NOVITAS-ROYAL
RESEARCH ON YOUTH AND LANGUAGE

2021, 15(2), 21-36
Novitas-ROYAL (Research on Youth and Language)
ISSN: 1307–4733

Research Article

# Vocabulary Size: Experiences of Successful Vocabulary Learners in EFL Context

Yeşim BEKTAŞ ÇETİNKAYA[1]

[1]Ph.D., Dokuz Eylül University, İzmir, TURKEY
yesim.cetinkaya@deu.edu.tr
ORCID: 0000-0002-1297-5740

**Article information**

| | | | |
|---|---|---|---|
| Submission | 11/05/2021 | Revision received | 08/09/2021 |
| Acceptance | 18/09/2021 | Publication date | 19/10/2021 |

**Keywords:**
Vocabulary size, vocabulary learning, extramural English, computer games, TV

**Abstract:** This study assesses vocabulary size of university students in an EFL context and unfolds the vocabulary development processes of successful learners through learners' reflective accounts. The study used a mixed methodology to collect and analyze the data. The quantitative data were collected from 93 university students who major in English Language Teaching (ELT) through vocabulary size test and the qualitative data through interviews with 11 participants who received the highest point from the vocabulary size test. The result of the study indicated that the vocabulary size of university students ranges from mid-frequency (6,000) to low-frequency (14,000) word families and the increase in vocabulary size is not linear from first to last year. It appears that individual learner's extramural English exposure from childhood to university plays a crucial role in the increase in vocabulary size rather than formal schooling. Technology use in the form of playing computer games, using online sites, and watching TV series and movies facilitate the acquisition and retention of new vocabulary for these successful learners.

**Anahtar Sözcükler:**
İngilizce kelime dağarcığı, kelime öğrenimi, okul dışı İngilizce, Bilgisayar oyunu, TV

**Kelime Dağarcığı: Yabancı Dil Olarak İngilizce Öğrenimi Bağlamında Başarılı Kelime Öğrenicilerinin Deneyimleri**

**Özet:** Bu çalışma, üniversite öğrencilerinin İngilizce kelime dağarcığını ölçmekte ve bildiği kelime sayısı fazla olan öğrencilerin gelişim sürecini, yansıtıcı açıklamalar yoluyla ortaya koymaktadır. Çalışmada, veri toplamak ve analiz etmek için, karma desen yöntemi kullanılmıştır. Nicel veriler, İngiliz Dili Eğitimi alanında öğrenim gören 93 üniversite öğrencisinden, kelime dağarcığı testi uygulanarak; nitel veriler ise kelime dağarcığı testinden en yüksek puanları almış olan 11 öğrenci ile yapılan yüz yüze görüşmeler yoluyla toplanmıştır. Çalışmanın sonuçları, katılımcıların kelime dağarcığının orta-sıklık (6000) ile düşük-sıklık (4000) kelime ailesi arasında olduğunu ve katılımcıların kelime dağarcığının, öğrenim gördükleri yılların artışına paralel olarak doğrusal bir artış göstermediğini ortaya koymuştur. Bilinen kelime sayısında, okulda alınan eğitimden ziyade, bireylerin çocukluklarından üniversiteye kadar olan süreçte okul dışı İngilizceye maruz kalışlarının önemli rol oynadığı gözükmektedir. İngilizce bilgisayar oyunu oynamak, internet sitelerini ziyaret etmek, dizi ve film izlemek biçimindeki teknoloji kullanımı, öğrencilerin, kelime edinme ve akılda tutma sürecini kolaylaştırmaktadır.

**To Cite This Article:** Bektaş-Çetinkaya, Y. (2021). Vocabulary size: Experiences of successful vocabulary learners in EFL context. *Novitas-ROYAL (Research on Youth and Language)*, *15*(2), 21-36.

## 1. Introduction

In most EFL contexts, English language instruction starts early, from kindergarten at the age of 4 or 5, and continues until the end of university. Throughout this long process, students increase their vocabulary size in the classroom through incidental and intentional vocabulary learning (Hulstijn, 2013; Laufer, 2017) and outside the class through extramural language exposure (Sundqvist & Wikström, 2015) that refers to the use of English outside the classroom in areas such as watching movies and Tv series, playing computer games, listening to music, reading books, magazines, web sites.

Vocabulary size, the number of vocabularies that a person knows to some extent, is a good predictor of overall language proficiency (Miralpeix & Munoz, 2018) and is directly related to reading comprehension (Biemiller, 2005), listening capabilities (Mathews, 2018), speaking (Miralpeix & Munoz, 2018) and writing and grammar (Alderson, 2005). Toward the end of high school, a native speaker of English knows around 13,000 to 14,000-word families (Coxhead, Nation, & Sim, 2015). In order for a non-native speaker of English to be able to read authentic text, one must know at least most frequent 9,000-word families (Nation, 2006).

There has been research on vocabulary size and vocabulary development in the formal school setting (e.g., Albaladejo, Coyle & Roca de Larios, 2018; Khezrelou, Ellis & Sadeghi, 2017; Uzun, 2009), but there has not been much research on extramural exposure and L2 vocabulary acquisition and the need for this type of research has been voiced (Schmitt, 2019). This mixed-method study assesses the vocabulary size of university students majoring in ELT in an EFL context and unfolds the vocabulary development processes of successful learners through learners' reflective accounts.

### 1.1. Vocabulary Size

Vocabulary size is considered the number of vocabularies that a person knows to some extent. A five-year-old native speaker child who is about to start school knows around 3,000-word families (Biemiller & Slonim, 2001). After a brief schooling, at the age of 8, the receptive vocabulary size of this child increases to around 5,000-word families (Biemiller, 2005). Toward the end of high school, a 17-year-old native speaker of English knows around 13,000 to 14,000-word families (Coxhead, Nation, & Sim, 2015). It appears that native speakers' receptive vocabulary size increases approximately 1000-word families a year (Biemiller, 2005) yet, except specialist such as doctors or botanists, a few native speakers' receptive vocabular size exceeds 20,000-word families (Coxhead, Nation & Sim, 2014).

When it comes to the nonnative speakers (NNS) of English, the number of words that a NNS knows in a foreign language is of significance since it is directly related to what that person can do in a foreign language. A NNS of English needs to know at least the most frequent 3,000-word families (Schmitt & Schmitt, 2014) to be able to have a basic conversation, around the most frequent 5,000-word families (Webb & Rodgers, 2009) to watch movies and the most frequent 9,000-word families to be able to read authentic texts such as newspaper and novels (Nation, 2006). It is shown that vocabulary size has a direct effect on reading comprehension (e.g., Biemiller, 2005), has a strong relationship with writing and grammar (e.g., Alderson, 2005), and it improves listening capabilities (e.g., Mathews, 2018).

Pedagogical decisions, such as which words to teach explicitly in the classroom, were made depending on the frequency of the words. Nation (2001; 2011) grouped word-families as high-frequency words, academic words, technical words, and low-frequency words and recommended teaching high-frequency words explicitly in the classroom, not to address low-frequency words in the class, since they are rare and address academic and technical words which are necessary only when learners want to study in English. More recently, Schmitt and Schmitt (2014) regrouped word families as high-frequency (most frequent 3,000), mid-frequency (between 3,000 and 9,000), and low- frequency (9,000+) words and they argued that it is not sufficient to teach only high-frequency words considering the necessity of vocabulary knowledge of 8,000 – 9,000 word families to be able to read authentic texts in English and that we need to find ways to address mid-frequency vocabulary in the classroom despite its challenges.

In measuring vocabulary size, the distinction is made between productive vocabulary size and receptive vocabulary size. Although there is no consensus regarding the measurement of productive vocabulary size (Nation & Anthony, 2017), there are several tests of receptive vocabulary size such as The Eurocenters Vocabulary Size Test (Meara & Jones, 1988), which measures most frequent 10,000 words, The Vocabulary Size Test (Nation & Beglar, 2007), which has 14,000 and 20,000 word family versions which is based on British National Corpus and the Corpus of Contemporary American English and finally, The Picture Vocabulary Size Test (Anthony, 2015), which is designed for young, pre-literate language learners.

### 1.2. Vocabulary Learning

According to Nation (2005), knowing a word involves knowing the form, meaning and the use of that word. While form refers to the spelling, sound and parts of the word; meaning refers to linking form and meaning, knowing the concepts and what these concepts refer, and the associations of the word. Finally, use refers to grammatical functions, collocations, and constrains on use. It is proposed that vocabulary can be learned incidentally or intentionally (e.g., Hulstijn, 2013; Laufer, 2017) While incidental vocabulary learning refers to "acquisition of a word or expression without the conscious intention to commit the element to memory, such as "picking up" an unknown word from listening to someone or from reading a text" (Hulstijn, 2013, p. 2632); Intentional learning of vocabulary refers to "a deliberate attempt to commit factual information to memory, often including the use of rehearsal techniques" (Hulstijn, 2013, p. 2632).

Laufer (2017) explained the second language vocabulary learning in terms of input, instruction and involvement. According to the input principle, the default hypothesis, vocabulary is acquired through receiving oral and written input. Learners notice the unknown words in the text, infer their meaning, and, if inferred correctly, remember them later. Massive exposure to language is a necessary condition for acquiring vocabulary through input.

Laufer (2017) explains instruction principle in terms of Focus on Form (FonF)-incidental learning, Focus-on-Forms (FonFs)-incidental learning and Focus-on-Forms – Intentional learning. In FonF instruction, language is seen as a communication tool and language learners as users of language. A typical FonF task is a communicative one which involves various techniques such as dictionary use, glosses in text, hypertext, online dictionary, etc., and directs the attention of the learner to words. Studies have indicated that learners acquired more words when they used a dictionary while reading (Knights, 1994; Laufer & Rozovski-

Roitblat, 2015; Luppescu & Day, 1993). Alternatively, in FonFs instruction, language is seen as a subject to study and vocabulary is taught as discrete items. Although vocabulary is encountered in a text first, later learners do decontextualized, noncommunicative vocabulary exercises. Studies indicate that readers learn more vocabulary when they do word focused activities after reading compared to reading by consulting a dictionary (Horst, Cobb & Nicolae, 2005; Peters, Hulstjin, Sercu & Lutjeharms, 2009). In intentional learning, learners memorize the meaning of words from a decontextualized vocabulary list, which is also shown to have resulted in vocabulary learning (Mondria & Wiersma, 2004; Qian, 1996).

Finally, Laufer (2017) explains the third principle of vocabulary learning, involvement, through Involvement Load Hypothesis. According to this hypothesis, involvement is a "motivational-cognitive construct which can explain and predict learners' success in the retention of unfamiliar words" (p. 350). Involvement has three components: need, search and evaluation. Need is constructed as a motivational component, which ranges from moderate to strong while search and evaluation are cognitive components. Search involves "the attempt to find the meaning of an unknown L2 word" and evaluation "occurs when a given word is compared with other words" (pp. 350-351). Involvement Load predicts that vocabulary learning is more effective when the involvement load is high meaning when the learner's motivation is high, when she searches the meaning of the word and compares it with other words, she can gain more vocabulary (Hulstjin & Laufer, 2001; Keating, 2008; Kim, 2008).

### 1.3. Extramural English, Technology Use and Vocabulary Learning

Due to widespread use of English around the world and to technology, out-of-school English language learning experiences have increased (Genç & Köksal, 2021; Kuppens, 2010; Lehtonen, 2017; Socket & Toffoli, 2012; Sylven & Sundqvist, 2012). An umbrella term Extramural English (EE) was proposed (Sundqvist & Wikström, 2015) to indicate the use of English outside the classroom in areas such as watching movies and Tv series, playing computer games, listening to music, reading books, magazines, web sites.

Jensen (2016) reported that Danish young English language learners (aged 8 and 10) spent time every day for the following EE activities: gaming, listening to music, reading, talking, watching television, and writing. It was also reported that these learners spent most time for gaming, listening to music and watching television and that gaming is significantly related to their vocabulary gains. Similarly, in a Swedish context, Sundqvist and Wikstrom (2015) conducted research with 80 teenage English language learners to examine the relation between L2 vocabulary and out-of-school digital gaming. Results indicated that frequent gamers had the highest vocabulary test results in all vocabulary measures.

Some studies conducted to examine the effect of watching TV (Montero Perez, Van Den Noortgate & Desmet, 2013; Peters, Heynen & Puimege, 2016), listening to popular songs (Tegge, 2017), playing computer games (Chen, Liu & Huang, 2019; Sundqvist, 2019; Yu, 2018) and using a mobile device (Klimova, 2018; Mahdi, 2018) on vocabulary gain. Studies that focused on audiovisual input mainly researched the effect of L1 subtitles and captions (subtitles in the target language) on vocabulary gains of learners (Montero Perez, Van Den Noortgate & Desmet, 2013; Peters, Heynen & Puimege, 2016). In their study with EFL learners in Belgium, Peters et al. found that learners acquired new words while watching a short video and caption is more useful than L1 subtitle in terms of acquiring new form.

Tegge (2017) investigated the vocabulary learning opportunities that popular songs provide to language learners. He analyzed two pop song corpora and found that song lyrics are lexically simple compared to other written genre, but similar to the spoken genre and when a person knows the most frequent 3,000 word families plus proper nouns, that person comprehends 95% of the lyrics. Tegge argued that "songs are located between graded readers and other authentic text genres that can be used to teach or rehearse mid-frequency words from the 4th to 9th frequency band" (p. 96).

Several studies have illustrated that gaming affects vocabulary gain (Chen, Liu & Huang, 2019; Sundqvist, 2019; Yu, 2018). Chen et al. (2019) demonstrated the effects of a mobile game-based English vocabulary-learning app on Taiwanese EFL learners' vocabulary acquisition and retention. Sundqvist's (2019) study with teenage English learners in Sweeden showed similar results. Commercial-off-the-shelf games' playing-time was positively correlated with vocabulary test scores. In addition, Yu (2018) found that interactivity-prone serious gaming is more effective in vocabulary learning compared to less interactivity-prone serious gaming.

The current mixed- methods study identifies university students with high vocabulary size in an EFL context and unfolds their vocabulary-learning experiences both in and outside the classroom. It specifically answers the following questions:

1. What is the current vocabulary size of university students majoring in ELT?
2. Does vocabulary size change from freshman year to senior year?
3. What facilitates vocabulary learning and retention of successful students?

## 2. Method

### 2.1. Research Design

The study used mixed methods research, which combines both qualitative and quantitative methods in collecting and analyzing the data to understand the research problem better (Creswell, 2012). The explanatory sequential design (Creswell, 2012) in which qualitative and quantitative data were collected sequentially in two phases, was used. First, university students' current vocabulary size was assessed through a vocabulary size test, and then interviews were conducted with the ones who have the highest vocabulary size.

### 2.2. Participants

The study was conducted at an English language teaching department of a state university. The data were collected from 93 university students who are majoring in ELT (male:29, female: 64). Among these students, 22 were seniors, 21 were juniors, 27 were sophomore and 23 were freshmen. First, the vocabulary size test was given to 93 participants. Then, interviews were conducted with 11 participants (male: 6, female:5) who received the highest point from the vocabulary size test. Interview participants'age ranges from 18 to 35. Except for two of them who had a few years of private school experience, most of them attended public schools. Two of them had been abroad for a brief period for vacation.

### 2.3. Data Collection

To collect quantitative data, random cluster sampling was used. One freshman, one junior, one sophomore and one senior class was randomly selected out of 4 classes at each level, and data were collected from the participants in selected classes. Participants read and signed

the consent form. Then, the vocabulary size test, which tests up to 20,000 world level was used to identify the word level of the participants. They took approximately 40 minutes to complete the test.

The vocabulary size test was developed by Nation and Beglar (2007) and, validated by Beglar (2010) through the Rasch model. For internal consistency, Cronbach's alpha coefficient was found to be 0.87 which indicated a good reliability. The paper-based version, which tests written receptive knowledge up to 20,000 world level, had 100 multiple-choice items with stem and four options. An example item is:

figure: is this the right figure?

a. answer
b. place
c. time
d. number

Qualitative data were collected through interviews with 11 participants (3 from each class, one student did not participate) who had the highest score from the vocabulary size test. Each interview approximately took an hour. Semi-structured interviews were used. Two general questions below were asked to each participant, and depending on their answers, follow-up questions were also addressed to participants to unfold the factors that facilitate learning and retention of vocabulary.

1. Would you talk about your English language learning experiences?

a) When did you start?
b) How did you study?
c) Did you use English outside the class?
d) What did you do to learn and remember vocabulary?

2. Your vocabulary size is higher than your classmates. Why do you think that you know more vocabulary? What could be the reason?

### 2.4. Data Analysis

Quantitative data were analyzed through descriptive and inferential statistics by using SPSS 15. First, vocabulary size of participants was calculated through descriptive statistics such as mean, maximum and minimum scores. Then, Analysis of Variance (ANOVA) was conducted to detect the possible vocabulary size differences among each grade level. Finally, Tamhane's T2 test was used as post hoc to detect which grade level is significantly different from the others. Qualitative data were analyzed through inductive content analysis. First, the interviews were transcribed. Then, the transcript of each interview was read several times and coded. Finally, all coded interviews were compared and contrasted and, the themes were identified.

## 3. Findings

### 3.1. The Current Vocabulary Size of the Participants

The general mean of vocabulary size for all grade levels is 9,679-word families. Vocabulary size of the participants ranges from 6,000-word families to 14,400-word families. As can be

seen in Table 1, these university students' vocabulary size is at mid-(3,000-9,000-word families) and low-frequency (beyond 9,000-word families) level.

Table 1.

*Vocabulary size of participants*

| | Mean | Max. | Min. | Variance |
|---|---|---|---|---|
| Freshman | 9 192 | 11 400 | 6 000 | 5 400 |
| Sophomore | 8 800 | 14 400 | 6 000 | 8 400 |
| Junior | 10 504 | 14 400 | 7 400 | 7 000 |
| Senior | 10 218 | 14 200 | 6 600 | 7 600 |

When the class level is examined, it is observed that while the sophomores' vocabulary size is the lowest, Juniors' vocabulary size is the highest of all. Except sophomores, whose vocabulary size mean is the lowest, the majority of the participants are at low-frequency (beyond 9,000-word families) level. While approximately 86% of the juniors' vocabulary size is beyond 9,000-word families; approximately 60% of sophomores' vocabulary size is between 3,000 to 9,000-word families.

### 3.2. Does Vocabulary Size Increase from Freshmen to Senior Year?

To understand whether vocabulary size significantly differs among each grade level, ANOVA was conducted. Since the number of students at each grade level is not equal Tamhane's T2 test was used as post hoc.

Table 2.

*The Analysis of Variance (ANOVA) of vocabulary size*

| Source of variation | SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 1167.299 | 3 | 389.100 | 3.951 | .011 |
| Within Groups | 8764.013 | 89 | 98.472 | | |
| Total | 993.312 | 92 | | | |

$p < .05$

Results of ANOVA revealed statistically significant vocabulary size difference among grade levels, $F(3,89) = 3{,}951$, $p < .05$ as shown in Table 2. Tamhane's T2 test was used to identify which groups are significantly different from each other.

Table 3.

*Multiple Comparisons of Grades*

| Class | | Mean Difference | Std.Error | Sig. |
|---|---|---|---|---|
| Freshmen | sophomore | 1.95 | 2.961 | .98 |
| | Junior | -6.56 | 2.776 | .12 |
| | Senior | -5.13 | 2.756 | .35 |
| Sophomore | Junior | -8.52* | 2.965 | .03 |
| | Senior | -7.09 | 2.94 | .11 |
| Junior | Senior | -1.43 | 2.76 | .99 |

$p < .05$

Results indicated a significant difference between the vocabulary size of the sophomores and the juniors as can be seen in Table 3. Vocabulary size significantly increased from sophomore to junior year. However, vocabulary size did not increase from freshman year to senior year in a linear way. Instead, it decreased from freshmen to sophomore then increased at junior year and decreased slightly at senior year again. At each grade level, there were students with high vocabulary size, which suggests not only schooling but also other factors affecting vocabulary learning.

### 3.3. What Facilitates Vocabulary Learning and Retention of Successful Students?

Successful vocabulary learners' vocabulary size ranged between 11,400 and 14,400 word-families. As can be seen in Table 4, it appears that technology use in the form of playing computer games, using online sites, and watching TV series and movies have facilitated the acquisition and retention of new vocabulary for these participants. They had a real desire and need to learn vocabulary due to using English for real-life purposes such as entertainment.

Table 4.

*Successful vocabulary learners' xperiences*

| Name | Gndr | Age | Vocab.Size | School | Abrd | ComGame | Movie | Web |
|---|---|---|---|---|---|---|---|---|
| K | M | 21 | 14200 | Pub | No | 4hr/day | Yes | 2hr/day |
| S | F | 21 | 12800 | Pub | No | 4hr/day | Yes | 1hr/day |
| Ü | M | 22 | 12200 | Pub/Pri | No | 4hr/day | Yes | 10min/day |
| H | F | 20 | 14400 | Pub | No | No | Yes | 2hr/day |
| R | F | 30 | 14200 | Pub | Yes | Yes | Yes | Yes |
| D | M | 20 | 13000 | Pub | No | 5hr/day | Yes | 1hr/day |
| B | M | 19 | 14400 | Pub | No | 4hr/day | Yes | 30min/day |
| E | M | 22 | 13200 | Pub | No | 2hr/day | Yes | 30min/day |
| R | M | 19 | 12200 | Pub | No | 2hr/day | Yes | 2hr/day |
| D | F | 18 | 11400 | Pri/Pub | Yes | Yes | Yes | 3hr/day |
| S | F | 35 | 11400 | Pub | No | No | Yes | Yes |

Among 11 participants, 9 of them attended public schools, one of them attended a private school for one year (10th grade), and the last one attended private elementary and middle school and public high school. Most of them had not been abroad. The ones who had been abroad (2) went for vacation and stayed for a few days. All of them watched Tv series and movies in English regularly and checked English websites every day. Most of them (9) played computer games. However, most (9) did not read books in English, although some of them had read books at middle and high school as school work.

### *3.3.1. Computer Games*

Almost all the participants (9 out of 11) played computer games starting from an early age, either before elementary school (3) or at elementary school (6). Since the available computer games were in English, they played in English with the help of other gamers and later with the help of electronic or online dictionaries. While some played at internet cafes three or four times a week, others played at home every day. When they started to play, they spent 2 to 6 hours at a time.

> "*I started playing computer games at elementary school. At an Internet cafe, older boys showed me how to start a game and how to continue. I used to keep them in mind. First, push New Game button then, choose a Chapter...There was a story in the game, characters spoke English. While playing, I did not say I should learn this vocabulary or try keeping notes. I just learned… I played 4 or 5 hours a day at elementary school. Now I play 3 or 4 hours a day…."* (B, male)

As B indicated, none of them played computer games for the purpose of learning English or memorizing English words. They played for entertainment and language acquisition seems to be the byproduct of the gaming. At around middle school, they started to play online games with other players around the world. At that stage, they expressed that they needed to communicate other players to be successful in the game. B expressed this need as following:

> "*When I played online games, I played with other gamers... There had to be a dialogue. You force yourself to keep the dialogue going, otherwise you loose. There I used a dictionary, an online dictionary like google translate…while playing you buy stuff, sell stuf, or you play as a team. To act together interaction is a must. I check google translate [He still plays online games and uses google translate time to time]"* (B, male)

While playing, they acquired new words naturally from the context or learned the strategic words or expressions consciously by using dictionaries such as a polylingual electronic dictionary, online dictionary, and Google translate. Participants expressed how they acquired/learned and remembered the words as following:

> [at elementary and middle school] *"In order to figure out the game, I used polylingual electronic dictionary and I learned words*" (K, male).

> *"…there was an inventory, the names of objects were written there…while playing when I encountered a word that I didn't know, I checked Google translate if it was a simple word, I used Tureng if it was a complex one*" (E, male).

> *"When it was a war game, I learned military terms. Most of the time I could guess the meaning of the word from the context. I couldn't tell the Turkish equivalent, I knew the English term*" (D, male).

*"When I saw a word that I learned in the game, I saw the picture of it or the idea/concept came to my mind. I did not learn them with Turkish equivalents" (*K, male)

*"When I encountered a word that I had learned while playing, I remembered the moment in the game, then I remembered the meaning of the word*" (S, female).

It appears that these game players acquired English vocabulary incidentally while playing every day for 2 to 5 hours. They recognized the unfamiliar word, inferred its meaning from the context, if they could not infer and it was an essential word, they checked online dictionaries and, in both cases, remembered it the next time they saw it.

*3.3.2. TV Series*

All the participants watched Tv series and movies in English for entertainment. They reported to start watching Tv series at middle school or high school first with Turkish subtitles, then English subtitles or without subtitles. In the beginning, they watched those on Tv and later on the internet. They reported watching several episodes or the whole season of a series in one day online. When they could not comprehend, the participants relied on subtitles and a dictionary to learn the words.

"*At Middle school, I used to watch Tv series with Turkish subtitles. After Highschool I watched them with English subtitles. Nowadays, I watch without subtitles"* (H, female).

*I have watched Tv series since High School. I used to watch Supernatural, Heroes. Now I watch two or three episodes of Batman everyday. Each episode lasts 20 min… I checked the meaning of words that I encountered on movies and Tv series"* (Ü, male).

*"I watched Tv series twice; first without subtitles then with subtitles. When the new episode was first released, it came without subtitles. I watched it again with subtitles to make sure that I understood everything" (*R, *male).*

Tv series seemed to provide optimal context and frequency of encounter with new words which enabled learners to acquire vocabulary. As E explained, since some Tv series revolved around the same theme it allowed learners to hear and see -when they were watching with subtitles- the same words repeatedly. Furthermore, the familiar plot and the scenes provided clues regarding the meaning of the words which made guessing the meaning possible eventually.

*At high school, I watched Tv series on both Tv. and online at least 2 or 3 hours a day. I bought the whole seasons of Lost and Prison Break….I did not use the dictionary. I understood them from the context. On Tv series, it revolves around the same theme so you hear the same words repeatedly. Also the words are related so it is easier to infer the meaning of the word from the context. Even if you could not infer for the first or second time, you get it the third time…for example Game of Thrones was about war and you could hear «siege» many times* (E,male).

They paid attention to the words while they were watching:

*I didn't know the word 'spleen' in the test [vocabulary level test that he took a week ago], a few days later, I was watching a Tv series and I heard the word 'spleen'.It was with subtitles and the character was talking about organs…since that was the word I encountered ealier in the exam, I paid particular attention* (E, male).

### *3.3.3. Books*

Only 2 of the participants read books in English. Majority of them reported that they did not read books in English even though some of them had read books in English at middle and high school. They had read as part of English class requirement and as soon as the requirement was over, they stopped reading.

> *I used to read simplified Penguin books like The Mumy, James Bond. My father used to borrow them from the University library. He used to work at Foreign Language school* (K, male).

> *At high school we used to read short stories or advanced books. I read Animal Farm, Time machine…our teacher made us read stories [one story or a short novel in a week). We used to discuss them in the class. Each story had 60 new words. I used to memorize them. I used to write them down and memorize…I couldn't read much these days. My attention span is shorter. I couldn't sit and read any longer* (H, female).

> *I used to read 3 or 4 books in a month like Harry Potter up until 11th grade. I like reading. I don't check dictionary much. It is a hassle. I check dictionary only when I can not guess the meaning* (D, female).

### *3.3.4. Internet Sites*

For this group of preservice teachers, websites have replaced the books. Instead of reading books in their interest areas they check the interactive websites on which they could read, share and interact with other readers/writers. All of them spent 10 minutes to 3 hours on English websites everyday. As they expressed below they checked websites such as 9gag, plugDj, reddit, tumblr and imdb regularly. Although the participants did not read books anymore they read materials online.

> *I checked 9gag every day…watched humor channels on youtube* (K, male).

> *I am into song lyrics. At high school I learned many words while looking up the meaning of words in those lyrics. I checked plug DJ …. people make music and write comments there…There were YouTube channels that I regularly followed* (R, male).

> *I read news on reddit every day… I used to have Interpals account and I exchanged e-mails for 2,3 years* (E, male).

> *I used to spend 3 hours a day on Tumblr. I don't use it any more* (D, female).

All of them indicated that they checked and read 9gag, a favorite site, at least 10 minutes every day for fun. Depending on their interest they checked music sites, news sites or electronic diary sites regularly. While deciphering lyrics stimulated one student to learn words, trying to write to a pen pal or keeping an electronic diary motivated other student to use dictionary and learn needed words. Thus, they learned and retained vocabulary through spending time on these sites every day regularly.

## 4. Discussion and Conclusion

The vocabulary size of these participants ranged between 6,000 to 14,400-word families and the vocabulary size of these university students majoring in ELT did not increase from freshmen to senior year in a linear fashion. At each grade level, there were prospective

teachers with low and high vocabulary scores. Common characteristics of successful vocabulary learners were that they mostly graduated from public schools, had not been abroad, started to play computer games in English at an early age and continued to play 2 to 6 hours daily, checked English websites daily, and watched movies and TV series in English regularly. The basic motivation to learn new words behind the prospective teachers who had the highest vocabulary scores seemed to be using English for real life purposes in their case mostly for entertainment.

Considering these participants were majoring in teaching English their overall vocabulary size was low for prospective language teachers. At each level, even among seniors, there were students whose vocabulary size was less than 9,000-word families which indicates that they cannot read wide range of authentic texts in English. This leads us to question the efficacy of vocabulary instruction at the school system. Good learners with higher vocabulary size seem to have extramural English exposure and to have acquired English vocabulary outside the school system.

Computer games, internet sites, Tv series and movies provided necessary conditions for the massive amount of exposure to English that allowed these participants to acquire words. While playing computer games and watching Tv series, participants received a massive amount of both oral and written language input, noticed the unknown words, guessed the meaning of those words or checked the dictionary, encountered the same words many times and in the case of online multiplayer games, produced output. Thus, extramural exposure to the English language provided ideal conditions for vocabulary acquisition in terms of input, noticing and output (Krashen,1985; Swain, 1985; Schmidt, 1990). This finding is also in line with previous research that indicated that computer games facilitate vocabulary acquisition (Jensen, 2016).

Furthermore, in Tv series and games, the same vocabulary was repeated enough to allow incidental learning. Computer games also provided visual input in the form of depository with objects, pictures and written words. Studies have indicated that extensive reading does not provide optimal conditions, namely learners do not pay attention or do not encounter the same words enough time to acquire it incidentally or acquire and remember only a small number of words (Laufer & Rozovski-Roitblat, 2015). However, in computer games and Tv series, the same vocabulary was encountered many times and the learners paid attention since they were motivated and engaged. In that sense, playing computer games and watching engaging Tv series provide optimal conditions for incidental vocabulary acquisition.

The participants' acquisition and retention of vocabulary can be explained through instruction that they received at school, input that they regularly received from spoken and written English outside the school and the degree of their involvement. All participants started to learn English at the fourth grade and learned vocabulary in class through explicit instruction. However, the large vocabulary size of participants can be explained mainly through their involvement. The involvement is described "as a motivational-cognitive construct which can explain and predict learners' success in the retention of unfamiliar words" (Laufer, 2017, p. 350). Involvement has three components namely need, search and evaluation. Need is motivational component and while the external need is moderate, the intrinsic need is considered strong. Search is "the attempt to find the meaning of an unknown L2 word" (pp. 350-351). The third component, evaluation happens when the learner compares the target word with other words or compares several meanings of the target word. Participants with large- vocabulary size had strong need to learn certain vocabulary especially

while playing computer games, searched for the word by consulting a dictionary and evaluated several meanings of the same word to choose the correct one for the context. Thus, vocabulary learning experiences of learners with large vocabulary size induced strong involvement, which leads to the acquisition and retention of new words.

This study is limited to one EFL context and assessed only the receptive vocabulary size of the participants. Longitudinal case studies could be conducted to examine both the scope of extramural exposure and the precise nature of vocabulary learning through extramural exposure. Meanwhile, extramural exposure could be integrated into language teaching through raising learner awareness in the class regarding language use outside the classroom and providing guidance to learners. To ensure the involvement of the learner, learner autonomy could be fostered by providing guidance and allowing learners to choose the activity they that want to engage according to their interests.

In the EFL context, it is difficult to develop language learners' vocabulary size up to most-frequent 9,000 word family level, which is essential to be able to read authentic texts, only through in-class-instruction. As the results of the study implied, learners with high vocabulary size have had regular extramural English exposure. In that sense, it is necessary to explore and use extramural English exposure opportunities such as playing interactive computer games, watching TV episodes and movies and searching online sites for learners to acquire mid- and low-frequency level words outside the class on their own pace.

## Note on Ethical Issues

The author confirms that the study does not need ethics committee approval according to the research integrity rules in their country (Date of Confirmation: 16/10/2021).

## References

Albaladejo, S. A., Coyle, Y., & Roca de Larios, J. (2018). Songs, stories and vocabulary acquisition in preschool learners of English as a foreign language. *System*, 76, 116-128.

Alderson, J. C. (2005). *Diagnosing foreign language proficiency*. London: Continuum.

Anthony, L. (2015). *AntWordProfiler* (Version 1.4.0) [Computer Software]. Tokyo, Japan: Waseda Univeristy. Available at http://www.laurenceanthony.net/software

Beglar, D. (2010). A Rasch-based validation of the vocabulary size test. *Language Testing, 27*(1), 101-118.

Biemiller, A. (2005). Size and sequence in vocabulary development. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research into practice* (pp. 223-242). Mahwah, N.J.: Lawrence Erlbaum Associates.

Biemiller, A., & Slonim, N. (2001). Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition. *Journal of Educational Psychology*, *93*(3), 498-520.

Chen, C. M., Liu, H., & Huang, H. B. (2019). Effects of a mobile game-based English vocabulary learning app on learners' perceptions and learning performance: A case study of Taiwanese EFL learners. RECALL, *31*(2), 170-188.

Coxhead, A., Nation, I. S. P., & Sim, D. (2014). Creating and trialling six forms of the vocabulary size test. *TESOLANZ Journal*, *22,* 13-26.

Coxhead, A., Nation, I. S. P., & Sim, D. (2015). Measuring the vocabulary size of native speakers of English in New Zealand secondary schools. *New Zealand Journal of Educational Studies*, *50*(1), 121-135.

Creswell, J. W. (2012). *Educational research.* Boston: Pearson.

Genç, G., & Köksal, D. (2021). Foreign language learning effort and use of digital media among digital natives: A case study from an urban secondary school. *Novitas-Royal (Research on Youth and Language), 15(1)*, 17-37.

Horst, M., Cobb, T. & Nicolae, H. (2005). Expanding academic vocabulary with an interactive on-line database. *Language Learning and Technology, 9*, 90-110.

Hulstijn, J. H. (2013). Incidental learning in second language acquisition. In C. A. Chapelle (Ed.), *The encyclopedia of applied linguistics* (Vol. 5, pp. 2632-2640). Chichester: Wiley-Blackwell. https://doi.org/10.1002/9781405198431.wbeal0530

Hulstjin, J. H., & Laufer, B. (2001). Some empirical evidence for the involvement load hypothesis in vocabulary acquisition. *Language Learning*, *51*, 539-558.

Jensen, S. H. (2016). Gaming as an English language learning resource among young children in Denmark. *CALICO Journal, 34*(1), 1-19.

Keating, G. (2008). Task effectiveness and word learning in a second language. The involvement load hypothesis on trial. *Language Teaching Research*, *12,* 365-386.

Khezrelou, S., Ellis, R., & Sadeghi, K. (2017). Effects of computer-assisted glosses on EFL learners' vocabulary acquisition and reading comprehension in three learning conditions. *System*, *63*, 104-116.

Kim, Y. J. (2008). The role of task-induced involvement and learner proficiency in L2 vocabulary acquisition. *Language Learning, 38*, 285-325.

Klimova, B. (2018). Mobie phones and/or smartphones and their apps for teaching English as a foreign language. *Education and Information Technologies*, *23*(3), 1091-1099.

Knights, S. (1994). Dictionary use while reading: The effect on comprehension and vocabulary acquisition for students of different verbal abilities. *The Modern Language Journal*, *78*(3), 285-299.

Krashen, S. (1985). *The input hypothesis: Issues and implications*. London: Longman.

Kuppens, A. H. (2010). Incidental foreign language acquisition from media exposure. *Learning, Media and Technology*, *35*(1), 65-85.

Laufer, B. (2017). The three "I"s of second language vocabulary learning. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 343-354). New York: Routledge.

Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: Size, strength, and computer adaptiveness. *Language Learning 54*(3), 399-436.

Laufer, B., & Rozovski-Roitblat, R. (2015). Retention of new words: Quantity of encounters, quality of task, and degree of knowledge. *Language Teaching Research*, *19*(6), 687-711.

Lehtonen, T. (2017). "You will certainly learn English much faster at work than from a textbook"- Law students learning English beyond the language classroom. *System*, *68*, 50-59.

Luppescu, S., & Day, R. R. (1993). Reading dictionaries and vocabulary learning. *Language Learning*, *43*, 263-279.

Mahdi, H. S. (2018). Effectiveness of mobile devices on vocabulary learning: A meta-analysis. *Journal of Educational Computing Research*, *56*(1), 134-154.

Mathews, J. (2018). Vocabulary for listening: Emerging evidence for high and mid-frequency vocabulary knowledge. *System*, *72,* 23-36.

Meara, P., & Jones, G. (1988). Vocabulary size as a placement indicator. In P. Grunwell (Ed.) *Applied linguistics in society* (pp. 80-87). London: CILT

Miralpeix, I., & Munoz, C. (2018). Receptive vocabulary size and its relationship to EFL language skills. *IRAL*, *56*(1), 1-24.

Mondria, J., & Wiersma, B. (2004). Receptive, productive and receptive + productive L2 vocabulary learning: What difference does it make? In P. Bogaards & B. Laufer (Eds.). *Vocabulary in a second language: Selection, acquisition and testing* (pp. 79-100). Amsterdam: John Benjamin.

Montero Perez, M., Van Den Noortgate, W., & Desmet, P. (2013). Captioned video for L2 listening and vocabulary learning: A meta-analysis. *System 41*(3), 720-739.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.

Nation, I. S. P. (2005). Teaching and learning vocabulary. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 581-595). Mahwah: Lawrence Erlbaum.

Nation, I. S. P. (2006). How large a vocabulary is needed for reading and listening? *Canadian Modern Language Review*, *63*(1), 59-82.

Nation, I. S. P. (2011). Research into practice: Vocabulary. *Language Teaching*, *44*(4), 529-539.

Nation, P., & Anthony, L. (2017). Measuring vocabulary size. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 355-368). New York: Routledge.

Nation, I. S. P., & Beglar, D. (2007). A vocabulary size test. *The Language Teacher*, *31*(7), 9-13.

Peters, E., Heynen, E., & Puimege, E. (2016). Learning vocabulary through audiovisual input: The differential effect of L1 subtitles and captions. *System*, *63*, 134-148.

Peters, E., Hulstjin, J. H., Sercu, I., & Lutjeharms, M. (2009). Learning L2 German vocabulary through reading: The effect of three enhancement techniques compared. *Language Learning, 59*(1), 113-151.

Qian, D. D. (1996). ESL vocabulary acquisition. Contextualization and decontextualization. *Canadian Modern Language Review, 53*(1), 120-142.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, *11*(2), 129-158.

Schmitt, N. (2019). Understanding vocabulary acquisition, instruction, and assessment: A research agenda. *Language Teaching*, *52,* 261-274.

Schmitt, N., & Schmitt, D. (2014). A reassessment of frequency and vocabulary size in L2 vocabulary teaching. *Language Teaching*, *47*(4), 484-503.

Socket, G., & Toffoli, D. (2012). Beyond learner autonomy: a dynamic systems view of the informal learning of English in virtual online communities, *RECALL*, *24*(2), 138-151.

Sundqvist, P. (2019). Commercial-off-the-shelf games in the digital wild and L2 learner vocabulary. *Language Learning and Technology*, *23*(1), 87-113.

Sundqvist, P., & Wikström, P. (2015). Out-of-school digital gameplay and in-school L2 English vocabulary outcomes. *System*, *51*, 65-76.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253). Rowley: Newbury House.

Sylven, L. K., & Sundqvist, P. (2012). Gaming as extramural English L2 learning and L2 proficiency among young learners. *RECALL*, *24*(3), 302-321.

Tegge, F. (2017). The lexical coverage of popular songs in English language teaching. *System*, *67*, 87-98.

Uzun, L. (2009). An evaluative checklist for computer games used for foreign language vocabulary learning and practice: VocaWord sample. *Novitas-Royal (Research on Youth and Language), 3*(1), 45-59.

Webb, S., & Rodgers, M. P. H. (2009). The vocabulary demands of television programs. *Language Learning*, *59*(2), 335-366.

Yu, Z. (2018). Differences in serious game-aided and traditional English vocabulary acquisition. *Computers and Education*, *127*, 214-232.