metinli Çevrimiçi Kapsamlı Okuma Aracılı Rastlantısal Kelime Kazanımları ve Okuduğunu Anlama" adlı bir çalışma yürütmekteyim. Bu anket hedef öğrenme diliniz olan İngilizce ile günlük hayatta ne kadar ve nasıl vakit geçirdiğinizi belirlemeyi hedeflemektedir. Vereceğiniz bilgiler çalışma dışında asla kullanılmayacak ve cevapların gizliliği korunacaktır. Cevaplarken dikkatinizi vermeniz bilimsel açıdan doğru sonuçlar elde etmemizi sağlayacaktır.
Katılımınız için teşekkür ederim,
Saygılarımla.
Ayşenur YAMAN
Email:

1.BÖLÜM
1.Katılımcı Cinsiyeti _____
2.Ana diliniz ve diğer dilleriniz nedir? _____
3. Her birini kaç yaşında öğrenmeye başladınız? _____

2. BÖLÜM
1. Şimdiye kadar İngilizceyi nasıl öğrendiniz? Uygun olanları seçiniz.
a.Resmi sınıf eğitimi yoluyla
b.TV, müzik veya dizi/filmlerden
c.İnsanlarla etkileşim yoluyla
d.Sohbet , mesajlaşma ve e-posta yoluyla çevrimiçi
e.Özel ders yoluyla
f.Oyunlardan
g.Diğer……..

2.Aşağıdaki etkinliklerden hangilerinde İngilizceyi kullanıyorsunuz?
Uygun olanları seçiniz.
a.Radyo dinlemek , TV veya film izlemek
b.Bilgisayar oyunu oynarken
c.Bilimsel makale okuma
d. Çevrimiçi okuma
e.Arkadaşlarınıza e posta yazmak veya sohbet etmek
f.Haber okumak
g. İngilizce dersinden başka derslerin ödevini yaparken
h. Diğer

Appendix 7.Continued

3.İlkokul ve ortaokul seviyelerinde hangi dillerin eğitimini aldınız ve kaçar saat eğitim aldınız? Detaylı şekilde belirtiniz.

4. Üç aydan fazla bir süre başka ülkelerde yaşadıysanız veya seyahat ettiyseniz, lütfen ülke veya ülkelerin adlarını, kalış sürenizi ve öğrendiğiniz veya öğrenmeye çalıştığınız dilleri belirtin.

5. Dil öğrenme geçmişinizle ilgili ilginç veya önemli olduğunu düşündüğünüz ve bilmemi istediğiniz başka bir şey var mı?

6.Normal bir günde İngilizceyi yüzde kaç oranında kullanıyorsunuz?

% 0 ☐ <% 25 ☐ % 25 ☐ %50 ☐ %75 ☐ %100 ☐ Diğer ……

7.Hangi ortaokuldan mezunsunuz? Tam adını ve bulunduğu ili/ilçeyi yazınız.

8.Mezun olduğunuz ortaokul özel mi devlet okulu mu?

9.Ailenizin ikamet ettiği il/ilçeyi yazınız.

10. Anne ve babanızdan akıcı şekilde İngilizce KONUŞABİLEN var mı? Ne seviyede? Detaylıca belirtiniz.

11.Anne ve babanızdan İngilizce ve Türkçe dışında bir dili akıcı şekilde KONUŞABİLEN var mı? Hangi dil detaylıca belirtiniz.

12.İngilizce öğrenirken hangi aktivite sizin için daha ilgi çekici?
a.Okuma ☐ b. Yazma ☐ c.Konuşma ☐ d.Dinleme ☐

13. Hangi dijital mecralarda (websiteler, uygulamalar vs.) ne kadar vakit geçirirsiniz? İsmen ve günlük saat bazında belirtiniz.

14. Kendinizi farkında olmaksızın İngilizce konuşurken buluyor musunuz? (Örneğin aynada ya da kendi kendinize)
Her zaman ☐ Nadiren ☐ Sıklıkla ☐ Çoğu zaman ☐ Her zaman ☐

15.En eğlendiğiniz boş zaman etkinliğiniz nedir? Açıklayınız.

16. Hayatta en çok neyi yapmakta zorlanırsın?

17. Mobil cihazlarda (telefon, tablet vs.) günde ortalama ne kadar vakit geçirirsiniz? (dk/saat)
30 dk. ☐ 1 saat ☐ 3 saat ☐ 3 saat < ☐

Anket Bitti.

Teşekkür Ederiz.

Appendix 8.English Version of Language Background Profile

Adapted from Bilingual Language Speaker Profile by Birdsong, Gertken and Amengual (2012) and from Student Questionnaire on Language Background by Leonard (2021).

(Birdsong, D., Gertken, L.M., & Amengual, M. *Bilingual Language Profile: An Easy-to-Use Instrument to Assess Bilingualism.* COERLL, University of Texas at Austin. Web. 20 Jan. 2012. <https://sites.la.utexas.edu/bilingual/>)

(Leonard, R. L., Bruce, S., & Vinyard, D. (2021). Finding Complexity in Language Identity Surveys. *Journal of Language, Identity & Education,* 1–14. https://doi.org/10.1080/15348458.2020.1863152)

PART 1

1.Participant Gender _____

2. What is your mother tongue or languages? _____

3. At what age did you start learning each one? _____

PART 2

1. How did you learn English so far? Please select the appropriate ones.

a. Through formal classroom instruction

b.TV, music or series/movies

c. Through interaction with people

d. Online via chat, messaging and email

e. Through private lessons

f. From the games

g.Other……..

2. In which of the following activities do you use English?

Please select the appropriate ones.

a.Listening to the radio, watching TV or movies

b. While playing a computer game

c. Reading scientific articles

D. online reading

e. E-mail or chat with your friends

f. reading news

g. While doing homework for other lessons than English class

h. Other

3. Which languages did you study at primary and secondary school levels and how many hours did you study? Specify in detail.

4. If you have lived or traveled to other countries for more than three months, please provide the name of the country or countries, the length of your stay and the languages you have learned or are trying to learn.

5.Is there anything else you think is interesting or important about your language learning history that you would like me to know?

6. What percentage do you use English in a normal day?

☐ 0% ☐< 25% ☐25% ☐ 50% ☐ 75% ☐ 100% ☐ Other …….

Appendix 8.Continued

7. Which secondary school did you graduate from? Write the full name and the city/district where it is located.

8.Is the secondary school you graduated from a private or public school?

9. Write down the province/district where your family resides.

10. Do any of your parents speak English fluently? At what level? Please specify in detail.

11. Do any of your parents speak a language other than English and Turkish fluently? Please specify which language in detail.

12. Which activity is more interesting for you while learning English?

a.Reading b. Writing c.Speaking d.Listening

13. How much time do you spend in which digital media (websites, applications, etc.)? Specify by name and daily hour basis.

14. Do you find yourself speaking English without realizing it? (For example, in the mirror or by yourself)

☐ Always ☐ Rarely ☐ Often ☐ Always

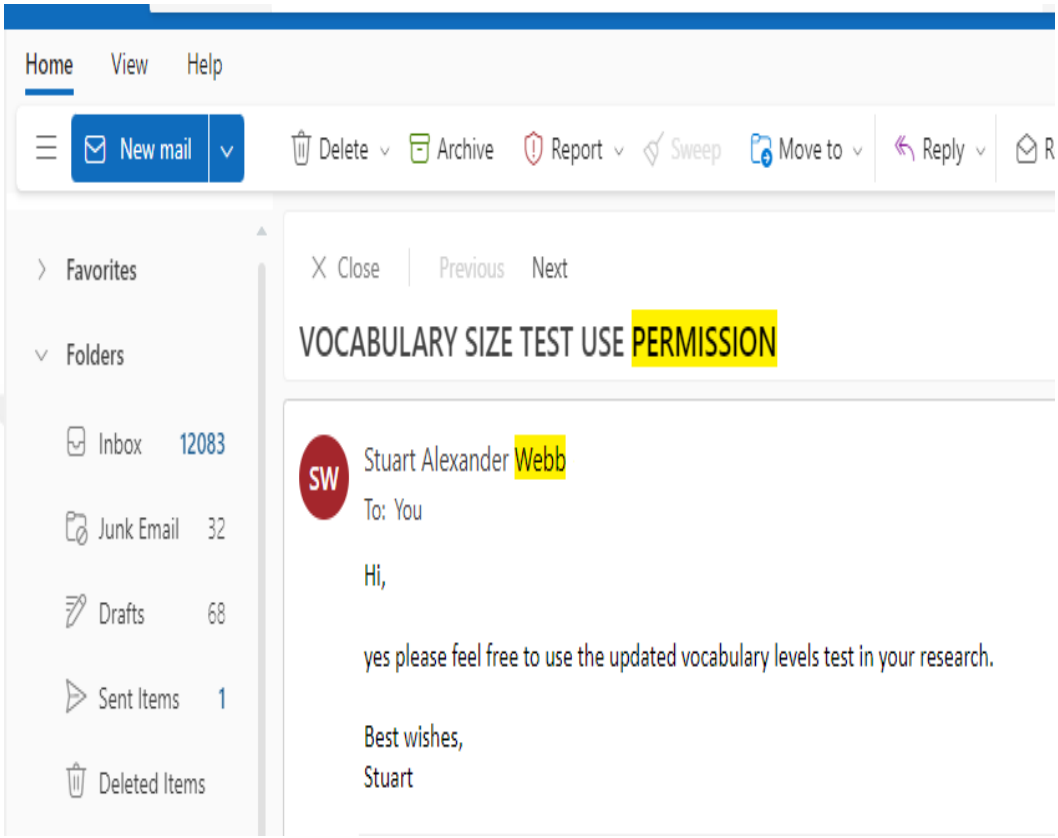
15. What is your most enjoyable free time activity? Please explain.

16. What do you find most difficult to do in life?

17. How much time do you spend on mobile devices (phone, tablet, etc.) on average per day? (min/hour)

☐ 30 min. ☐ 1 hour ☐ 3 hours ☐ 3 hours <

Appendix 9 .Vocabulary Levels Test Usage Permission



Appendix 10.Sample Parts of Vocabulary Levels Test

The Updadated Vocabulary Levels Test (Webb, Sasao &Ballance, 2017)

This is test that looks at how well you know useful English words. Put a check under the word that goes with each meaning. Here is an example.

	game	island	mouth	movie	song	yard
land with water all around it						
part of your body used for eating and talking						
piece of music						

It should be answered in the following way.

	game	island	mouth	movie	song	yard
land with water all around it		✓				
part of your body used for eating and talking			✓			
piece of music					✓	

1,000 Word Level

	choice	computer	garden	photograph	price	week
cost						
picture						
place where things grow outside						

Appendix 10.Continued

	animal	bath	crime	grass	law	shoulder
green leaves that cover the ground						
place to wash						
top end of your arm						

	drink	educate	forget	laugh	prepare	suit
get ready						
make a happy sound						
not remember						

	check	fight	return	tell	work	write
do things to get money						
go back again						
make sure						

	bring	can	reply	stare	understand	wish
say or write an answer to somebody						
carry to another place						
look at for a long time						

	alone	bad	cold	green	loud	main
most important						
not good						
not hot						

	awful	definite	exciting	general	mad	sweet
certain						
usual						
very bad						

Appendix 11.Reading Comprehension Questions

Sample from “A Puzzle for Logan”

1. Morag Mackenzie told her boyfriend that she got money from...

Select one:

- (•) her grandfather
- ( ) her rich uncle
- ( ) her boss's lover
- ( ) her ‘main man‘
- ( ) her ‘secret lover‘

2. What kind of business did Robert Baxter own?

Select one:

- ( ) an airline
- (•) a sports center
- ( ) a taxi company
- ( ) a computer company
- ( ) a supermarket chain

3. **Tam MacDonald found Ronnie Campbell hiding as a...**

Select one:

- ( ) taxi driver
- ( ) librarian
- (•) beggar
- ( ) policeman
- ( ) teacher

4. **Who told Inspector Logan that he saw somone leave Craig Sinclair's body at the factory?**

- ( ) Robert Baxter
- (•) Gus, the homeless man
- ( ) Jimmy Brown
- ( ) Grant
- ( ) Tam, the journalist

5. Who killed Morag Mackenzie?

- ( ) Ronnie Campbell
- ( ) Jimmy Brown
- ( ) Craig Sinclair's sister, Jean
- ( ) Gus, the homeless man
- (•) Robert Baxter

Appendix 12. Semi –Structured Interview Questions

Turkish

1. Çevrimiçi İngilizce kitap okuma deneyiminizle ilgili, okuduğunu anlama açısıdan olumlu ve olumsuz yönler nelerdir?
2. Çevrimiçi İngilizce kitap okuma deneyiminizle ilgili, kelime öğrenme açısından olumlu ve olumsuz yönler nelerdir?
3. Bu mod ile ilgili sistemsel ve yönetimsel olarak iyileştirmeye ya da değiştirmeye yönelik önerileriniz var mıdır?
4. Bu mod ile kitap okumaya ilerde devam etmek ister misiniz? Neden ?
5. Bu mod ile kitap okurken işinizi en çok kolaylaştıran ve en çok zorlaşıran durumlar nelerdi?

English

1. What are the positive and negative aspects of your online reading experience in terms of reading comprehension?
2. What are the positive and negative aspects of your online reading experience in terms of vocabulary learning?
3. Do you have any suggestions regarding system and management update or improvement for this mode?
4. Would you like to continue reading with this mode in the future? Why? Why not?
5. What were the situations that eased your work or challenged it in your experience of reading a book with this mode?

Appendix 13.Written Corpus Data Collection Tool

Write a 200-word summary of the book you read. Use questions below as a template.

When ?

What ?

Why ?

Who?

How ?

Appendix 14.Sample Results from Language Learner Background Biodata Questionnaire