



**HACETTEPE ÜNİVERSİTESİ**  
**EĞİTİM BİLİMLERİ ENSTİTÜSÜ**

Department of Foreign Language Education  
English Language Teaching Programme

A STUDY INTO THE INTERPLAY BETWEEN FIRST AND SECOND LANGUAGE  
READING MOTIVATION AND VOCABULARY DEVELOPMENT

Nuray ÇAYLAK

Ph.D. Dissertation

Ankara, 2019

With leadership, research, innovation, high quality education and change,

*To the leading edge... Toward being the best...*



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BİRİNCİ VE İKİNCİ DİL OKUMA MOTİVASYONU İLE İKİNCİ DİLDE KELİME  
GELİŞİMİ ARASINDAKİ ETKİLEŞİM ÜZERİNE BİR ÇALIŞMA

Nuray ÇAYLAK

Ph.D. Dissertation

Ankara, 2019

### Acceptance and Approval

To the Graduate School of Educational Sciences,

This dissertation, prepared by **NURAY ÇAYLAK** and entitled "A study into the interplay between first and second language reading motivation and vocabulary development" has been approved as a thesis for the Degree of **Ph.D.** in the **Program of English Language Teaching** in the **Department of Foreign Language Education** by the members of the Examining Committee.

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Prof. Dr. Ali Ekber ŞAHİN  
Director of Graduate School of Educational Sciences

## **Abstract**

The present study aimed to examine the cross-linguistic effect of L1 vocabulary, reading motivation and habits on L2 vocabulary, reading motivation and habits. In this respect, proposing a model, the study aims to contribute to the foreign language education and research. Moreover, the study also seeks to contribute to Turkish language studies through illustrating Turkish vocabulary size, reading motivation and habits of university students. With respect to the sample size and data collection tools required by the complex theoretical model proposed, the study employed a quantitative survey research design. The data was collected through vocabulary size tests, reading motivational scales and reading habits questionnaires from a total of 490 participants from the four different state universities. As the complex theoretical model suggested, the model proposed in the study was analyzed with PLS-SEM technique. The results revealed that L1 vocabulary size and reading efficacy were the two predictors of L2 vocabulary size; however, L1 vocabulary size was the best predictor. Whereas L1 reading habits explained L1 vocabulary size, L2 reading habits did not predict L2 vocabulary size. Although participants' most highly endorsed reading motivational dispositions in L1 and L2 were different, only intrinsic reading motivation explained reading habits in L1 and L2. Moreover, L1 reading motivation and habits significantly predicted L2 reading motivation and habits. In this respect, the study suggests that L1 vocabulary size and reading habits are important in the development of L2 vocabulary size and reading habits.

**Keywords:** L1 vocabulary, L2 vocabulary, L1 reading motivation, L2 reading motivation, L1 reading habits, L2 reading habits, partial least squares structural equation modelling

## Öz

Bu çalışma anadil kelime hazinesi, okuma motivasyonu ve alışkanlıklarının ikinci dil kelime hazinesi, okuma motivasyonu ve alışkanlıklarına olan etkisini incelemeyi amaçlamaktadır. Bu anlamda okuma davranışı ve anadil etkisinin üzerine az çalışma yapılmış olan boyutlarına ilişkin bir model sunan bu çalışma yabancı dil eğitimi ve araştırmalarına katkıda bulunmayı amaçlamaktadır. Ayrıca bu çalışma, çok az çalışmanın yer verdiği, üniversite öğrencilerinin anadil Türkçe kelime hazinesi, okuma motivasyonu ve alışkanlıkları konularında da alana katkı sağlama çabasıdadır. Hem katılımcı sayısının fazlalığı, hem de öne sürülen modelin karmaşıklığı dolayısıyla bu çalışmada nicel tarama deseni tercih edilmiştir. Dört farklı üniversiteden 490 gönüllü katılımcının katıldığı bu çalışmada veriler, kelime hazinesi ölçme testleri, okuma motivasyonu ölçekleri ve okuma alışkanlıkları anketleriyle toplanmıştır. Sunulan modelin karmaşıklığı ve yeni bir model olması sebebiyle veriler En Küçük Kareler Yapısal Eşitlik Modellemesi tekniğiyle analiz edilmiştir. Çalışmanın sonucunda anadil kelime hazinesinin ve okuma yeterlilik algısının ikinci dil kelime hazinesini yordadığı ortaya çıkmıştır. Bu yordayıcılar arasında en kuvvetli yordayıcı anadil kelime hazinesidir. Anadil okuma alışkanlıkları anadil kelime hazinesini yordarken aynı ilişki ikinci okuma alışkanlıkları ve kelime hazinesi arasında anlamsız çıkmıştır. Öte yandan her ne kadar her iki dildeki okuma motivasyonları farklı olsa da anadil okuma motivasyonu ikinci dildeki okuma motivasyonunu yordamıştır. Aynı şekilde anadil okuma alışkanlıklarının da ikinci dildeki okuma alışkanlıklarının yordayıcısı olduğu ortaya çıkmıştır. Sonuç olarak, bu çalışma anadilde kelime hazinesi ve okuma alışkanlıkları, ikinci dildeki kelime hazinesi ve okuma alışkanlıkları gelişimi için önemli olduğunu ortaya koymaktadır.

**Anahtar sözcükler:** anadil kelime hazinesi, ikinci dil kelime hazinesi, anadil okuma motivasyonu, ikinci dil okuma motivasyonu, anadil okuma alışkanlıkları, ikinci dil okuma alışkanlıkları, en küçük kareler yapısal eşitlik modellemesi

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## **Symbols and Abbreviations**

**L2:** Second/Foreign language

**L1:** Mother tongue

**SEM:** Structural equation modelling

**PLS-SEM:** Partial least squares structural equation modelling

**CB-SEM:** Covariance based structural equation modelling

**ELT:** English language teaching

**EFL:** English as a foreign language

**ESL:** English as a second language

**FLRAMS:** The Foreign Language Reading Attitudes and Motivation Scale

## **Chapter 1**

### **Introduction**

This chapter describes the background of the study and the research problem through a general overview of the theoretical framework. The chapter further presents the rationale and significance of the study, and followed by the introduction of the research questions.

#### **Statement of the Problem**

Over the past decades, vocabulary has sparked the interest of a vast majority of researchers, once neglected, it is now treated as an essential component of language skills (listening, speaking, reading and writing) (Nation & Waring, 1997), which assuming a prominent position as an indicator of L2 proficiency. In this regard, learners with poor vocabulary knowledge are likely to show less motivation toward language learning and to exhibit low self-efficacy (Oh, 2016; Oxford & Shearin, 1994; Raoofi, Tan, & Chan, 2012). Several researchers have defined vocabulary knowledge and its components in detail (Nation, 2001) while some of them have focused on how to test the various aspects of vocabulary knowledge (Laufer & Nation, 1995). Vocabulary learning is a life-long process which does not follow a linear route; rather developing complete knowledge of a particular word may sometimes take several years, because knowing a word entails not only knowing what it means but also comprehending its spoken and written forms with word parts aside from referents, underlying concept and associations (Nation, 2001). Moreover, it requires an understanding of its grammatical functions, collocations, cultural and register constraints.

In order to systematize vocabulary learning and define a clear path to navigate a large body of information, a series of studies has been dedicated to the relationship between frequency bands and text coverage with the aim to suggesting the ideal vocabulary sizes for specific tasks. To this end, several vocabulary lists have been prepared to serve learners' urgent and specific needs, such as "*A General Service List of English Words (GSLEW)* and the *British National Corpus (BNC) the first 2000*". These lists form guidelines for learners in achieving a particular level of vocabulary necessary to do something with the language. Therefore, they are considered critical and in particular, it is



recommended that the first 2000 most frequently-used words list be taught explicitly (Nation, 2001). Then achieving this level, students can practice the language and learn the upper-level frequency bands. To this end, graded readers and other tailored texts are considered as indispensable sources of vocabulary learning for ESL and EFL learners (Nation, 2001).

Not only for L2 vocabulary development but also for L1, reading is considered as a substantial source for exposing higher proportion of vocabulary in context (Paribakht & Wesche, 1997; Teng, 2016). Reading engagement contributes to “multiple aspects of vocabulary knowledge” (Webb, 2005, p. 50) from gaining new vocabulary to consolidating already-known parts and developing depth of vocabulary knowledge (Nation, 2001; Webb, 2005). However, unless it is performed regularly, reading practice will not be fruitful or yield the expected results. Therefore reading motivation is considered critical to develop good reading habits in L2.

On one hand, as a dynamic construct motivation does not guarantee developing good reading habits on the other hand very little can be achieved without it. Even the most capable and skilful student “cannot become a reader” (Cambria & Guthrie, 2010, p. 16) without motivation which has been revealed as a significant predictor of the amount of reading carried out by an individual in several studies (Guthrie, Wigfield, & VonSecker, 2000; Wigfield & Guthrie, 1997). In this sense, reading motivation in L2, as with L2 reading behaviour and L2 vocabulary knowledge, does not develop as a unit separately from the related L1 schemata; rather, L2 language skills are deeply influenced by L1 language skills (Sparks, Patton, Ganschow, & Humbach, 2009b). The effect of L1 in this regard is apt to change according to the language distance and different levels of L2 proficiencies (Cummins, 1976).

Similarly both L1 reading skills and L2 language proficiency are considered noteworthy as significant determinants of L2 reading skills. Well-developed L1 language skills act as a prerequisite for developing L2 language skills. Moreover, a particular level of L2 language proficiency necessitates well-developed L1 language skills. Namely, if a learner has not acquired a certain level of L1 skills, he/she cannot benefit from L2 language proficiency, which allows the learner to

benefit from the supportive aspects of his/her L1 skills and common cognitive proficiency as well (Cummins, 1976).

In this respect, vocabulary knowledge, from the perspective of language learning aptitude aspect, may be affected by L1 vocabulary skills as early L1 skills like phonemic awareness, spelling, word decoding, vocabulary, reading and listening comprehension, account for a considerable degree of achievement in the L2 (Sparks, Humbach, & Javorsky, 2008; Sparks, Patton, Ganschow, & Humbach, 2009a) However, among these skills, it appears that vocabulary has received little attention, as it is difficult to determine the transferring aspects of a language component that shares a less common cognitive domain.

Moreover, this transfer is not specific to linguistic aspects; it is also actualized in affective aspects a concern that has received little attention from researchers. Just like reading, sharing a common cognitive domain motivation has a part in transfer (Day & Bamford, 1998). Although there are exceptional cases, research indicates that a motivated reader in L1 is more likely to be a motivated reader in L2, as well (Kamhi-Stein, 2003; Yamashita, 2004, 2007). However, this formula may not always be effective with respect to the context in which the reading is learned, experienced and practiced in the L2, as it may also be affected by factors such as education, family and social environment. Because the number of studies dealing with the cross-linguistic effects of affective aspects of reading, vocabulary and reading habits are limited, the focus of this study is on the interrelationships between vocabulary knowledge, reading habits, and reading motivation in L1 and L2. The study proposes a model to explain these interrelationships. Moreover, apart from L2 reading motivation and habits, the study considers L1 vocabulary size and L1 reading motivation, and habits as possible predictors of L2 vocabulary size. In this sense, the study introduces a unique model that attempts to explain L2 vocabulary size from the perspectives of affect and L1 influence.

### **Aim and Significance of the Study**

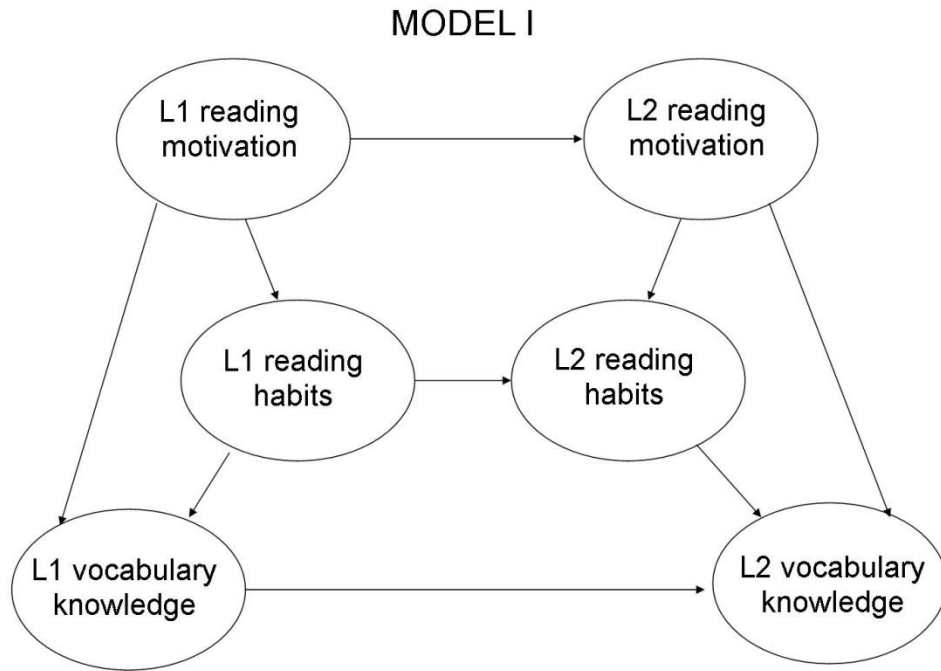
Vocabulary knowledge is now considered as an indicator of the quality of a learner's L2 proficiency (Laufer, Elder, Hill, & Congdon, 2004), and reading is viewed as one of the most effective ways to develop vocabulary in EFL contexts.

In the process of developing effective reading habits, motivation plays a significant role; however, studies on L2 reading motivation are scarce, despite the vast body of literature on L2 motivation in general.

Research supports a consensus that L1 plays a role in all aspects of L2 vocabulary learning, however, few studies have dealt with the motivational processes between L1 and L2. In these few studies, L1 reading motivation has been found to be a noteworthy source of L2 reading motivation (Kim, 2011; Yamashita, 2007). Moreover, as for domain-specific skills and motivation, studies suggest to a significant degree that L1 language skills and attitudes are highly revealing in terms of the L2 learning process (Day & Bamford, 1998)

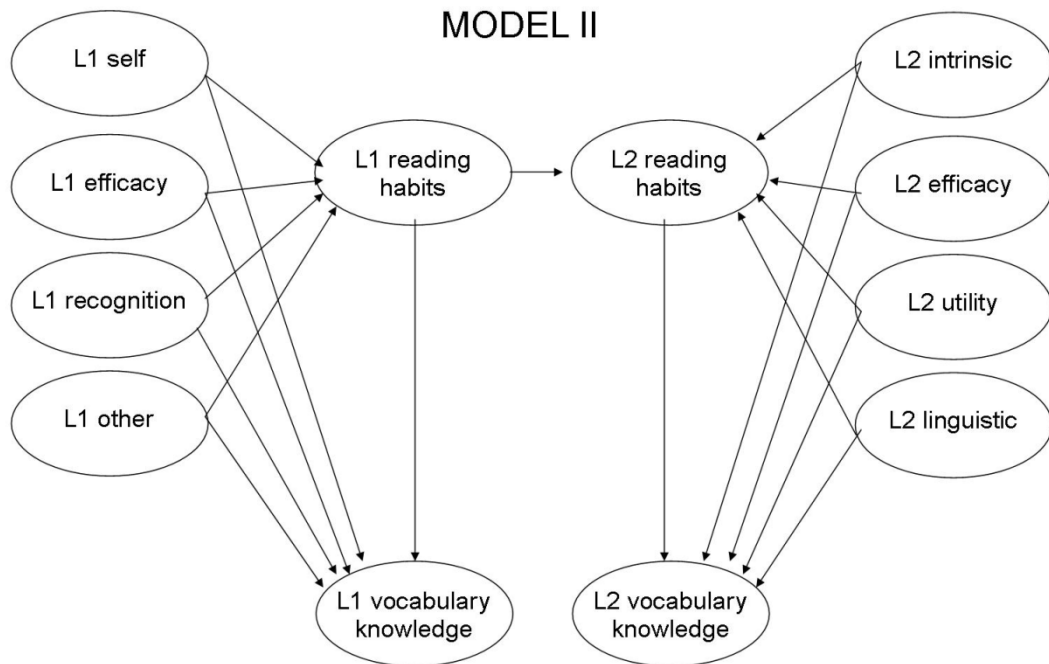
The studies that have focused on language learning aptitude as well as research on working memory in relation to vocabulary learning have led me to the idea that L1 vocabulary size of adult learners which has not been studied as a potential predictor of L2 vocabulary size, merits study in terms of certain predictors of L2 vocabulary size. Therefore, in this study, I will focus on this matter by investigating whether L1 vocabulary size predicts learners' L2 word knowledge aside from reading as a primary source of contextual input in an EFL setting, in line with Raudszus et al.'s (2018) suggestions that L1 vocabulary contributes to L2 reading and acts as a strong predictor of L2 reading comprehension "without an indirect effect via syntactic integration" (2018, p. 420) and that "L1 vocabulary might be an indicator of general language learning aptitude" (2018, p. 420) which are in line with previous studies indicating a positive impact of L1 proficiency on L2 achievement.

From this point of view, the present study attempts to explain the interrelationships between vocabulary size, reading motivation and habits in L1 and L2 through a structural model. The study also aims to examine which of these variables predict the L2 vocabulary size best. The model is framed to answer several questions.



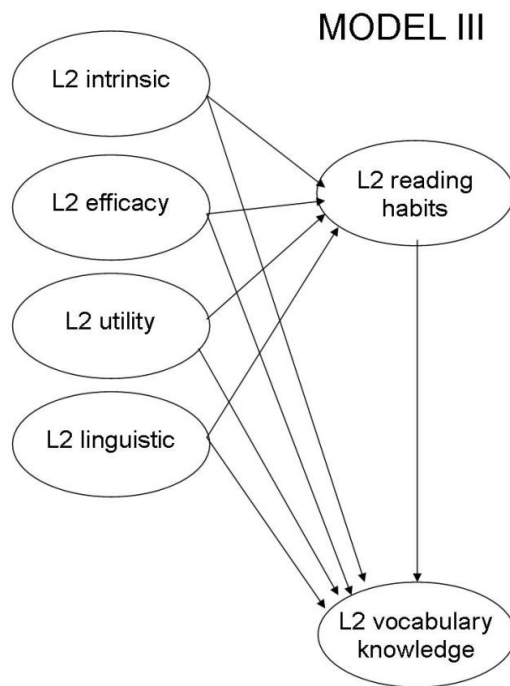
*Figure 1.* Conceptual framework: Model I

The model presupposes that L2 vocabulary is directly influenced by L2 reading habits and motivation, as well as L1 vocabulary. Similarly, it is hypothesized that L1 vocabulary is directly influenced by L1 reading habits and motivation. Besides L1 reading habits and motivation is expected to affect L2 reading habits and motivation. The direct, indirect, and causal relationships among the variables are displayed in the structural equation model (See figure 1).



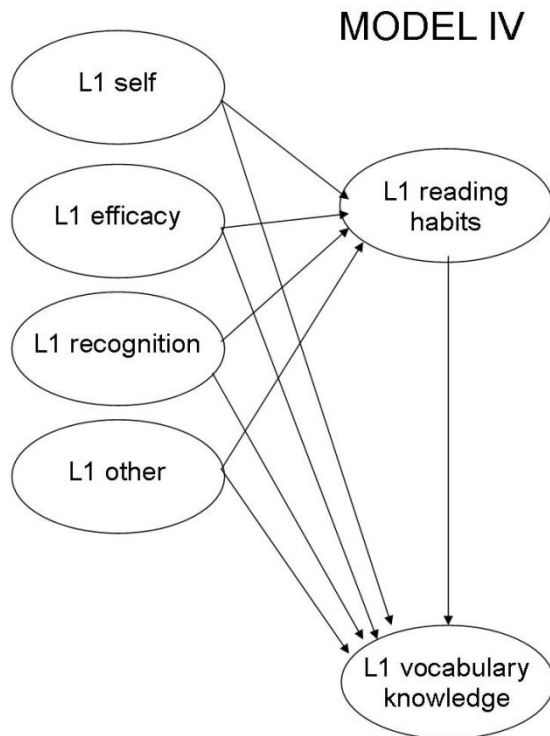
*Figure 2.* Conceptual framework: Model II

In order to explore which motivational constructs play a greater part in the process, a second model was framed. In the second model, each of the four constructs forming L2 reading motivation has been hypothesized to have a direct effect on L2 reading habits and L2 vocabulary knowledge. There are also indirect paths drawn between these four constructs of L2 reading motivation and L2 vocabulary knowledge, mediated through L2 reading habits that likewise have a direct connection to L2 vocabulary knowledge. Similarly, each of the four constructs forming L1 reading motivation has been hypothesized to have a direct effect on L1 reading habits and L1 vocabulary knowledge. Furthermore, there are also indirect paths between these four constructs of L1 reading motivation and L1 vocabulary knowledge mediated through L2 reading habits that have a direct link to L1 vocabulary knowledge.



*Figure 3. Conceptual framework: Model III*

In order to examine the interrelationships of the components belonging to each language separately, the second model was split in two. In the first half of the second model, just like in the full second model, all the constructs of L2 reading motivation have a direct path to L2 reading habits and L2 vocabulary knowledge. L2 reading habits mediate the relationship between these constructs and L2 vocabulary knowledge as well as having a direct path to L2 vocabulary knowledge.



*Figure 4.* Conceptual framework: Model IV

In the second half of the model, all of the constructs of L1 reading motivation have a direct path to L1 reading habits and L1 vocabulary knowledge. Furthermore, with a direct path to L1 vocabulary knowledge, L2 reading habits mediate the relationship between these constructs and L2 vocabulary knowledge.

Numerous studies are devoted to the several different patterns of relationship between L2 vocabulary and its possible predictors such as orthographic mapping (Ehri, 2014), working memory (Ellis & Sinclair, 1996), home literacy environment (Sénéchal & Lefevre, 2014) and self-regulation (Tseng & Schmitt, 2008). Moreover, a great deal of research examined the relationship between reading and vocabulary (Brown, Waring, & Donkaewbua, 2008; Collins, 2010; De Serres, & Lafontaine, 2012; Gonzalez et al., 2014; Horst & Cobb, 1998; Kang, 2015; Laufer & Ravenhorst-Kalovski, 2010; Lervag & Aukrust, 2010; Li & Kirby, 2015; Matsuoka & Hirsh, 2010; Mehrpour & Rahimi, 2010; Min, 2008; Mohamed, 2015; Mumtaz & Humphreys, 2016; Nation, 2006a; Pellicer-Sánchez, 2014; Pfof, Dörfler, & Artelt, 2013; Pichette, Qian, 2002; Raudszus et al., 2018; Reynolds, 2015; Stæhr, 2016; Vidal, 2011; Webb, 2005; Webb & Chang, 2015). However none of these studies handle vocabulary and reading along with reading

motivation. Likewise, there are few studies on the relationship between reading motivation and reading habits (Kamhi-Stein, 2003; Yamashita, 2001, 2004, 2007), and these studies do not refer to vocabulary size. In this sense, this dissertation contributes to the field by highlighting the importance of the cross-linguistic effect of L1 with regard to vocabulary size, reading motivation and habits.

In this sense, by referring to L2 vocabulary from a broader perspective by considering the effect of L1 vocabulary, an issue which was rarely addressed in the studies conducted with young bilinguals in ESL contexts, and by examining reading behaviour in terms of its affective aspect from L1 and L2 perspectives, this study is attempt to record a unique contribution to the field. The study points out the significance of L1 effect on L2 vocabulary development and L2 reading behaviour. In addition to drawing attention to the domain specific nature of motivation, illustrating the cross-linguistic effect of L1 on L2 vocabulary, reading habits and motivation, the study will have implications for educators, language teachers and learners.

Furthermore, investigating the Turkish vocabulary knowledge of native speakers of Turkish will contribute to an almost untouched research area. This study also underscores the importance of reading and vocabulary development in L1. In other words, the study is important in terms of drawing attention to a critical issue that L1 reading behaviour and vocabulary size is not less important than L2 reading behaviour and vocabulary size. Moreover, through exploring the role of L1 reading motivation in L1 vocabulary development, this dissertation also contributes to Turkish language research.

From methodological aspect, the study provides awareness on the fact that partial least squares structural equation modelling can be a more suitable statistical analysis technique to test complex models. Finally, the study provides a Turkish version of Vocabulary Levels Test that has been validated in the pilot study and the main study. This version can be used with the less proficient learners to test the receptive vocabulary size of the learners.

## **Research Questions**

The study aimed to answer the following main research questions, sub-research questions and hypotheses derived from these main questions.



1. What are Turkish EFL learners' levels of L2 vocabulary size?
2. What are Turkish EFL learners' levels of L1 vocabulary size?
3. What are Turkish EFL learners' levels of L2 reading motivation?
  - 3.1. What L2 reading motivational constructs are favoured by Turkish EFL learners?
4. What are Turkish EFL learners' levels of L1 reading motivation?
  - 4.1. What L1 reading motivational constructs are favoured by Turkish EFL learners?
5. What are Turkish EFL learners' levels of L2 reading habits?
6. What are Turkish EFL learners' levels of L1 reading habits?
7. What are the relationships between Turkish EFL learners' L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation, and L1 reading habits?
8. Is the first model - which describes the effects among the variables of L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation, L1 reading habits - consistent with the observed relationships among these variables?
  - 8.1. Does the first model support the following hypotheses?
    - H<sub>1</sub>**: "L1 reading motivation has a statistically significant direct effect on L2 reading motivation"
    - H<sub>2</sub>**: "L2 reading motivation has a statistically significant direct effect on L2 vocabulary size"
    - H<sub>3</sub>**: "L1 reading motivation has a statistically significant direct effect on L1 reading habits"
    - H<sub>4</sub>**: "L1 reading habits have a statistically significant direct effect on L2 reading habits"
    - H<sub>5</sub>**: "L2 reading habits have a statistically significant direct effect on L2 vocabulary size"

**H<sub>6</sub>:** “L2 reading motivation has a statistically significant direct effect on L2 reading habits”

**H<sub>7</sub>:** “L1 reading motivation has a statistically significant direct effect on L1 vocabulary size”

**H<sub>8</sub>:** “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”

**H<sub>9</sub>:** “L1 vocabulary size has a statistically significant direct effect on L2 vocabulary size”

**9.** Is the second model - which describes the effects among the variables of L2 vocabulary size, L2 “intrinsic value of reading”, L2 reading efficacy”, L2 “extrinsic utility value of reading”, L2 “foreign language linguistic utility”, L2 reading habits, L1 vocabulary size, L1 “reading as a part of self”, “L1 reading efficacy”, L1 “reading for recognition”, L1 “reading to do well in other realms”, L1 reading habits - consistent with the observed relationships among these variables?

**9.1.** Does the second model support the following hypotheses?

**H<sub>10</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”

**H<sub>11</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”

**H<sub>12</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”

**H<sub>13</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”

**H<sub>14</sub>:** “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”

**H<sub>15</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 reading habits”

**H<sub>16</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”

**H<sub>17</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 reading habits”

**H<sub>18</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 reading habits”

**H<sub>19</sub>:** “L1 reading habits have a statistically significant direct effect on L2 reading habits”

**H<sub>20</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”

**H<sub>21</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”

**H<sub>22</sub>:** “L2 extrinsic utility value of reading has a statistically significant direct effect on L2 reading habits”

**H<sub>23</sub>:** “L2 foreign language linguistic utility has a statistically significant direct effect on L2 reading habits”

**H<sub>24</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”

**H<sub>25</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”

**H<sub>26</sub>:** “L2 extrinsic utility value of reading has a statistically significant direct effect on L2 vocabulary size”

**H<sub>27</sub>:** “L2 foreign language linguistic utility has a statistically significant direct effect on L2 vocabulary size”

**H<sub>28</sub>:** “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”

**10.** Is the third model - which describes the effects among the variables of L2 vocabulary size, L2 “intrinsic value of reading”, L2 “reading efficacy”, L2 “extrinsic utility value of reading”, L2 “foreign language linguistic utility”, and L2 reading habits- consistent with the observed relationships among these variables?

**12.1.** Does the third model support the following hypotheses?

**H<sub>29</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”

**H<sub>30</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”

**H<sub>31</sub>:** “L2 extrinsic utility value of reading has a statistically significant direct effect on L2 reading habits”

**H<sub>32</sub>:** “L2 foreign language linguistic utility has a statistically significant direct effect on L2 reading habits”

**H<sub>33</sub>:** “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”

**H<sub>34</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”

**H<sub>35</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”

**H<sub>36</sub>:** “L2 extrinsic utility value of reading has a statistically significant direct effect on L2 vocabulary size”

**H<sub>37</sub>:** “L2 foreign language linguistic utility has a statistically significant direct effect on L2 vocabulary size”

**11.** Is the fourth model - which describes the effects among the variables of L1 vocabulary size, L1 “reading as a part of self”, L1 “reading efficacy”, L1 “reading for recognition”, L1 “reading to do well in other realms”, L1 reading habits- consisted with the observed relationships among these variables?

**11.1.** Does the fourth model support the following hypotheses?

**H<sub>38</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 reading habits”

**H<sub>39</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”

**H<sub>40</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 reading habits”

**H<sub>41</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 reading habits”

**H<sub>42</sub>:** “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”

**H<sub>43</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”

**H<sub>44</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”

**H<sub>45</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”

**H<sub>46</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”

## **Assumptions**

This study has assumed the following:

1. The sample represents the target population.
2. The data collection instruments are appropriate for the study
3. The data collection instruments elicited reliable responses.
4. The participants fully understood the questions.
5. The participants completed the scales and tests honestly.

## **Limitations**

A few limitations regarding the study should be considered. One of these is the inclusion of several data collection instruments, it poses two disadvantages. First, it was difficult to maintain motivation of the students to complete all the instruments which took over an hour. However, the researcher expected to compensate for this through applying the measures in two or more sessions which was not separated from the risk of retention.

The second limitation is the number and the profile of the students included in the study, which was the result of the difficulties in finding volunteers to

participate in a study that was carried out over several sessions. A great many of the instruments were not returned or were left incomplete in the pilot study and in the main study. The participants were selected according to the convenience sampling technique on a voluntary basis; therefore, the universities and the participants may not reflect the wider population. A larger sample would allow researchers to categorize students into different vocabulary size groups and would more likely yield a clearer picture of the relationships between vocabulary size, reading habits and motivation. Additionally, because the participants were from the same group of learners, the variance of the test scores and other instruments used in this study were found to be small, which caused some statistical disadvantages in the analyses, such as insignificant relationships or lower reliability values.

Additionally, the study employed a four-item questionnaire in order to identify the participants' reading habits, based on the approach used in previous studies. The measures of reading motivation and reading habits used in the study were self-reports, which might possibly be affected by the social desirability effect. Therefore, the answers of the participants may reflect misestimation to a certain extent. Furthermore, both academic reading and pleasure reading were considered together within reading habits. Handling these two reading types separately may yield more detailed information about reading motivation, habits and vocabulary development. Moreover, the questionnaires were adjusted according to the implications drawn from the pilot study, and the number of items was reduced to decrease fatigue. However, a richer questionnaire with open-ended questions might yield clearer insights into reading habits. In particular, asking separate questions regarding academic and pleasure reading would lead to more insight regarding the relationship between vocabulary size and reading habits.

Similarly, reading motivation scales could be supported with open ended-questions, which could be employed just before the implementation of the scales. While it is not possible to completely free the data from the social desirability effect and misestimation, the comparison of the data gathered from these two sources may help to shed more light on the issues.

Finally, the study adopted a quantitative approach, using multiple data collection tools as required by a complex proposed model. Approaching the same

issue in a more detailed way and adding new understanding through a qualitative paradigm would assist in supporting the discussion of the issues addressed in the model.

## **Definitions**

**L2 vocabulary:** Within the context of this study this term refers to the total number of words one understands in a second or foreign language during reading or listening, namely it concerns receptive vocabulary knowledge in the second language (Richards & Schmidt, 2002). The level of L2 vocabulary was measured through “The Vocabulary Levels Test: Version 2” (Schmitt, Schmitt, & Clapham, 2001) which was one of the latest reliable standardized receptive vocabulary size tests. It is appropriate, reliable and valid for measuring receptive vocabulary, as it measures vocabulary up to 10.000 through a high number of items (120 target words) and is easy to administer in a short time.

**L1 Vocabulary:** Similar to L2 vocabulary, this term refers to the total number of words one understands in one’s mother tongue during reading or listening; namely it concerns receptive vocabulary knowledge in the first language. The L1 vocabulary was measured using the “Turkish Vocabulary Levels Test” for receptive vocabulary developed by Erten (2009), which is one of the few standardized measures of Turkish vocabulary knowledge. The test includes 180 target words and measures vocabulary knowledge up to 25000. “The Vocabulary Levels Test: Version 2” (Schmitt et al., 2001), by using a high number of items, allows for measuring receptive vocabulary size effectively in a short time.

**L2 reading motivation:** The term motivation is explained as “the driving force ...that leads to action” (Richards & Schmidt, 2002: 243). In this respect, L2 reading motivation refers to a desire to read in a second or foreign language that leads to reading in a second or foreign language. L2 reading motivation was measured via “The Foreign Language Reading Attitudes and Motivation Scale” (FLRAMS) by Erten, Topkaya, and Karakas (2010) which was developed in an EFL context rather than drawn from existing motivation or reading motivation theories.

This model describes four factors of reading motivation:

- (1) "*intrinsic value of reading*" refers to reading for pleasure, curiosity and inherent satisfaction (Dörnyei & Ushioda, 2011);
- (2) "*reading efficacy*" denotes beliefs about one's reading capability (Erten et al., 2010);
- (3) "*extrinsic utility value of reading*" corresponds to reading for receiving external rewards or avoiding punishment (Schutte & Malouff, 2007) and
- (4) "*foreign language linguistic utility*" is "an extension of extrinsic aspects of attitudes and motivation towards reading in a foreign language" (Erten et al., 2010, p. 192).

Motivation is defined from two perspectives: a person's motivation with respect to a specific text or situation is described as current reading motivation, which is not stable, whereas habitual reading motivation is recurrent and durable (Schiefele et al., 2012).

**L1 reading motivation:** Similar to L2 reading motivation, L1 reading motivation means a desire to read in one's mother tongue that stimulates reading behaviour. In order to assess the participants' L1 reading motivation, an adapted Turkish version (Yıldız, Yıldırım, Ateş, & Çetinkaya, 2013) of "The Adult Motivation for Reading Scale" that was developed by Schutte & Malouff (2007) was used in the study because this scale yields the highest reliability. The scale consists of four factors: "*Reading as part of self*", "*reading efficacy*", "*reading for recognition*" and "*reading to do well in other realms*". This scale also assesses the habitual form of reading motivation. In this regard, L1 and L2 reading are carried under different conditions and through discrete processes yet they share similar components. Although there are various names used for components, the underlying concept is the same. For instance, "*reading as part of self*" (L1) refers to "*intrinsic reading motivation*" (L2); "*reading efficacy*" (L1) shares same name and concept in L2 "*reading efficacy*"; "*reading for recognition*" corresponds to extrinsic motivation related to the "*extrinsic utility value of reading*" on the L2 reading motivation scale, and lastly "*reading well to do well in other realms*" (L1) indicates "*foreign language linguistic utility*" (L2) which is more specifically worded as a result of referring to an L2 reading activity.



**L2 reading habits:** This term includes several aspects of reading behaviour such as frequency of reading, amount of reading, and type of materials read. In this context, it denotes the regular reading behaviour in a second or foreign language. This construct is measured through four questions in the current study.

**L1 reading habits:** As a counterpart to the previous term, L1 reading habits refer to systematic reading behaviour in one's mother tongue. Parallel to L2 reading habits, L1 reading habits were measured through four questions that were similar to those concerning L2 reading habits.

## Chapter 2

### Literature Review

This chapter introduces the main concepts referred to in the study and discusses the issues in the light of the conceptual framework. In this regard, vocabulary knowledge will be handled from several aspects. The related research is discussed in the following section.

#### Vocabulary Knowledge

Vocabulary is generally defined as a “one component of language skills such as reading and speaking” (Nation & Waring, 1997, p. 6) in addition to the general language proficiency and academic achievement and has risen to a “central role in learning a second language” (Sökmen, 1997, p. 237). As such, it “may suffice as a surrogate measure of overall proficiency” since a score in one dimension correlates highly with the others (Laufer et al., 2004, p. 224). When we refer to vocabulary knowledge, we mean, in essence, the *knowing of words*. However, in order to answer the question “what does it mean to *know a word?*” we first need to know what a word is.

The meaning of the word in itself is not easy to define (Read, 2000) as it involves knowing not only the words but also the other items that are closely linked to it. First, one needs to know the distinction between *type* and *token*. The token is “the total number of word forms”, whereas type refers to “the total number of *different* word forms” (Read, 2000, p. 18). In terms of *type*, there are *function words*, which belong to the grammar of the language and manage the grammatical relationships in sentences, such as *the*, *to*, and *can*; and *content words*, which carry an independent meaning and semantic content by themselves. In this sense, the term *vocabulary knowledge* means the knowledge of *content words*; yet, this distinction does not solve the problem of defining ‘word’.

Content words have several different forms. Taking the word *change*, for example, it has various forms such as *changed*, *changes*, and *changing*; while the word *student* has forms including *students*, *students’* and *student’s*. All of these forms, which are gained through “adding inflectional endings to the base form, without changing the meaning or the word class of the base”, are called lemma (Read, 2000, p. 18). When we refer to word type, this indicates both the base and

the inflections, or in other words, a lemma. However, a word can also have forms other than inflected, such as derived forms, unlike inflected forms, the word class of the base changes, such as when the affix *-tion* is added to the verb ‘*communicate*’, and it becomes a noun ‘*communication*’. However, these words are still related in meaning, namely, they belong to the same *word family* which comprises “the base word, all its inflections and [its] common derivatives” (Schmitt, 2000, p. 2).

On the other hand, the aforementioned items alone are not enough to know a word. Nation (1998) proposes that besides lemmas and word families, learners should know the written and spoken forms of a given word, and they need to be able to use it grammatically in a sentence, in consideration of its collocations, and cultural, stylistic and register constraints (See Table 1).

Table 1

*Aspects of Vocabulary Knowledge*

Form	Spoken Written Word parts
Meaning	Referents Underlying concept Associations
Use	Grammatical functions Collocations Constraints on use (register, frequency etc.)

(Nation, 1998, p. 11)

It is not easy for learners to be aware of all this range of information; nor is it easy for teachers to give this information to learners as a ready-made package. Therefore, learners need to develop skills for dealing with the process effectively, “comparing information on L2 words with the corresponding L1 word” (Nation, 1998, p. 12). In addition, learners need to be able to use dictionaries effectively, and they need to be able to make the most of the context, gaining information on grammar, collocation, inflectional and derivative forms, as well as style and register awareness.

As Nation (1998) indicates such skills and awareness can be attained through consciousness-raising classroom group discussion activities, therefore after dealing with the most frequent 2000 words immediately, teachers should lead their students in a direction where they can continue to develop independently, with or without teacher guidance. Besides decontextualized methods of vocabulary learning, students should be engaged in reading and listening, and should seek opportunities to use vocabulary in speaking and writing. Unless learners achieve a vocabulary size of 98% text coverage, they face several challenges to the acquisition of a second lexicon.

### **Vocabulary Size**

In language education, the vocabulary size of native speakers has always sparked interest among researchers seeking a standard for evaluating L2 learning tasks. According to the literature, a native speaker acquires around 1000 word families per year to his/her vocabulary knowledge, so that the average five-year-old knows approximately 4000 to 5000-word families. This implies that a university graduate, or in other words a well-educated native speaker, should possess approximately 20.000-word families (Nation, 2006). This does not mean that native-speaker vocabulary size should be a target for L2 learners, but neither is it an impossible goal (Nation, 2006).

Numerous studies dealing have been carried out to address the vocabulary levels of non-native speakers including young learners, pupils, university students, and adults. However, it is difficult to summarize this wide range of research, which involves numerous different vocabulary level tests and has been conducted with a highly diverse range of learners.

In essence, the amount of vocabulary needed for L2 learners depends on their learning goals. However, there is a threshold level that every language learner needs to cover so that s/he can make use of the language. In this regard, Schmitt and McCarthy (1997) indicate that a learner needs to possess a size of 2.000 words in order to understand 80% of an unsimplified text. On the other hand, they suggest that a learner should know the first 3000-5000 high-frequency words to manage educational texts to achieve productivity in speaking and writing. In a more robust sense, an adequate comprehension of a text requires a

vocabulary size adequate to 98% of the text; namely, 8000-9000 words (Nation, 2006). This implies that not knowing one word out of 50 words will not hinder comprehension (Nation & Chung, 2009).

Table 2

*Vocabulary Size Required for 98 Percent Coverage in Different Texts*

<i>Type of text</i>	<i>Vocabulary size</i>
Children's movies	6.000 words
Conversation	7.000 words
Newspapers	8.000 words
Novels	9.000 words

The frequency bands indicate that learning words following the frequency order is advantageous in terms of developing students' autonomy, making them less dependent on assistance while reading and consequently promoting motivation toward reading and learning vocabulary. To be able to choose the more important and useful words to be learnt initially helps learners to manage this daunting task of acquiring a second lexicon (Cobb & Horst, 2004). However, at the onset of learning a second language, because of very limited vocabulary, it is not easy for learners to handle a vast majority of unknown words and progress in a task, because in order to do something with the language, a certain amount of vocabulary knowledge is required. To this end, several word lists have been prepared by researchers (Nation, 2006).

### **Breadth and depth of vocabulary knowledge**

Another continuum in research on vocabulary is the breadth and depth of vocabulary knowledge. In this regard, breadth is the vocabulary size possessed by an individual, while the depth embodies a set of knowledge ranging from word forms to associations, grammatical functions and registers (Nation, 1998); these make its assessment demanding. In the beginning, ensuring the bond between form and meaning is crucially important for both recognition and production, but it is not enough for production (Schmitt, 2008).

The majority of the studies that measure vocabulary knowledge are based on the breadth of vocabulary; these have been denounced by some researchers as ignoring depth and thus overlooking important insights. However, research on

the relationship between breadth and depth has shown that these two dimensions are firmly connected and the vocabulary size is an indicator of the depth (Akbarian, 2010; Marzban & Hadipour, 2012; Shen, 2008; Vermeer, 2001). As Vermeer puts it, “the more words someone knows, the finer the networks and the deeper the word knowledge” (Vermeer, 2001, p. 222).

Vermeer’s study (2001), which explored the associations between breadth and depth of word knowledge, concluded that vocabulary knowledge is strongly correlated with input frequency for both groups of children. This result supports the claims of developmental stability in vocabulary growth; that is, that high-frequency and basic words are learned earlier. Moreover, the study found that breadth and depth of vocabulary knowledge were strongly correlated, which suggests that “there is no conceptual difference between the two” (Vermeer, 2001, p. 231). The extent of one’s vocabulary breadth indicates the expanse of one’s vocabulary depth (Webb, 2005).

Another study (Farvardin & Koosha, 2011) investigated the effect of the breadth and depth of vocabulary knowledge on reading performance. The results indicate that compared to vocabulary depth, vocabulary breadth better predicts reading comprehension. Breadth and depth were found to be strongly correlated. It highlights the fact that “one would not normally have vocabulary size knowledge without acquiring some depth knowledge” (Farvardin & Koosha, 2011, p. 1578).

### **Receptive and productive vocabulary knowledge**

As discussed in the previous sections, mental lexicon involves two fundamental functions: understanding and producing verbal or written messages. Bearing in mind the processes in the mental lexicon in consideration of lexical access and production, despite a vast amount of vocabulary knowledge, neither native speakers nor non-native speakers can use all the vocabulary in the mental lexicon effectively and actively in production. Thus, it is important to elaborate on the dimension of receptive and productive vocabulary knowledge. In this respect, receptive vocabulary involves the vocabulary that a learner comprehends through listening or reading and is not necessarily produced by the learner (Burger & Chong, 2011). In receptive retrieval, spoken or written input is matched with “the stored sound and orthographic patterns and their associated meanings”

(McCarthy, 1990, p. 43). Productive vocabulary, on the other hand, refers to the using the word appropriately in writing or speaking (Nation, 2001) In this more complex process, the meanings are furnished with forms (McCarthy, 1990) and requires the mental lexicon to determine whether the form will be simple or derived or compound as well as its syntactic aspects. These two concepts constitute a continuum, sharing some similar features. Both types of vocabulary knowledge require combining certain skills (reading and writing, listening and speaking) and knowing three facets of the words: form, meaning and use (Zhong, 2016).

However, productive vocabulary learning is considered more difficult - at least 50% more demanding - because it requires “learning of new spoken or written output patterns” as well as the receptive patterns and skills used in reading and listening (Nation, 2001, p. 42). Hearing and recognizing the distinctive features of a word is not enough to produce those particular sounds accurately in an appropriate context. Furthermore, another aspect that benefits receptive vocabulary knowledge is that there are more opportunities for practice than productive vocabulary, as EFL learners are typically in a position to listen and read more often than to speak and write. Additionally, even if learners dedicated the same amount of time to both, receptive vocabulary has the advantage over productive which demands more time for learning (Mondria & Wiersma, 2004) and more knowledge (Laufer & Nation, 1999).

Productive vocabulary knowledge consists of two aspects: controlled and free productive knowledge. Controlled productive knowledge emerges when a learner is asked to use a certain word on an involuntary basis, while on the contrary free productive knowledge refers to the situations where a word is used by the learner at his/her own free will (Laufer & Nation, 1999).

Receptive and productive vocabulary types are closely linked together and studies suggest that the strong correlation between them refers to the fact that each dimension predicts the other. Although receptive vocabulary tests are often criticized for being cursory, “they can give a more representative picture of the overall state of the learner’s vocabulary than an in-depth probe of a limited number of words” (Read, 2000, p. 18). Contrary to productive tests, receptive tests can better inform these fields (Laufer, 1997).

## Measuring vocabulary knowledge

In measuring vocabulary knowledge, vocabulary tests can be composed of either contextualized items or decontextualized items. In this respect, there are dissenting voices in literature. For instance Read (2000) discriminates between lexical communicative competence and the knowledge of individual lexical items. Although there is no superiority between the two different test designs, a well-established link between test purpose and its test design will elicit the ideal framework (Read & Chapelle, 2001). Depending on the purpose of the vocabulary test, several aspects can be addressed, as illustrated in Table 3 (Read, 2000).

Table 3

*Dimensions in the Measurement of Vocabulary*

<p><i>Discrete</i> A measure of vocabulary knowledge or use as an independent construct</p>	←-----→	<p><i>Embedded</i> A measure of vocabulary which forms part of the assessment of some other larger construct</p>
<p><i>Selective</i> A measure in which specific vocabulary items are the focus of the assessment</p>	←-----→	<p><i>Comprehensive</i> A measure which takes account of the whole vocabulary content of the material (reading/listening tasks) or the test-taker's response (speaking/writing)</p>
<p><i>Context-independent</i> A vocabulary measure in which the test-taker can produce the expected response without referring to any context</p>	←-----→	<p><i>Context-dependent</i> A vocabulary measure which assesses the test-taker's ability to take account of contextual information in order to produce the expected response</p>

(Read, 2000, p. 9)

Discrete tests handle vocabulary knowledge detached from the other elements of language competence. Moreover, embedded perspective deals with the vocabulary from a larger perspective; such as assessing vocabulary within a reading comprehension task through reading comprehension questions. In selective vocabulary tests, the assessment focuses on certain words chosen purposefully in advance, whereas comprehensive tests consider broader aspects of vocabulary use. As for the context-independent and context-dependent dichotomy, unlike the traditional understanding of the term context, which is



considered on the basis of test-takers' engagement with the context from a contemporary perspective, whether test-takers can use the context in order to manage the vocabulary (context-dependent) or they are more successful at coping with isolated words (context-independent) is considered (Read, 2000). Although contextualized vocabulary tests sound appealing in terms of teaching and learning processes especially for students who are better at guessing meaning from context and worse at dealing with decontextualized vocabulary, some scholars (Schmitt, 1999) claim that this type of vocabulary test cannot be separated from the vagueness of testing one thing at a time: vocabulary knowledge or inferencing skills. However, each dimension has a non-negligible distinctive part which is assigned by the purpose of the assessment depending on time and circumstances.

## **Memory**

With neuroimaging research, several questions regarding the way words are learned and processed in the brain have emerged. Despite several pieces of evidence suggesting that certain linguistic activities take place in particular areas in the brain, there is still a vast amount of aspects that are unknown with regard to lexical mental processes (Farkas, & MacWhinney, 2004). Apart from social, linguistic and other related factors vocabulary learning just like any other kind of learning, involves mental processes that refer to "a chain of electrophysiological and neurochemical changes in the brain" (Baddeley, 1999, p. 3). Researchers have acknowledged that memory does not consist of one single system, but of several types of storages. In a basic model of an information-processing approach to memory, the information received is dealt with "a series of sensory memory systems", which are considered as "an interface between perception and memory" (Baddeley, Eysenck, & Anderson, 2015, p. 9). In this respect, short-term memory refers to "the capacity to store small amounts of information over brief intervals" (p.41) guided by "an attentional controller" in the central executive system (p.78). Within short-term memory which comprises a series of interacting systems, there is "a mental workspace...performing complex cognitive activities" known as working memory (p.42).

Research advances the understanding that verbal memory, including both verbal short-term memory “the capacity to store verbal information”, and verbal working memory “the ability to process verbal information while it is being stored”, have a significant effect on language and vocabulary acquisition (Verhagen & Leseman, 2016, p. 66). More clearly, short-term memory capacity refers to the “ability to repeat verbal sequences (for example, new phone numbers or non-words like ‘sloppendash’) immediately after hearing them” (Ellis, 2001, p. 48). Several psychological studies suggest that this ability correlates highly with vocabulary knowledge and can successfully predict vocabulary acquisition (Ellis & Sinclair, 1996; Gathercole & Baddeley, 1989, 1990; Gathercole, Hitch, Service, & Martin, 1997; Gathercole, Willis, Baddeley, & Emslie, 1994; Gathercole, Willis, Emslie, & Baddeley, 1992).

On the other hand, Kormos and Safar (2008, p. 269) propose that working memory “plays a more important role in the case of less proficient speakers and its effect diminishes with the development of L2 competence”. This can be explained through the shifting of the learning processes from explicit to implicit as learners’ progress. Therefore, working memory capacity successfully predicts the language learning success with less-proficient learners (e.g. elementary and pre-intermediate), because in these stages, learning mainly relies on explicit processes. Kormos and Safar further highlight the importance of working memory capacity in that “even small variations in verbal working memory capacity in a group of learners with no apparent learning disabilities might contribute to differential success in L2 learning” (2008, p. 269).

Furthermore, for upper intermediate and advanced learners, short term-memory capacity influences their success, as their learning is heavily realized through implicit processes, as these are closely assisted by short-term memory capacity. With regard to L1 language skills and vocabulary acquisition, in particular, short-term memory acts as a significant predictor (Ellis, 1996) as well as advancing the performance of working memory (Masoura & Gathercole, 1999). Research suggests that “individual differences in phonological short-term memory ability explain individual differences in language learning aptitude” (N.C. Ellis, 2001, p. 48). In this sense, Gathercole et al.’s (1997) study which measured the phonological memory performance of sixty-five preschool children through digit

span and non-word repetition tests revealed that the ability to learn new sound patterns is closely related to existing vocabulary knowledge and phonological short-term memory skills. Likewise, Masoura and Gathercole's (1999) study which researched the relationship between short-term memory skills and the ability to learn vocabulary both in L1 and L2 revealed that vocabulary knowledge for both languages is highly correlated with short-term memory skills.

Overall, apart from the aforementioned memory systems, other models of memory systems have been developed by a number of researchers who emphasized different components involved in the processes function in the memory. Among these, some scholars use the term *short-term memory* and *working memory* interchangeably (Baddeley, 1999). However, all of the models have attempted to explain the complex and interacting subsystems of memory that play critical roles in vocabulary learning, with each system or subsystem of memory taking specific part in the process of vocabulary learning.

### **Organization of the mental lexicon**

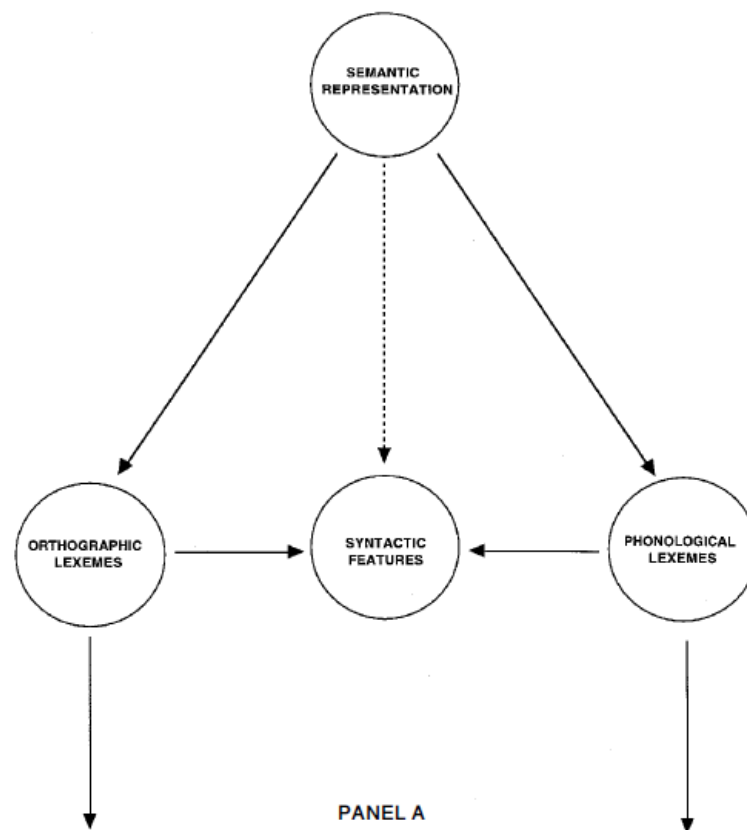
With respect to vocabulary knowledge, among native speakers of English, a university graduate namely, a well educated native speaker typically possesses approximately 20.000-word families (Nation, 2006) On the other hand, the vocabulary size of advanced L2 learners of English has been estimated at around 13.000 and in intermediate learners, around 9.000 (Zareva, Nikolova, & Schwanenfluegel, 2005). Smaller vocabulary size is also an indicator that a learner may associate "fewer links among words, a lower degree of commonality and lesser heterogeneity of meaning connections", whereas "language users with larger vocabularies have considerable richer connections, both in size, commonality and heterogeneity" (Zareva, 2007, pp. 144–145). The organization and rapid retrieval of this huge amount of sophisticated knowledge of words has drawn the attention of several clinical and psycholinguistic researchers.

In this regard, the concept of the "mental lexicon" was introduced by Oldfield as a "retrieval and storage system" (1966, p. 341) for vocabulary knowledge. Although it is difficult to define "mental lexicon" comprehensively in a few sentences, it would be beneficial to start with a brief explanation. According to Wei, mental lexicon is "the speaker's internal representation of language-specific

knowledge about the surface forms” (Wei, 2002, p. 692). The term mental lexicon inherently refers to the metaphor of a mental dictionary; however, the arrangement of the mental lexicon, which is a matter of debate even now, is totally different from that of an actual dictionary. For instance, the mental lexicon is not a stable list and does not function in a separate area in the brain (Libben, 2008) that comprises several aspects of words, such as the syntactic, semantic and word-form (phonological and orthographic) features that are considered independent but linked (Sanches, Routier, Colliot, & Teichmann, 2018). Thanks to clinical studies regarding language disorders, it is understood that language abilities do not operate in isolation from other mental functions, which deemed as “closely interrelated and complementary” (Turgeon & Macoir, 2008, p. 9). Therefore, the research emphasizes that language assessment should include non-linguistic tasks as well as linguistic ones (Turgeon & Macoir, 2008).

Clinical studies have also found that certain areas in the brain are responsible for dealing with certain linguistic categories, such as nouns and verbs (Li, Farkas, & MacWhinney, 2004) and that the processing occurring in these linguistic categories may differ considering the language. However, the perspective of recent studies regarding mental lexicon has shifted from the “shared or separate store” debate to a more complex conception of the organization of the mental lexicon (Pavlenko, 2009) taking the stance that words are not organized according to a single aspect such as semantically, or phonetically. Rather, they are organized in a complex three-dimensional network of phonological, orthographic and semantic networks (McCarthy, 1990). In this sense, mental lexicon is a dynamic entity in which the “webs of meanings and associations constantly shift and re-adjust; new connections are woven, and old ones strengthened” (McCarthy, 1990, p. 42). Considering the composition of words within these categories, “there may be psychological principles governing the organization of the lexicon that are irrelevant to the linguistic theory of the lexical component”, (Badecker & Caramazza, 1989, p. 114) such as lexical frequency which supports the notion that more frequently used items are accessed more quickly. Furthermore, “the nature of the organization of the mental lexicon may have different characteristics in different languages” (Erten, 1998, p. 51).

According to Caramazza (1997, p. 180), two separate lexical access processes take place in speech production, wherein “the first stage retrieves a semantically and syntactically specified representation; [and] the second stage retrieves a phonologically specified representation”; this conceptualization is considered the fundamental structure of all models proposed regarding lexical access.

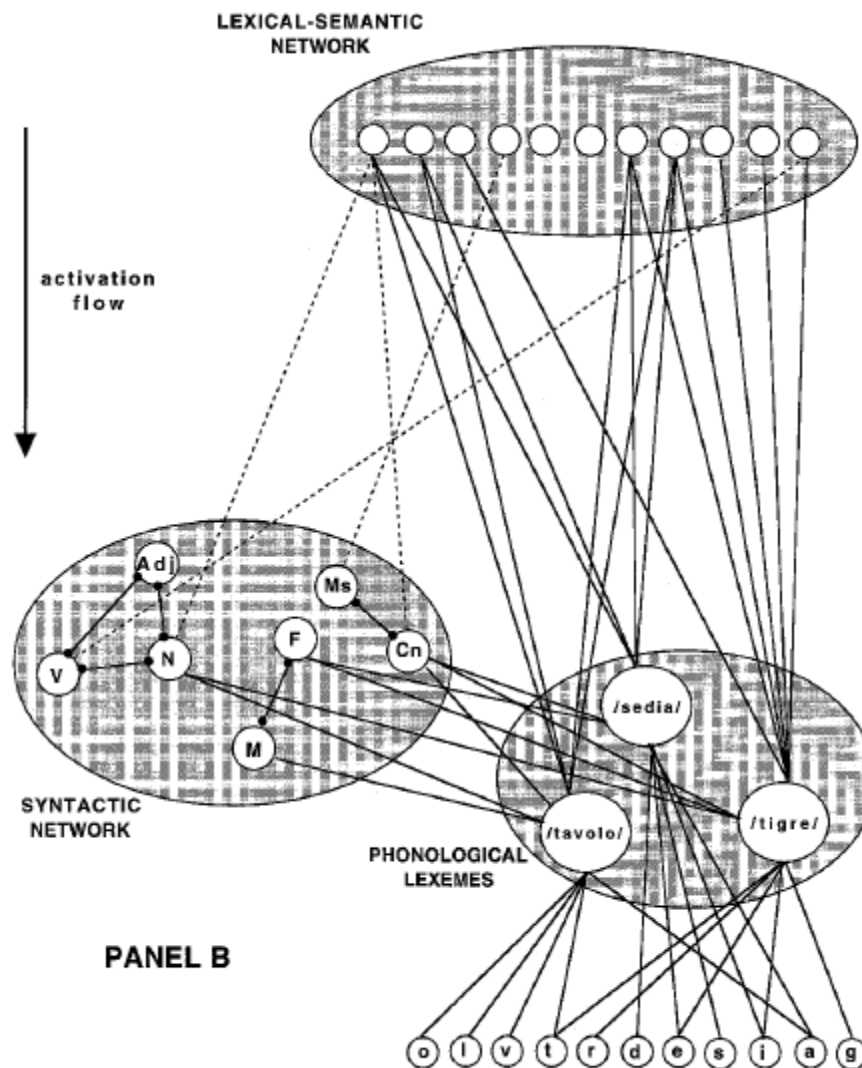


(Caramazza, 1997, p. 196)

*Figure 5.* Semantic, syntactic and lexical form representations

Furthermore, drawing from Jescheniak and Levelt (1994), as well as the research of Bock and Levelt’s (1994) research, Caramazza explains the structure of three levels of lemma representations: the conceptual, the lemma and the lexeme. Each concept is linked to a lemma which is linked to a syntactic node where the lemma is tailored by a grammatical class and then linked to a lexeme through which a phonological or orthographic form is produced (See Figure 6). Although operating collectively, these syntactic, semantic and word form

representations are considered separately, as clinical studies suggest (Caramazza, 1997).



(Caramazza, 1997, p. 197)

Figure 6. Detailed model of semantic, syntactic and lexical form representations

The mental lexicon models discussed above serve a basis for several models. Keeping these in mind, it is useful to mention the retrieval process that takes place in the mental lexicon. Wei (2002), for instance defines the speech production process as being very similar to written production. The conceptual level, or in other words the pre-linguistic level, in which the speakers' intention stimulates the semantic network, is considered the first phase. The second phase refers to the stage wherein the semantic features point to lemmas. In the third phase, "activated lemmas send directions to the language production formulator

regarding how to construct constituents out of the three subsystems of lexical structure that are contained in lemmas” (Wei, 2002, p. 693) while the final phase refers to the point at which the surface structure is produced.

Concluding from the implications from the studies discussed above, although certain areas in the brain are responsible for certain language-specific activities, these activities do not occur in isolation from other cognitive functions, but act collectively.

### **Organization of the bilingual lexicon**

It has been established that there is one single mental lexicon; this “language independent” (Wei, 2002, p. 693) system can serve several languages. Moreover, the L2 mental lexicon is not detached from the L1 mental lexicon. The evidence for this comes from the fact that at the beginning of L2 vocabulary learning, labels are attached to L2 concepts, resulting in erroneous usage of words or semantic errors. This occurs because; less-proficient learners tend to make form-based connections between L2 and L1, while advanced learners can directly operate from their conceptual store (Grainger, Midgley, & Holcomb, 2010).

The organizations of the L1 and L2 mental lexicons are divergent, especially with respect to less-proficient non-native speakers because of the influence of the L1 mental lexicon and developmental constraints. Meara (1984) specifies that:

- the relationships between the words in L2 learners’ mental lexicon are less established compared to native speakers
- in the organization of the L2 mental lexicon, the role of phonology is highly determinative
- the semantic associations between words in the L2 mental lexicon are different from that of native speakers’ mental lexicon.

However, these differences are mitigated as L2 learners become more proficient (Wolter, 2001; Zareva, 2007).

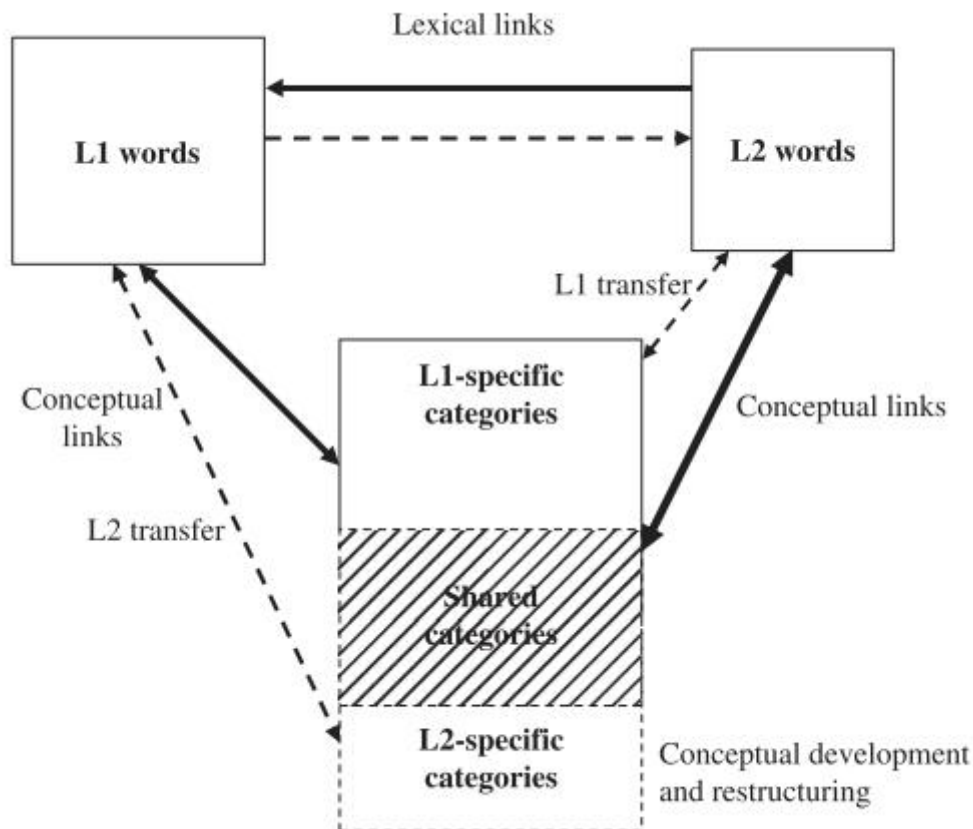
Thanks to the many advantageous factors that are rarely available for L2 learners, one significant task of L1 vocabulary learning involves not only learning

new labels and their related aspects but also learning new concepts that become a naturally evolving feature of L1 speakers' mind. In this sense, although L2 learners have already acquired such concepts, attaching new labels to the existing concepts is a much more daunting and complex process. Concepts refer not only to meaning, but also to the recognition and usage of words in particular contexts (Hague, 1987). Therefore, L2 learners need to go through "the processes of conceptual restructuring" (Pavlenko, 2009, p. 141) and "reorganizing their interlanguage semantic networks" (Henriksen, 1999, p. 307).

Several models have been developed depicting a bilingual lexicon where "words are stored in very sophisticated network associations" (Erten, 1998, p. 51). Retaining the strengths of the previous models, Pavlenko (2009) proposed a more comprehensive model. This model considers conceptual store as a unified structure in which some categories are particular to each language and some are shared.

In the beginning, L2 word forms are directly connected to their L1 equivalents, because they are learned through their L1 equivalents. Then, as learners develop proficiency, this direct link between L2 word forms and concept categories is established and strengthened (Pavlenko, 2009). Considering this model, the point that L2 vocabulary learners need to reach where they develop and strengthen the direct links between L2 words and concepts, which requires conceptual restructuring as well, rather than using the links between L1 and L2 forms. This gradual process of establishing conceptual links occurs in implicit memory and requires implicit knowledge (Pavlenko, 2009). Although explicit knowledge plays a substantial role for beginning and intermediate learners, at later stages, learning must revolve around the activities favouring implicit knowledge.





(Pavlenko, 2009, p. 147)

Figure 7. The modified hierarchical model

Wei (2002), on the other hand, depicts the bilingual lexical access process in more detail. Namely, bilinguals first choose the semantic/pragmatic information to be communicated, and then the lemmas are identified according to the language specified, because “lemmas are language specific” (Wei, 2002, p. 706). Afterward, the language production formulator carries out the language-specific surface forms after checking for lemma agreement between L2 and L1. Considering these interconnected systems, Wei (2002, p. 706) points out that “although the bilingual’s languages are “on” all the time during a discourse, they are never equally activated at the same time”.

A crucial issue to be regarded here that in addition to linguistic factor, extralinguistic factors also play a significant role in lexical activities (Zareva, 2007). Although there is no evidence yet on the issue of whether the well-established connections between the words in L1 lexicon can play a significant role in L2 mental lexicon development, this mature ability to build strong lexical connections

and other extralinguistic factors, such as working memory is not only crucial for language abilities, but also for other complex cognitive activities (Turgeon & Macoir, 2008) and cognitive control can expand our understanding on the processes of L1 and L2 lexica.

### **Theories of vocabulary acquisition**

After several decades of neglect, beginning in the 1980s, studies on vocabulary learning and teaching gained significant interest (Henriksen, 1999). However, despite the substantial body of research on these issues, drawing a grounded model of the complex processes of vocabulary development is not straightforward. Rather, following a multifaceted route “from recognition through production”, vocabulary acquisition is considered as a multidimensional and dynamic process (Stewart, Batty, & Bovee, 2012, p. 695). Considering not only multilinguals, but also monolinguals, because a lexicon incorporates “highly complex neurobiological processes” that cannot be traced, the literature lacks an overall theory to explain the process of vocabulary acquisition (Chacón-Beltrán, Abello-Contesse, & Torreblanca-López, 2010, p. 2). Therefore, “the best means of achieving good vocabulary learning is still unclear” (Schmitt, 2008, p. 329).

However, in an attempt to explain this process, Henriksen (1999) explains vocabulary acquisition on the basis of Aitchinson’s (1987) depiction of L1 vocabulary learning. In this respect, the initial process involves identification of specific sounds that refer to certain things ; this is known as “labeling”. The second process is the identification of a variety of meanings of a specific word, while the third process is called “network building” which refers to the process of “fitting the words together in semantic networks” in other words, establishing links and recognizing the relationships between the words (Henriksen, 1999, p. 308).

Compared to the L2 vocabulary learning process especially in ESL contexts, the L1 vocabulary learning process enjoys a rich source of input through which native speakers develop several aspects of vocabulary knowledge from lexical aspects to syntactic, semantic and pragmatic knowledge (Takac, 2008). Although the richness and density vary considering whether the language in question is L1 or L2. The two sources of vocabulary, listening and reading, can be

experienced either incidentally/implicitly or intentionally/explicitly. Each of these approaches advances different and exclusive gains.

**Teaching and learning vocabulary explicitly/intentionally.** In the explicit approach, the learner deliberately attempts to learn new vocabulary either in context or in isolation but through a conscious process in which the essential focus is emphasized on the form (Chacón-Beltrán et al., 2010; Ellis, 1995).

Before other aspects, the form-meaning link must be established. Accordingly, for the beginning stages, explicit vocabulary learning is suggested (Schmitt, Cobb, Horst, & Schmitt, 2017; Takac, 2008). After a particular level, the majority of vocabulary development is based on implicit learning and individualized vocabulary learning strategies (Takac, 2008). Because learning contextualized aspects such as associations and collocations, which are unmanageable in terms of explicit teaching or learning, require an implicit approach. This process is regarded as fast and effective in consideration of retention and production (McCarthy, 1990).

Given the urgency of the acquisition of the first 2000 most frequent words needed to comprehend around 80% of a normal text (Milton, 2009) (whereas listening requires less vocabulary to achieve 80% coverage), a rapid and focused approach -that is, an explicit approach - is suggested (Nation, 2006; Schmitt, 2008). As for 98% text coverage, learners need approximately 8000-9000 word families so that they can manage authentic texts unassisted (Nation, 2006). This case is more intimidating than it seems, because each word family comprehends the root form of a word as well as its inflections and derivations. According to Nation (2006), each word family has around six members. Considering this average value, the 8000-word family in fact refers to around 34.000 words. Attaining a high level of vocabulary knowledge requires a conscious and focused attempt, hence, the fundamental aspect, or the form-meaning link, which is “relatively amenable to intentional learning”, in covering the required amount of vocabulary should be realized explicitly. However, no matter how rapid the explicit approach is, one should not expect learners to cover all members of the word families and other components of vocabulary knowledge within a short time, as this requires engaging with the vocabulary in a variety of contexts through a variety of techniques, in addition to regular practice and principled recycling.

Laufer's study (Laufer, 2006) which compared incidental and intentional vocabulary learning conditions revealed that intentional vocabulary learning group remembered 72% of the target words (meaning) whereas an incidental vocabulary learning group remembered 47%. In the second part of the experiment, when each session was followed by an explicit activity and a test, the results converged to some extent, with the intentional vocabulary learning group achieving 87% and incidental vocabulary learning group 88% with regard to word meaning. Laufer further concluded that, as it is not possible to reproduce the input conditions of first-language acquisition, an intentional vocabulary learning approach is indispensable in L2 vocabulary learning. Laufer further emphasize that what makes learning intentional is the conscious effort to learn vocabulary; implementing the principles of intentional approach does not result in intentional learning (Laufer, 2010).

One significant outcome of extensive reading is that it strengthens the form-meaning link, as well as the other components of vocabulary knowledge more rapidly (Schmitt, 2008). Moreover, the role of the explicit approach is not limited to covering the critical amount; it also serves at different points throughout the vocabulary learning processes in which learners engage. It has also been suggested as a source of reinforcement before and after incidental learning tasks (Schmitt, 2010).

**Teaching and learning vocabulary implicitly.** Implicit vocabulary learning which aims to provide learners with the greatest possible exposure to language (Schmitt, 2000) is defined as a totally unconscious process of abstracting word knowledge through generally extensive reading (Chacón-Beltrán et al., 2010; Ellis, 1995). In other words, implicit learning takes place "when one is using language for communicative purposes" (Schmitt, 2000, p. 120). Considering the L1 vocabulary acquisition process and the vast amount of vocabulary knowledge that learners possess, or should possess, the research suggests that it is not possible to achieve a like amount through explicit instruction alone (Laufer, 2010). By ensuring the level of text coverage, this approach allows learners to build and check hypotheses regarding unknown vocabulary. It also promotes deeper-level processing and semantic networking, which enhance learning (Chacón-Beltrán et al., 2010). In addition to the acquisition of new vocabulary, this supports learners

in strengthening and deepening the various aspects of already-known or partially-known vocabulary.

Although the balance between the two approaches changes over the progression through proficiency levels, both are combined throughout the life-long vocabulary learning process (Chacón-Beltrán et al., 2010). Whereas the explicit approach enables learners to cover the necessary vocabulary in a short time, the implicit approach, which is mainly exercised through extensive reading, provides learners with a rich degree of information related to words and allows them to deepen their vocabulary knowledge, in addition to acquiring new vocabulary, developing learning strategies and extending their processing skills (Chacón-Beltrán et al., 2010). Furthermore, implicit learning provides learners with more control over their vocabulary learning (Takac, 2008).

As Laufer (2006, p. 152) states, although the “most vocabulary in L2 is acquired from input, mainly reading input”, psycholinguistic studies suggest that intention, attention, and awareness are needed in this process (Al-Hejin, 2005; Rahmani & Nasri, 2013; Robinson, 1995; Schmidt, 1990). In line with psycholinguistic research, as Laufer (2006, p. 152) argues, “only a small number of L2 words can be ‘picked up’ from exposure to texts without any subsequent vocabulary practice”. Therefore, as with explicit learning, implicit learning alone is not enough to develop the necessary “forms and levels of mental processing” skills and ensure adequate vocabulary learning (Chacón-Beltrán et al., 2010, p.5). Similarly, the findings of Paribakht and Wesche’s (1997) study which compared the effect of two types of vocabulary learning treatments (reading only and reading plus conditions) indicate that although both types of vocabulary learning may result noteworthy increases in vocabulary knowledge, higher gains were achieved through reading that was strengthened with certain vocabulary exercises, such as drawing the learners attention to the target words in the text through either giving a target word list before they read the text and then asking them to underline these words in the text on each encounter or visually highlighting the words in the text. Another exercise can be matching the target word with its definition or synonym or a picture.

Consequently, a combination of both approaches is suggested, as each approach addresses specific parts of the vocabulary learning process and specific

aspects of vocabulary knowledge (Schmitt, 2000; 2008); some aspects of the input can be learned implicitly, some other aspects require learners' selective attention (Ellis, 2001).

### **Predictors of vocabulary knowledge**

L2 vocabulary development is naturally different from L1 vocabulary development, and so are the factors affecting vocabulary growth in L1 and L2. Numerous factors affect vocabulary learning, and in some cases, these involve “completely unknown” factors and processes (Schmitt, 1995). Therefore, it may not be possible to develop a meaningful theoretical model to explain vocabulary acquisition “until neurologists are finally able to physically trace words in the brain” (Schmitt, 2000, p. 117). As this complex network cannot be dealt with adequately here, among the factors affecting vocabulary acquisition, only those that fall within the scope of this study will be discussed. Thus, reading as a significant predictor of vocabulary knowledge will be addressed, along with reading motivation and the cross-linguistic transfer effect. Additionally, the effects of L1 vocabulary knowledge on L2 vocabulary, and in particular its non-linguistic impact, will be deliberated on.

### **L1 vocabulary: a non-volatile memory**

Although “there is seldom a one-to-one relationship between L1 and L2 words and the process of learning an L1 and an L2”, the L1 still stands as an important factor in learning L2 vocabulary, and its impact “is almost impossible to escape when dealing with almost any aspect of L2 vocabulary” (Schmitt & McCarthy, 1997, p. 2-3). Depending on the similarities between the L1 and L2, the L1 plays varying roles in the degree of difficulty of learning a new lexicon besides a new alphabet, new sounds, new syntactic notions, phrasal verbs, and case endings (Schmitt & McCarthy, 1997).

With regard to the factors affecting word learnability, Laufer (1997) argues that the L1 is a significant source of phonological problems that learners may face in the L2. For instance, the sound system of learners' L1 plays a role in learners' discrimination between phonemes. In cases where the L1 shares phonological features and phonotactic regularity with the L2, learners are more readily able to perceive, pronounce and especially remember a word accurately and retain it over

the long term (Ellis & Beaton, 1993; Laufer, 1997). Furthermore, the degree of sound-script correspondence influences accurate pronunciation (Ellis & Beaton, 1993; Koda, 1996; Laufer, 1997) while length, the inflexional and derivational complexity of the word, conformity, part of speech, abstractness, and register can be positively or negatively influenced by L1 to some extent (Laufer, 1997; Nation, 2001; Schmitt, 2010). Such issues are more likely to be experienced at low proficiency levels (Ecke & Hall, 2014). If learners' L1 lexical network is similar to their L2, their L1 vocabulary and lexical network may have a positive effect on both vocabulary size and L2 lexical network construction (Wolter, 2006).

However, even if there is a considerable distance between the L1 and L2, other non-linguistic skills continue to support the L2 vocabulary learning process (Sparks et al., 2009a). Several studies focusing on language learning aptitude have revealed that L1 skills are remarkably good predictors of L2 skills. In this respect, Sparks et al. (2006) demonstrated that L1 literacy skills, L1 vocabulary, and cognitive ability in early years of school explain 73% of the variance in L2 aptitude in upper grades. Likewise, a study carried out with 178 fourth-grade learners by Raudszus et al. (2018) revealed similar results. Their study proposes a model of predictors of reading comprehension. In this regard, among L2 vocabulary, decoding, working memory, inhibition, syntactic integration, L1 vocabulary directly predicted second language reading comprehension which suggested a remarkable effect of L1 proficiency on L2 achievement "even after controlling for non-linguistic predictors" (2018, p. 420). Thus, Raudszus et al. suggest that "L1 vocabulary might be an indicator of general language aptitude and a language-rich environment" and a "well-developed L1 vocabulary might also help to scaffold L2 acquisition" (2018, p. 420).

Despite these findings, studies on L1 vocabulary knowledge as a predictor of L2 vocabulary knowledge are scarce. In one instance, Mase (2011) conducted a study with a total of 80 second-grade 8-year-old Spanish learners of English as a second language in New York. This work proposes two models that include L1 vocabulary knowledge as a predictor of L2 vocabulary knowledge. The study investigated the mediator role of self-efficacy and accuracy of self-efficacy between English word reading and English (L2) vocabulary knowledge as well as between Spanish (L1) vocabulary knowledge and English vocabulary knowledge

(L2). A correlation analysis revealed that L1 vocabulary knowledge was not significantly correlated with L2 vocabulary knowledge. Similarly, path analyses showed that L2 vocabulary knowledge was not predicted by L1 vocabulary knowledge. The researcher asserted that the insignificant relationship might be due to the fact that the participants were young ESL learners.

In another case with respect to young EFL learners, the results were similar. Carlisle, Beeman, Davis, and Spharim (1999) investigated the effect of L1 and L2 vocabulary and metalinguistic development on reading comprehension. Their results revealed that learners' achievement on a definition task was significantly explained by word knowledge. Moreover, L1 vocabulary knowledge explained 15% and L2 vocabulary knowledge explained 13.5% of the variance of reading comprehension. Although the study did not attempt to deliberate on the relationship between L1 and L2 vocabulary knowledge, the results showed that the correlation between L1 and L2 vocabulary knowledge was insignificant.

Overall, apart from the studies on bilingualism or multilingualism which are mainly focused on young participants and the few studies that have been discussed above, the literature is short on research into the relationship between L1 and L2 vocabulary size. Therefore, more evidence that will shed light on this matter is needed.

### **Reading and vocabulary: an indissoluble bond**

A substantial amount of research has examined the reciprocal relationship between reading and vocabulary (Daskalovska, 2016; Grabe, 2009; Jung, 2009; Milton, 2009; Nation, 2001; Pfof et al., 2013; Pigada & Schmitt, 2006; Ponniah, 2011; Qian, 2002; Verhoeven & Perfetti, 2011; Yamashita, 2004). The existing research suggests that considering the aspects of knowing a word; e.g. spelling, word family relations, collocations, meaning associations, register constraints; all of these components can be satisfied through reading. Several encounters in several different contexts are needed to learn about the necessary aspects of knowledge linked to a particular word. In this daunting and incremental process, reading plays a significant role which serves as a supporting path to vocabulary learning (Grabe, 2009).



Furthermore, vocabulary has been acknowledged as the second most important developmental component in reading competence, following orthographic knowledge, with regard to the developmental process of reading both in L1 and L2 (Raudszus et al., 2018). Large sight vocabulary expedites text processing which leads to better use of strategies, reading comprehension and other benefits of reading (Jung, 2009).

In this sense, different approaches are recommended with consideration for the nature of this relationship: what type of reading contributes most to vocabulary knowledge? How this relationship can be supported? Studies have shown that learners do not receive sufficient exposure to vocabulary in instructional contexts alone; therefore, efforts to improve their language skills beyond the classroom are necessary, as only in a very intensive L2 program (2 or more hours per week) may learners be able to reach a vocabulary level of 2000-4000 words per year (Grabe, 2009). As such, reading becomes the most easily accessible and practical way of exposure to the needed words and a rich source of input for L2 learners in the EFL context (Mori, 2002). Research indicates that, provided it takes place over a period of time, reading extensively increases learners' vocabulary size to a great extent (Day & Bamford, 1998).

Although both extensive and intensive reading practices are indispensable to different degrees at all proficiency levels, at the very beginning, teaching the most frequent 2000-3000 word families in an explicit way is crucial. It is important to engage students with effective reading materials and to encourage a cycle of reading and vocabulary competence, because 95 % text coverage is required for a successful reading with instructional support, and unassisted reading necessitates 98 % text coverage (Grabe, 2009). Explicit teaching of first 2000 most frequent words lists is advised, because otherwise, L2 readers may not benefit from incidental vocabulary learning from reading (Hu & Nassaji, 2016). To this end, graded readers may support the text coverage of new readers by including a given level of vocabulary for different learning levels (Schmitt, 2000). Through these specialized texts, beginning readers engage with the opportunity to practise guessing from the context to encounter several words that have not been learnt, and to improve their dictionary skills in a supported context. In other words, this type of reading activity compensates for the explicit way of vocabulary teaching

which may not provide a rich enough context to develop depth of vocabulary knowledge (Nation, 2001).

The studies regarding the effects of extensive reading are not without inconsistent results, since extensive reading research requires a long period of time which hinders the creation of experimental conditions in which “to ascertain the true independent influence of reading on comprehension abilities” (Grabe, 2004, p. 56). In this case, some scholars suggest that extensive reading, which requires long term engagement in order to produce benefits, is not an ideal option for acquiring vocabulary in a limited time. They further claim that extensive reading contributes little to vocabulary knowledge, and that little is retained from this process over time. However, as it is not possible to observe the underlying process of vocabulary learning as with any other learning, there are phases completed by extensive reading that have yet to be measured, such as word recognition skills, reading speed, and knowledge related to the depth of vocabulary. However, the studies have shown that reading extensively over a long period of time creates significant improvements in vocabulary knowledge and reading comprehension skills, in addition to other language skills (Day & Bamford, 2002; Grabe & Stoller, 2002; Nation, 2001; Nation, 2015; Qian, 2002). Although extensive reading does not effectively allow for effective and economical acquisition of new vocabulary, it does support learners to gain new aspects of known vocabulary and consolidation of already-known words (Nation, 2001). Thus, among other factors, extensive reading addresses certain features in the acquisition of vocabulary knowledge. While, reading alone cannot lead to the desired competence in vocabulary, it significantly affects the growth of several aspects of vocabulary knowledge as the “more texts that are read, the more opportunities there are to repeatedly encounter the same patterns of letters, words, and collocations” (Webb & Chang, 2015, p. 668).

**Incidental vocabulary acquisition and reading.** Despite the research emphasizing the effect of extensive reading on vocabulary learning, some researchers emphasize that without drawing the attention of learners to specific words and lexical features through explicit tasks as a compensation activity; extensive reading alone is inadequate for developing L2 vocabulary (Wesche, 2000). In this respect, Wesche (2000) examined university ESL learners'

responses to vocabulary exercises to better understand the lexical processing and learning realized under the given conditions. Furthermore, the researcher compared the results of reading plus condition with those from thematic reading for comprehension outcomes in which reading was the only condition. The results indicate the superiority of reading plus condition over reading only. Several tasks employed in reading plus condition prompted learners to make a greater effort, as well as to apply their L2 knowledge by drawing their attention to specific aspects of lexical knowledge. Another advantage of applying different types of tasks is that learners have several occasions to determine the meaning of a target word, so that even if they fail in one exercise; they gain it in another. On the other hand, under the reading only condition, they naturally focused on meaning rather than acquiring vocabulary or certain aspects of relevant vocabulary knowledge. During the related activities, learners read the texts several times in order to complete the tasks. A deeper mental effort was employed during the sentence-level processing that accompanied the discourse-level processing. Moreover, the tasks engaged learners with the target words, thus providing a more challenging condition under which to strengthen their vocabulary knowledge. As such, this study highlighted the importance of supporting reading practice through vocabulary-focused tasks. In this respect, in a previous study (Paribakht & Wesche, 1999), the researcher pointed to the necessity of building learner awareness regarding how to choose texts and how they can benefit from reading as a source of learning new vocabulary and of strengthening their current vocabulary knowledge.

On the whole, the studies on extensive reading employed a specific vocabulary test that included unknown vocabulary from reading material in as the only source of vocabulary being tested. Therefore, these studies did not measure the general vocabulary size.

Teng's (2015) study which was similar to that of Wesche's (2000) investigation of the effectiveness of extensive reading through comparing reading-only and reading-plus-condition, highlighted the importance of intentional learning. A total of 46 freshmen participated in the study. Before the experiment, the participants did a receptive and a productive vocabulary test as pre-tests. The control group only read extensively covering five short books within one month. The experimental group also read five books, but in addition, they completed some

explicit vocabulary exercises. Following this, both groups took the receptive and productive vocabulary tests again. This process was carried out over four hours a week for four weeks. The results revealed that the groups recorded progress in vocabulary learning; the students in the read-plus group performed better than the read-only group on both vocabulary tests. Furthermore, the difference between the two groups was statistically significant for both tests. Higher gains were seen in receptive vocabulary knowledge for both groups. These results support the studies discussed previously herein. The comparison analysis showed that there was a significant difference between the two types of vocabulary knowledge which indicated that receptive vocabulary was easier to be learned. Moreover, the results indicate that supporting extensive reading with explicit vocabulary instruction can lead to the mastery of half of the productive knowledge of the target vocabulary. Furthermore, the study revealed that participants' vocabulary size prior to the treatment affected their gains from the extensive reading. In this respect, the students at the 3,000-3,900 word level recorded greater achievement than the students at the 2,000-2,900 word level. Similarly, students at the 2,000-2,900 word level scored higher in post-tests than those at the 1,000-1,900 word level. These results imply that students with higher vocabulary knowledge are more successful in word learning and benefit more from the process. Overall the findings highlight the importance of explicit vocabulary activities as promoting the benefits of extensive reading.

Looking at the issue from the perspective of a case study, Pigada and Schmitt's (2006) illustrated the effect of extensive reading on vocabulary acquisition with a single participant in order to ensure 95% text coverage for successful incidental vocabulary learning, tailored texts were used in consideration of the level of the participant. The study employed a comprehensive vocabulary test that focused on spelling, meaning, and grammatical characteristics, targeting 133 words in a one-to-one interview. This procedure was repeated for the pre-test and post-test. The results of the study revealed significant vocabulary gains through extensive reading. Spelling was the most significantly improved aspect, followed by meaning and grammatical knowledge. Based on the findings, the researchers emphasized that extensive reading can offer more than previous studies have suggested with respect to vocabulary learning.

In Kweon and Kim's (2008) attempt to gain insights into the role of extensive reading on the incidental vocabulary acquisition which was carried out with 12 intermediate-level university students, reading materials were selected from authentic texts. Participants read approximately 134,013 words in five weeks. Every week, the students took comprehension quizzes in order to ascertain that they had read the books. A total of 100 minutes every week day for 5 weeks were devoted to this treatment. The word frequencies in each book were calculated using a software programme (Monoconc Pro). Based on the analysis, a vocabulary test was created with 367 words from three bands of frequency. Before the extensive reading treatment, the participants took this vocabulary test as a pre-test. All readings were completed at home, so that the class hours were dedicated to comprehension quizzes, group discussions regarding the chapters that were read, writing reports after discussions and keeping journals that were handed in after each class. None of these activities attempted to focus on vocabulary. At the end of the treatment, the participants took a vocabulary post-test, and a month later, they took an additional delayed post-test. The results revealed that the mean achievement on the pre-test was 43.8% for the nouns, 48.6% for the verbs, and 52.7% for the adjectives. The mean scores of vocabulary knowledge was significantly found to be higher on the post-test for the three word classes, and these scores were retained to a great extent one month later on the delayed post-test according to ANOVA test results. This suggests that incidental word learning through extensive reading may be retained successfully even one month later. In line with the previous studies discussed by the researchers, the participants in this study were more successful with respect to nouns than verbs. Furthermore, the participants performed better on the more frequent words across all 3-word classes. All in all, the study emphasized the effectiveness of extensive reading on incidental vocabulary acquisition. However, another point needs to be considered in this regard, in that the activities performed during the class hours regarding the chapters read by the participants noteworthy contributed substantially to the extensive reading process and to the retention of the words in particular.

Tiryaki and Tütüniş (2012) investigated the effectiveness of extensive reading on unmotivated elementary-level EFL learners vocabulary development. A total of 100 university students were assigned equally to a control and an

experimental group. For twelve weeks, both groups received normal language instruction, but for the experimental group extensive reading practice took place as an additional out-of-classroom activity. The results indicate that extensive reading led to higher scores on a vocabulary test despite the participants' reluctance to learn a foreign language. Furthermore, the study highlights the role of extensive reading in promoting the vocabulary knowledge of even elementary-level learners.

In another study, Yamamoto (2011) investigated the role of incidental vocabulary learning assisted with "pushed-output activities" on the advancement of receptive and productive vocabulary knowledge. A total of 67 lower intermediate-level EFL freshmen were involved in this study. Of these, 34 were designated to a Reading Group (control group) and 33 were assigned to an Extensive Reading Group (experimental group). In both groups, intensive reading and explicit vocabulary instruction took more than 80% of the class time. Additionally, for the entire 13 weeks, the students in Extensive Reading Group read a minimum of five books from graded readers, spending at least 30 minutes for reading every day outside of class. Before the treatment, the participants took three vocabulary level tests (receptive, controlled-productive and free-productive) as pre-tests and after 13 weeks they took another three sets of vocabulary level tests as post-tests. Moreover, the experimental group students kept a short summary of the books they read and their reactions to it in order to promote productive vocabulary knowledge. The overall results indicated that the receptive vocabulary scores of the pre- and post-tests were quite similar, and there was no statistically significant difference between the pre-test and post-test scores of both groups. Furthermore, the difference between the groups was not statistically significant in consideration of pre-test and post-test scores. These results, and particularly the strong connection found between receptive and productive vocabulary knowledge, primarily at the 3,000-word level, indicate that extensive reading did not help these students to improve their vocabulary knowledge; rather, it is more likely that they deepened their already-known vocabulary knowledge. The study further indicates that less frequent words decay faster as they are encountered less often. Based on the overall results, it was emphasized that extensive reading practice can be a powerful means to help students to retain their receptive, controlled, and free-

productive vocabulary knowledge as well as to strengthen the connection between receptive and productive vocabulary.

Taking another perspective, Min (2008) compared the effect of reading supported with vocabulary activities (RV) and narrow reading (NR) on vocabulary gains. A total of 50 EFL senior high school students participated in this experimental study. First, a t-test was run with regard to the final exam scores of the participants that indicated insignificant differences between the experimental and control groups. Each group attended two-hour classes per week for 5 weeks. Before the treatment, the participants took a vocabulary pre-test and just after the 10-hour instruction they took an immediate post-test with a delayed test 3 months later. The results revealed that the RV group performed better on the immediate vocabulary post-test. The pre-test and immediate post-test scores of both groups indicated that RV group learned substantial amount of vocabulary. Furthermore, the delayed post-test scores also supported that the RV group retained a noteworthy amount of vocabulary knowledge three months after. Likewise, although NR group did not outperform the RV group, a comparison of pre-test and post-test results revealed that they had learned a significant amount of vocabulary through narrow reading practices. Additionally, the delayed post-test also revealed that they retained a notable amount of vocabulary 3 months after the treatment. However, overall results indicated that the students who participated in the reading plus vocabulary activities outperformed those who received narrow reading instruction. This emphasizes the importance of including supporting vocabulary activities in addition to reading in order to contribute to vocabulary acquisition; thus, reading practices should be accompanied by explicit vocabulary activities.

In their study, Chun, Choi, and Kim (2012) employed a more robust method and investigated the issue using both behavioural and electrophysiological measures. They compared the effectiveness of extensive reading and decontextualized vocabulary learning on the retention of new vocabulary in the short- and long-term. A total of 26 adult low intermediate-level EFL learners participated in this 9-week experiment and assigned to two groups randomly: an extensive reading group and paired associate learning group. The researchers used paired-associate learning as a method of decontextualized vocabulary learning which refers to learning translations or synonyms of the target words.

Before the experiment an agreement was made between the researchers and the participants regarding the self-restraint of the target language exposure out-of – experiment, and then the participants were tested for the target words (80) which indicated homogeneity. The extensive reading group was requested to read one book per week (from graded readers level 3), and a dictionary was allowed when needed. As for the paired associated learning group, the participants memorized thirty-word pairs (target word and its translation) every week. None of the groups was instructed about the target words. After 5 weeks the participants' immediate post exposure knowledge was tested. In the immediate post-exposure test, the participants were requested to write the translations of the target words; then, an electrophysiological monitoring recording was performed in order to measure the electrical activity of the brain. The results of the two tests indicated slight but insignificant differences between groups, indicating that both extensive reading and paired associate learning are effective tools to develop short-term vocabulary retention. However, the results of the delayed post-exposure test revealed that there was a statistically significant difference between the two groups with the extensive reading contributing significantly to long-term vocabulary retention. The study emphasized the crucial role of extensive reading on vocabulary development over decontextualized vocabulary learning.

In another study, Paribakht and Wesche (1999) examined the vocabulary learning from thematically related texts with 10 university students. After a pre-test and training in how to perform the think-aloud procedure, participants completed two comprehension tasks. The results revealed that the participants ignored half of the unknown words. Considering strategies, inferencing was found to be the most-highly-reported strategy (around 80% of all strategy use). Moreover, the participants reported that simply reading was not an effective way of vocabulary learning, as they typically only interpreted the meanings of unknown words using contextual clues, and they were not sure whether they had acquired certain information about those words.

Al-Homoud and Schmitt (2009), moreover, attempted to determine the effectiveness of extensive reading practised as a supporting part of an intensive reading class. A total of 70 university students assigned to either an extensive reading or an intensive reading group participated in this 10-week treatment study.



The intensive group read short texts then responded to comprehension questions in their usual 50-minute per week reading classes. In addition, they practised reading skills and took vocabulary tests, as well as completing some out of class assignments such as reading new passages and answering comprehension questions. The intensive group explicitly learned around 20–30 new words in each session, while the extensive group used 150 graded readers. Both groups took a vocabulary and reading comprehension test, in addition to a reading speed test; they completed a questionnaire regarding attitudes towards the reading, self-confidence and amount of reading they did. The treatment group practised intensive reading skills as well for about 10–15 minutes at the beginning of each class. This was followed by 20–25 minutes of individual silent reading (from a graded reader), and the rest of the time was allotted to presenting vocabulary learning strategies. Independent-samples *t*-tests results revealed that the divergence between extensive and intensive reading groups was not statistically significant with regard to reading comprehension. However, when the comprehension pre-test and pos-test scores were compared, the difference was found to be significant only for the extensive reading group. As for reading speed, groups recorded statistically significant improvements between pre-test and post-test, yet, when both groups' scores were compared again the difference was found to be statistically significant. This indicated that the extensive reading group performed significantly better on the reading speed test. Considering vocabulary levels tests at level 2000, 3000 and academic word list, although both groups improved substantially and the groups performed significantly different, highlighting the fact that extensive reading practices improved learners' vocabulary as much as intensive reading practices. With regard to the questionnaire, the extensive group participants reported more positive opinions about their reading behaviours. The overall results underscore the importance of incorporating extensive reading into curricula and along with intensive reading, it should lead to considerable vocabulary gains.

In addition to its meaningful contribution to receptive vocabulary knowledge, extensive reading plays part in productive aspects as well (Nation, 2001; Webb, 2005). With this in mind, Yamamoto (2011) examined the role of extensive reading contributes on productive vocabulary, as well as receptive and controlled-

productive vocabulary knowledge. The participants in both groups received intensive reading practice and explicit vocabulary instruction; however, the experimental group students were assigned to read five books (graded readers) and to read for at least 30 minutes a day apart from classes during the 13 weeks of the experiment. “The Vocabulary Levels Test” (Schmitt et al., 2001) was employed to assess students’ receptive vocabulary size, the “Productive Vocabulary Levels Test” (Laufer & Nation, 1999) was administered for controlled-productive vocabulary, and the “English Web VocabProfile” (Cobb, 2010) was applied for their productive vocabulary, which was analysed based on students’ free writing. In line with some of the previous studies, the study indicated that learners did not learn much vocabulary from graded readers. However, they did develop, deepen and consolidate their already-known vocabulary. Moreover, the study found that the experimental group (Extensive Reading Group) was able to preserve their controlled-productive vocabulary knowledge. From the point of the input hypothesis, extensive reading affords a rich source of stimulus for language acquisition. However, there are certain processes that require learner’s explicit engagement with linguistic features; in this sense, extensive reading may not yield the desired level of outcome in terms of the acquisition of micro-level linguistic skills unless longer periods of time were allotted.

In another instance, Suk (2016) conducted a quasi-experimental study with 171 EFL university students from four intact English reading classes that were assigned to two control (intensive reading class) and two experimental (extensive reading class) groups. The extensive reading groups used graded readers and the control groups used a course book that was already in use. The control groups started the classes by reviewing vocabulary covered in the previous lesson, then taking a quiz, in addition to other activities regarding the text. The rest of the class was dedicated to pre-reading, during-reading, and post-reading activities, as well as reading strategies. Moreover, teaching new words encountered in the text, translating passages and dealing with grammatical structures, followed by answering comprehension and vocabulary questions also took place. Students were also required to complete vocabulary quizzes and prepare for the next class regarding the vocabulary and reading texts as out-of-class assignments. At the beginning of each class, the experimental group engaged in a 30-minute extensive

reading session which differentiated experimentally from control classes. The rest of the class time with the four groups was dedicated to intensive reading according to the requirements of the curriculum. Besides reading in and out of class, the participants in the experimental group completed some activities in order to enhance their reading practice. All of the participants took the reading comprehension and rate test, and the vocabulary test as pre-tests. After 15-week period, they took post-tests. In the post-tests, despite the increase in reading rates for all groups, the extensive reading groups scored higher than the intensive reading groups for all three tests. The vocabulary test results revealed that the students in the extensive reading classes acquired more words than those in the intensive reading classes. Another noteworthy result was that the extensive reading classes significantly improved in reading comprehension while no improvement at all for the intensive reading classes was recorded. The overall results emphasize the importance of extensive reading with respect to L2 reading comprehension, reading rate, and particularly L2 vocabulary development despite the fact that very limited time was allotted to extensive reading activities (only 30% of the class time). Furthermore, the study highlights the importance of incorporating extensive reading into existing L2 curricula which does not require major changes in the curricula.

A comparison of extensive reading studies with intensive reading practice presents a challenge; and in addition, it is apparent from the aforementioned studies that the diverging methodologies and participant profiles make these studies difficult to compare. Despite some research claiming that extensive reading is not an effective and practical tool for developing L2 vocabulary, several studies suggest evidence that extensive reading is not less effective than intensive reading. However, further evidence points that incorporating both approaches along with explicit vocabulary practices will yield better results. Because, each approach addresses certain aspects of vocabulary knowledge, both approaches need to be blended and practised in accordance with the capabilities of the classroom and curricula.

## Reading Skill

Although reading is briefly “defined as a complex ability to extract, or build, meaning from a text” (Grabe, 2014, p. 8), it requires several skills from having a large sight vocabulary, which is the prerequisite of reading fluency in terms of the successful processing of sentences for more effective comprehension, to a number of strategies and cognitive skills; such as, setting goals, self-regulation and monitoring comprehension (Tobia & Bonifacci, 2015).

Table 4

### *Suggestions for Enhancing Reading Activities*

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- 1- Promoting word recognition skills, ensuring word recognition fluency
  - 2- Building large recognition vocabulary and emphasizing vocabulary learning
  - 3- Activating background knowledge
  - 4- Ensuring effective language knowledge
  - 5- Practice comprehension skills that combine awareness of grammar, main idea identification and comprehension strategies; strategy training is not separate from text comprehension instruction.
  - 6- Building awareness of text structure and discourse organization
  - 7- Promoting strategic reading rather than teaching individual strategies
  - 8- Building reading fluency and rate
  - 9- Promoting extensive reading
  - 10- Developing intrinsic motivation for reading
  - 11- Planning a coherent curriculum for students learning and combine language learning with content learning
- 

(Grabe, 2004, 2014)

Before developing higher-level reading skills, learners need to accomplish the lower-level processing skills, without which the other reading processes may be hindered. As all processes take place in working memory, automatization of some processes facilitates the operation of other that require a higher cognitive load. Based on several studies demonstrating that phonological awareness and letter-sound correspondences predict reading success, in order to develop effective reading strategies and skills, scholars assert that learners need to automatize word recognition and lexico-syntactic processing and semantic processing (Grabe, 2014). The research indicates that large automatic sight vocabulary and higher levels of vocabulary knowledge, which leads to reading fluency, are closely related to reading ability (Grabe, 2009; Tobia & Bonifacci, 2015)

Several recommendations have been given for curriculum development with regard to reading activities. The goals, depicted in a developmental conformation in two different studies by Grabe which are illustrated in Table 4, are particularly emphasized (Grabe, 2004, 2014).

As is apparent from this list, reading requires several skills including phonological, orthographic and verbal memory skills which are considered “the components of a general language ability that best predicted oral and written proficiency in an FL” (Kahn-horwitz, Shimron, & Sparks, 2006, p. 164). These skills are also regarded as the notable differentiators of successful and poor readers. Providing reading speed through fast word recognition, these skills relieve readers from the burden of dealing with word recognition and allow them to focus on reading itself (comprehension and reading strategies). Learners who are free from this burden also benefit from vocabulary, because good word recognition skills have been found to be an indicator of high vocabulary knowledge (Kahn-horwitz, Shimron, & Sparks, 2006). Word recognition fluency, which is emphasized from the very beginning of reading instruction, is also recognized as significant in L1 reading as an indicator of reading comprehension ability (Grabe, 2004). Since automatic word recognition reduces the burden of the cognitive processes related to reading, it promotes comprehension to a considerable extent. Therefore, reading fluency is an important indicator of successful reading comprehension and acquisition of linguistic and discorsal aspects (Grabe, 2014).

Gains from extensive reading are not fully observable, since on one hand, it involves developing lexical, discorsal and general language knowledge; and on the other hand, it configures the deeper structures supporting these surface structures. Therefore, each practice of reading complements a part of this complex system. However, extensive reading should be supported with explicit form-focused activities in order to develop linguistic and discorsal features; otherwise, readers may not realize some of the features through extensive reading alone (Yamashita, 2008).

By providing a rich source of vocabulary used in several different contexts, extensive reading enables learners to attain knowledge of partially-known words and deepen the knowledge of already-known words. Aside from strengthening vocabulary knowledge, repeatedly encountering the same collocations, sentence

patterns and discourse organization increase the student's overall language proficiency, and each encounter complements a step in this complex developmental process (Webb & Chang, 2015).

Overall, providing an input-rich environment, and extensive reading extensively help learners develop good reading habits and a positive attitude toward reading (Day & Bamford, 1998; Grabe, 2009; Richards & Schmidt, 2002), in addition to expanding their vocabulary knowledge (Grabe & Stoller, 2002; Pigada & Schmitt, 2006a; Richards & Schmidt, 2002).

**Cross-linguistic transfer of L1 reading skills.** The transferability of skills across languages has been established in the literature (Carrell, 1991; Clarke, 1980). Drawing from the “Interdependence Hypothesis” (Cummins, 1979), it is assumed that there is a common competence that drives the reading process in both L1 and L2 despite the specific skills and functions particular to reading in a given language. From this point of view, there is a common underlying domain that supports language learning that is initially established by L1. Therefore, while some aspects are transferred from L1 to L2 some are managed by this shared system.

In this sense, L1 reading skills are an important factor in developing L2 reading skills and the transfer of the L1 reading skills comes with both disadvantages and advantages. Having well-developed L1 reading skills is not sufficient for developing good L2 reading skills unless the learner reaches a certain level of language proficiency (Carrell, 1991). Although reading in any language makes use of the common underlying reading domain, reading in L2 or L3 does not consist of doing the same as it is done in L1 reading, but more slowly (Bernhardt, 1991). Rather, while readers adopt a top-down approach to reading in their L1, the case is reversed in L2 reading; a bottom-up approach is required for several reasons at the very beginning of L2 reading, and then, as learners become competent in language, and specifically in L2 reading, they develop a mixed orientation and make use of global processing strategies (top-down strategies, such as identifying main idea, drawing conclusions) (Davis & Bistodeau, 1993).

L1 reading skills and L2 language proficiency are considered as two important factors in L2 reading achievement, In this case, L2 language proficiency

is stronger one, as it acts as a prerequisite for successful L1 reading skills transfer. On the other hand, as is well described in the Threshold Hypothesis (Cummins, 1976), if a learner has not acquired L1 reading skills at a certain level, then L2 language proficiency will not partake place effectively so that the learner can benefit from the supportive aspects of L1 reading skills and common cognitive proficiency.

By increasing proficiency, inaccurate transfer across languages can be eliminated. However, at any level, L2 reading cannot be totally excluded from L1 reading cognition, as “L1 never completely turns off” and L2 reading is always run by “two language processing systems” (Grabe & Stoller, 2002, p. 35).

Although L1 and L2 reading rely on a common cognitive domain and require similar skills, there are also some differences with respect to linguistic and affective resources (Grabe & Stoller, 2002). In this regard, L1 readers begin to read with a certain level of vocabulary knowledge - around 5000-7000 - with grammatical and discourse competence at around the age of 6 whereas few L2 learners in EFL context benefit from the advantage of beginning L2 reading at an early age, or with a vocabulary knowledge of around 5000-7000 words. Most learners also lack grammatical and discourse competence at even the minimum required level.

L2 reading experience consists of a delicate situation in which learners may develop negative attitudes towards L2 reading or low levels of reading efficacy. Moreover, compared to L1 readers, L2 readers tend to read less, as the natural result of the fact that L2 is only used in educational contexts and L2 reading is a part of this institutional atmosphere. No matter what learners do, L1 exposure will outperform L2 exposure in the EFL context.

On the other hand, whereas in L1 reading, cognitive processes run on a single system using one source of the lexicon, grammar, discourse and related strategies derived and developed from experience, in L2 reading, the systems of the two different languages interfere with the cognitive processes. The brain also has to manage transfer effects, which can variously ease or hinder the process. For instance, a reader’s ability to benefit from the common underlying cognitive

reading process is hindered by unaccomplished L2 linguistic competences (Grabe, 2014).

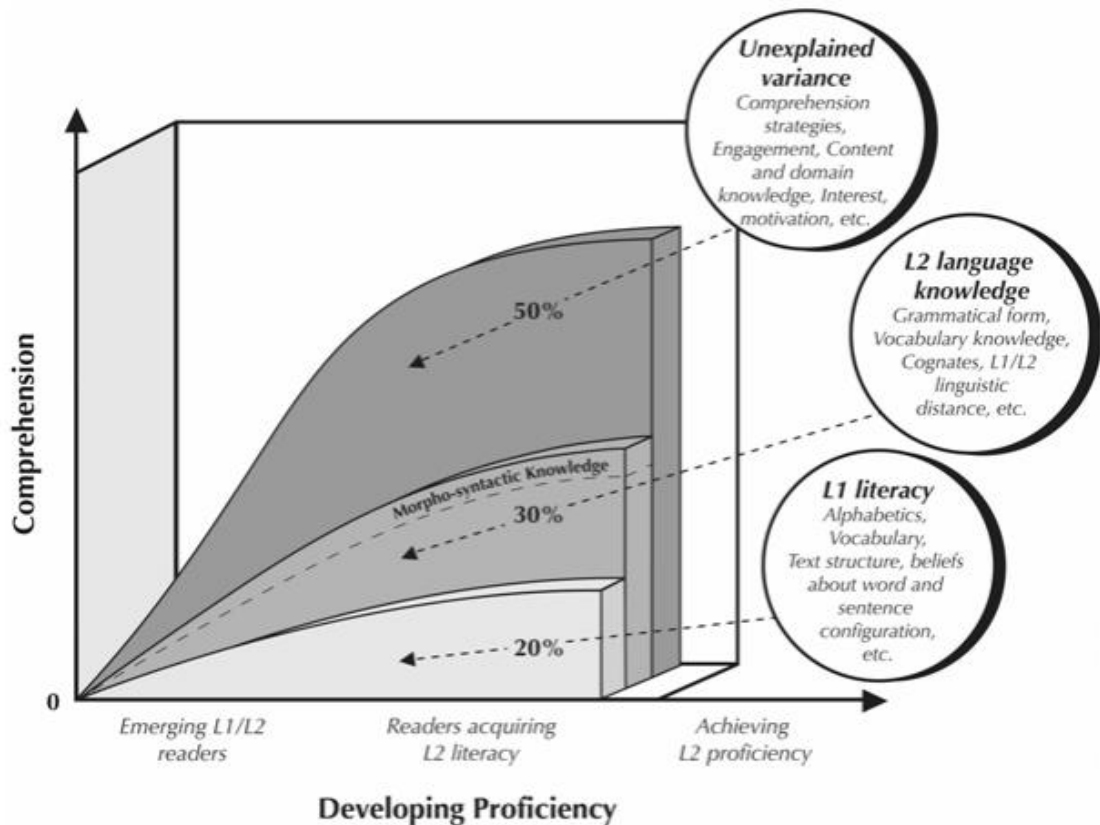
Unlike the L1 reading process, L2 learners, especially in an EFL context, start reading before they acquire a certain level of linguistic knowledge of L2. On the contrary a native English speaker starts reading at around the age of 6 with a vocabulary ranging from 5000 to 7000 words in addition to grammatical maturity (Grabe & Stoller, 2002).

After achieving the necessary foundation for fluency in reading, vocabulary, grammar and discourse knowledge become important for learners in order to both make use of their L1 reading skills and strategies and also develop a new set of strategies nurtured by several sources such as L1 and other cognitive resources. For the aforementioned reasons, it is not always safe to claim that the learners who are effective readers in L1 are likely to become successful readers in L2 unless they improve the entire matters particular to L2 reading (Cummins, 1976; Davis & Bistodeau, 1993; Grabe & Stoller, 2002).

Learners with limited L1 literacy are not likely to reach a certain level in L2 literacy (excluding the case of early bilingualism), because if one cannot make use of strategic practices, self-regulation or metacognitive awareness of reading processes, then it would be unreasonable to expect these skills develop in L2 reading. The competencies improve through experience (Grabe & Stoller, 2002) and they constitute a common underlying domain that runs on a reciprocal basis.

For reading fluency which is crucial for successful reading (namely, effective text processing), L2 orthography – word reading – must “be automatized through repeated exposure to written materials in L2” (Jung, 2009, p. 30). Fluent orthographic processing is considered critical for successful comprehension of texts, but especially for L1 learners with shallow orthography (in which the correspondence between letters and sounds is regular) difficulties arise when they begin to read in L2 with deep orthography (the *irregularity* of correspondence between letters and sounds) (Geva, 2006).





(Bernhardt, 2005, p.140)

Figure 8. The model of second language reading

This orthographic processing is part of the two cognitive parallel processing (L1 and L2 reading processing) aspects of L2 reading. Learning to read in another language is not adding a new aspect to an already existent system; on the contrary, it involves creating a new system of schemata that includes cultural, discursal and linguistic schemata such as rhetorical structure, writing style, and sentence and word structure (Yang, 2010). Brief information on the possible differences between L1 and L2 reading is given by Grabe and Stoller (2002) shown in Table 5.

As Yang (2010) suggests, L1 reading is acquired after mastering L1 whereas L2 reading is considered as a tool for mastering L2. Therefore the roles L1 and L2 reading play in this process also differ. This issue is also of substantial interest to scholars and has led to a debate on “whether L2 reading is a language problem or a reading problem” (Alderson, 1984; Wurr, 2003).

Table 5

*Differences between L1 and L2 Reading*

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*Linguistic and processing differences*

1. Differing amounts of lexical, grammatical and discourse knowledge at initial stages of L1 and L2 reading
2. Greater meta-linguistic and meta-cognitive awareness in L2 settings
3. Varying linguistic differences across any two languages
4. Varying L2 proficiencies as a foundation for L2 reading
5. Varying language transfer influences
6. Interacting influence of working with two languages

*Individual and experiential differences*

7. Differing levels of L1 reading abilities
8. Differing motivations for reading in the L2
9. Differing amounts of exposure to L2 reading
10. Differing kinds of texts in L2 contexts
11. Differing language resources for L2 readers

*Socio-cultural and instructional differences*

12. Differing socio-cultural backgrounds of L2 readers
  13. Differing ways of organizing discourse and texts
  14. Differing expectations of L2 educational institutions
- 

Departing from this reality, the conditions and difficulties vary with respect to L1 and L2 in terms of several facets such as social and educational expectations, cultural values and linguistic distance between two languages. Studies have shown that unless readers reach a certain level of proficiency in L2 they cannot apply L1 skills in L2 reading. Therefore, reading initially suggests “a language problem” more than “a reading problem”.

Similarly, Brisbois (1995) investigated the relationships of L1 reading, L2 vocabulary and L2 grammar to L2 reading with 131 native English-speaking learners of French. The results revealed that the upper-level learners who gained high scores on an L1 reading comprehension test gained high scores on an L2 reading comprehension test, as well, supporting Cummins’s (1979) Threshold Hypothesis that learners need to reach a certain level of proficiency in L2 in order to enjoy the advantages of L1 skills. Regression analysis in this case showed that for beginners, L2 vocabulary was the best predictor of L2 reading comprehension which was followed by L1 reading comprehension and then L2 grammar. As for upper-level learners, L1 reading comprehension was revealed to be the best

predictor, and then L2 vocabulary knowledge followed by L2 grammatical knowledge. The regression result for the upper-level group refers to the aforementioned fact that in applying to L1 skills successfully requires a particular level of achievement in L2. Another important finding of the study was that at both levels, L2 vocabulary knowledge was found to significantly promote reading comprehension to a greater extent than the grammatical knowledge.

Regarding the relationship of L2 reading skills to L1 skills and L2 proficiency Carrell (1991) conducted a study with two groups of participants at different proficiency levels: 45 Spanish and 75 English native speakers. Considering the Spanish group, L1 reading ability better predicted L2 reading ability than L2 proficiency. On the contrary, for the English group, L2 proficiency explained the greater amount of the variance. One possible explanation for the inconsistency could be the learning environment experienced by both groups of learner; namely, the Spanish group was in second-language setting whereas the English group did not benefit from this advantage. The researcher concluded that both factors, which should be emphasized at different levels of proficiency, held great importance for L2 reading ability.

In a similar study, Jiang (2011) explored the associations between L1 literacy, L2 proficiency and L2 reading comprehension with a total of 246 non-English-major undergraduate students at around the age of 18. The results of a correlation analysis revealed that the correlation between L2 proficiency and L1 literacy was quite similar to that of L2 proficiency and L2 reading comprehension suggesting that well-developed L1 literacy skills contribute to L2 proficiency and L2 reading comprehension. In addition, the results revealed that L2 proficiency predicts L2 reading better than L1 literacy. This result may be explained by the fact that L2 proficiency predicts L2 reading comprehension better than L1 reading skills when less proficient learners are in question. The reading comprehension test results indicated that the participants in this study were at lower levels of proficiency, and therefore, they tended to rely on L2 proficiency sources when dealing with L2 reading practice.

Likewise, Yamashita's (2002) study also addresses the threshold hypothesis (a particular level of proficiency in L2 is required in order to benefit from L1 skills) and the interdependence hypothesis (which proposes that there is a

reciprocal transfer between the learned languages). The study examined the effects of L1 reading ability and L2 proficiency on L2 reading ability. The results indicate that both L1 reading ability and L2 language proficiency promote L2 reading ability. Furthermore, when group differences were taken into consideration, L2 language proficiency recovered the weak aspects of low L1 reading ability. Likewise, L1 reading ability compensated for low L2 language proficiency. Furthermore, the results emphasized the importance of L2 language proficiency in addition to taking advantage of L1 resources such as promoting L1 reading ability through extensive reading and practicing reading strategies in L1, in order to develop stronger L2 reading skills.

Similarly, Asfaha, Beckman, Kurvers, and Kroon (2009) attempted to investigate the question of “whether L2 reading is a language problem or a reading problem” (Bernhardt & Kamil, 1995, p. 15). In addition to L1 reading comprehension and L2 language proficiency, the researchers examined the role of the L1 script and L1 language proficiency on L2 reading as well. A total of 254 fourth graders in a multilingual context (Eritrea) who had different language backgrounds participated in the study. Regression analysis revealed that L2 language proficiency and L1 reading comprehension significantly predicted L2 reading comprehension both of which explained 30% of the variance. The contribution of L2 language proficiency was larger.

Lee and Schallert (1997) deliberated on the same question through examining the role of L1 reading skills and L2 language proficiency on the L2 reading skills of 809 Korean middle and high school students. The results revealed that both L1 reading ability and L2 language proficiency contributed to L2 reading ability; however, L2 proficiency was stronger. Moreover, there was a weak correlation between less-proficient learners’ L1 and L2 reading ability, which suggested questioning the existence of a threshold. On the other hand, at higher levels of proficiency, the correlations were greater and significant, which indicated that proficient learners benefited from L1 reading abilities as well as L2 language proficiency. The study suggested that the L2 reading performance of proficient learners can be predicted through their L1 reading performance. The results further suggest that, in fact, there were two groups in terms of proficiency: a lower

level and a higher level. These two levels of proficiency exhibited diverse relationships between L1 and L2 reading.

Gebauer, Zaunbauer, and Möller (2013) investigated the cross-linguistic effect of L1 reading comprehension and fluency. The researchers sought to explore whether there is a reciprocal transfer between L1 and L2 reading comprehension with 220 elementary school students of an English immersion programme, to determine whether L1 reading comprehension predicts L2 reading comprehension; and at the same time, whether L2 reading comprehension predicts L1 reading comprehension. In addition, whether reading comprehension in L1 and L2 predicts reading fluency in both languages was also examined. Their structural equation modelling analysis revealed that L1 reading comprehension and L2 reading comprehension explained each other as a result of the immersion programme. Although the immersion students were exposed to a high level of L2 reading input, L1 reading comprehension still predicted L2 reading comprehension. Moreover, reading fluency in both languages was predicted by L1 and L2 reading comprehension separately, which suggests that reading comprehension and reading fluency share “language-specific and cross-language associations” (p.70-71).

The aforementioned studies all revealed quite similar results, emphasizing the importance of promoting L1 reading skills, as well as, L2 language proficiency, in order to develop L2 reading skills. Although neither L1 nor L2 reading skills are examined in this current study, they are worth mentioning in order to underline the importance of L1 language skills in practicing L2. In terms of reading habits, quite a few studies have addressed the cross-linguistic effect of L1 reading habits on L2 reading habits. One of these studies by Camiciottoli (2001) which focused on the cross-linguistic transfer of L1 reading habits through a questionnaire consisting several categories measuring reading frequency and attitude. A total of 182 Italian EFL students participated in the study. The results revealed that despite weak L2 reading habits, most of the participants exhibited positive L2 reading attitudes (41.8%), which was attributed to poor L1 reading habits, as well as the participants’ lack of access to L2 books. Furthermore, regression analysis revealed that the amount of L1 reading significantly predicted the frequency and the amount of L2 reading and attitudes towards L2 reading.

Ro and Chen (2014) carried out a similar study with 60 non-academic ESL learners of heterogeneous language backgrounds. Most of their participants were found to have a positive reading attitude and high reading frequency. However, a majority of the participants emphasized time-related reasons that limited their reading. Furthermore, the analysis revealed a positive correlation between L1 reading and L2 reading frequency, and most of the participants favoured the extrinsic values of reading. Overall, the study highlighted the importance of having well-developed L1 reading habits, given their effect on L2 reading habits.

Although both of these studies underscored the role of L1 reading habits in developing L2 reading habits, more research is required in order to ascertain the relationship between L1 and L2 reading habits and to understand in what aspects and how L1 reading habits influence L2 reading habits.

### **Reading motivation**

Motivation to read is considered as a principal component of reading in addition to reading competency, and its utilitarian and social aspects (Schutte & Malouff, 2007). In several studies (Schiefele et al., 2012; Schiefele, Stutz, & Schaffner, 2016; Stutz, Schaffner, & Schiefele, 2016; Wigfield & Guthrie, 1997), reading motivation was found to increase the amount and breadth of reading. Furthermore, those who have high motivation to read can be more persistent in dealing with challenging texts unlike those who are less motivated to read and have low reading efficacy (Kim, 2011).

Without motivation, even the most capable and skilful student “cannot become a reader” (Cambria & Guthrie, 2010, p. 16). Motivation is not necessarily be accompanied by enjoyment or excitement. Some enjoy reading, and engage in it because they like doing it, while others read although they do not enjoy, because they think it is consequential. Some readers also read for both reasons. The motivating factors may or may not be related to each other, and this does not hinder the process namely a student does not need to have every motivational construct in order to read. However, without efficacy, some degree of avoidance may interfere with the process, as “people like the things they do well” (Cambria & Guthrie, 2010, p. 17).

Compared to a number of studies that address children's reading motivation, little research has been dedicated to adult reading motivation. The existing studies propose several dimensions of reading motivation, and although some of these are particular to certain age groups, most of them overlap each other; and compared to the voluminous research on language learning motivation, L2 skill-specific motivation has drawn scant attention. As such, L2 skill-specific motivation should be addressed in detail in addition to general language learning motivation because those who are not motivated in a certain skill may be motivated in other areas (Kim, 2011). Although motivation does not always lead to action, like in almost all behaviours, it is considered the main component in reading engagement, because strong cognitive skills may not be enough for the readers to devote time to reading if they are not motivated to read (Wigfield, Guthrie, Tonks, & Perencevich, 2004). In this sense, researchers aspire to determine the motivational constructs regarding reading and which can better predict reading behaviour.

In relation to developing strong and positive L2 and L1 reading motivation and attitudes, factors such as L1 reading motivation and attitudes (Akbari, Ghonsooly, Ghazanfari, & Shahriari, 2017), L2 reading proficiency, L2 reading material, learner autonomy, and time (Briggs, Walter, & Briggs, 2016) are considered important.

As is the case in any area, motivation is a crucial part of engaging in a task, and the same is true for reading. Although numerous studies have been dedicated to language learning motivation (Noels, 2001) after Gardner and Lambert (1959), reading motivation has sparked very little attention among L2 researchers (Komiya, 2013; Mori, 2002).

Reading motivation gained more attention, particularly with respect to L1 reading, with Guthrie and Wigfield's studies (1995, 1997). They argued that the concept of motivation is domain-specific; a learner may be motivated in one skill but may not be motivated in other (Wigfield, Guthrie, Tonk & Perencevich, 2004). Although Wigfield and Guthrie primarily deal with L1 reading motivation in children, they have contributed significantly to the research with their reading motivation questionnaire for children. The researchers developed several dimensions based on the literature, including general motivation, as well as reading attitudes and

motivation in particular. In addition, the researchers also made use of interview data taken from a small group of children. Their scale consists of 11 dimensions: “reading efficacy”, “reading the challenge”, “reading curiosity”, “reading involvement”, “the importance of reading”, “recognition for reading”, “reading for grades”, “social reasons for reading”, “competition in reading”, “compliance”, “reading work avoidance” (Wigfield & Guthrie, 1997). These dimensions fall under broader motivational categories such as “reading efficacy” and “reading challenge” refers to “efficacy”, whereas “reading curiosity, reading involvement and importance of reading” are related to intrinsic motivation despite slight differences in their definitions (Wigfield & Guthrie, 1995). The researchers further revealed that although girls read more and exhibited a more positive attitude towards reading the difference between genders was not significant. Besides, reading motivation and amount of reading were significantly correlated. Among these dimensions, they outlined “social reasons for reading”, “reading efficacy”, “curiosity”, “reading involvement”, “recognition”, “reading for grades”, and “reading importance” exhibited higher correlations to amount of reading.

Similarly, Schutte & Malouff (2007) contributed to the field by focusing on adult reading motivation. They argued that, although there are some factors affecting children’s reading motivation that also affect adult reading motivation, there are some distinctive dimensions specific to adults, such as intrinsic motivation and self-regulation. With this in mind, they proposed an instrument designed for adult L1 readers: “The Motivation for Reading Scale”. Drawing from motivational theories and the children’s “Motivation for Reading Questionnaire” (Wigfield & Guthrie, 1997c), this scale was designed to explain L1 reading motivation according to four factors:

(1) “Reading as part of self” involves “the importance of being a reader” which has intrinsic roots.

(2) “Reading efficacy” defines the readers’ potential power to manage difficulties in reading.

(3) “Reading for recognition”, unlike “reading as part of self”, focuses on external factors that push readers to read, such as being recognized by others as a reader.



(4) “Reading to do well in other realms” measures readers’ concentration on reading as a tool to achieve in other areas.

These dimensions range from intrinsic to extrinsic motivation and differ from those defining children’s reading motivation. In this respect, Mori (2002) proposed an L2 reading motivation scale for adults in an EFL context (in Japan). Mori (2002)’s model explained L2 reading motivation slightly differently from that of Schutte & Malouff (2007)’s which was designed for L1 adult readers. The items were based on Wigfield and Guthrie’s “Motivation for Reading Questionnaire” for children and “Gardner’s socio-educational model of motivation”. The scale consists of four dimensions:

- (1) “The intrinsic value of reading”
- (2) “The extrinsic utility value of reading”
- (3) “Importance of reading”
- (4) “Reading efficacy”

Two of these factors “extrinsic utility value of reading” and “importance of reading” reflect the EFL nature of the scale with respect to the concerns such as better job opportunities, better education and other advantages for successful L2 learners that are particular to L2 readers.

Another reading motivation scale for adult L2 readers, “The Foreign Language Reading Attitudes and Motivation Scale (FLRAMS)”, was developed by Erten, Topkaya, and Karakas (2010). Rather than developing a model based on existing motivational theories, the researchers built a new reading motivation theory in the EFL context. The new model suggested four factors relating to reading motivation;

- (1) “The intrinsic value of reading”,
- (2) “Reading efficacy”
- (3) “The extrinsic utility value of reading” and
- (4) “Foreign language linguistic utility”

Their results showed that certain specific patterns overlap with previous models. For example, “*reading efficacy*” was found to be a major component in

other studies (Mori, 2002; Yamashita, 2004). Likewise, the “*extrinsic utility value of reading*” is related to previous motivation theories of instrumental motivation and expectancy-value theory which describes motivated behaviour that is stimulated by favourable outcomes. The study indicated that “*extrinsic utility value of reading*” is an independent factor in this study.

Another point that is emphasized in relation to reading motivation scales is that motivation is domain specific and exhibits differences regarding age and social context. Although the scales developed for adults and children, and for L1 and L2 readers share some common theories, the definition and interpretation drawn from these theories differ between these specialized reading motivation scales.

Several studies in this regard have attempted to identify the language specific reading motivational dispositions of readers. The existing studies on L2 reading motivation in various contexts have yielded converging findings with a great many of them indicating that instrumental reading motivation was the most highly endorsed dimension regarding L2 reading among L2 learners. In this respect, Erten et al. (2010) found that “foreign language linguistic utility” was the most highly endorsed L2 reading motivational dimension among language-major students (M=4.46) followed by intrinsic (M=4.08) and extrinsic (M=4.00) reading motivation. Similarly, Ölmez (2015) who employed the same motivation scale (FLRAMS) found that the “foreign language linguistic utility” (M=4.56) was favoured more highly than other dimensions by English-majors. In this study, extrinsic reading motivation (M=4.34) was found to be more strongly endorsed than intrinsic reading motivation (M=4.19) in L2 reading. In another study conducted with English-major students, Özönder (2015), who also worked with the FLRAMS, the dimensions followed the same sequence as Ölmez’s study (2015): “foreign language linguistic utility” (M=4.50) was the most highly scored dimension followed by extrinsic (M= 4.37) and then intrinsic (M=4.12) reading motivation. Likewise, in Kim’s (2011) study which employed a similar questionnaire, instrumental reading motivation and extrinsic reading motivation were revealed to be the most highly scored dimensions by non-language-major students.

Although a large amount of research has focused on reading motivation, few studies have reported the most highly endorsed motivational dimensions

regarding the L1 reading motivation of adults. Among the existing studies, Schutte and Malouff's (2007) work revealed that adult L1 readers were mostly intrinsically motivated to read in L1. Similarly, in Yıldız et al.'s (2013) study which adapted Schutte and Malouff's (2007) reading motivation scale for adult L1 readers, intrinsic reading motivation was found to be the most highly favoured motivational dimension by L1 readers.

In this respect, the research on L1 and L2 reading motivation has revealed certain patterns. For example, L1 reading motivation is likely to be driven by intrinsic reading motivation whereas L2 reading motivation is dominated by instrumental reading motivation which reflects the objectives of reading in different languages. It is quite natural for L2 learners to read for instrumental reasons in L2, as they may consider L2 reading as a source of L2 context. On the other hand, they may prefer enjoying self-fulfilment in L1 reading in which they have almost full command of the language. However, instrumental motivation by itself cannot be productive in the long run unless it is accompanied by intrinsic motivation (Gambrell & Marinak, 1997), which has been proven to be the most influential dimension with regard to behavioural outcomes. In pursuit of the most effective motivational dimension to provide certain behavioural outcomes, the studies suggest that although none of the motivation types are superior to the others, intrinsic motivation may be promoted, because intrinsically motivated learners are "deeply involved in their activity and devote much time and energy to it" (Wigfield et al., 2004, p. 301). In other words, long-term engagement in reading requires intrinsic motivation. Moreover, different aspects of motivation can function together and affect each other. In this sense, those who are intrinsically motivated tend to have high reading efficacy which is considered as an important impetus for reading and a significant predictor as well. Accordingly, several studies indicate that intrinsic reading motivation significantly predicts reading amount and reading comprehension (Akbari et al., 2017; Becker, McElvany, & Kortenbruck, 2010; De Naeghel, Van Keer, Vansteenkiste, & Rosseel, 2012; Guthrie et al., 1999; Miyamoto, Pfoest, & Artelt, 2018; Soemer & Schiefele, 2018; Stutz, Schaffner, & Schiefele, 2016) and extrinsic reading motivation is negatively connected with reading amount and reading comprehension (Becker et al., 2010; Stutz et al., 2016).

Overall, the studies devoted to exploring reading motivation have one core objective: to find ways to stimulate positive and constant reading behaviours, or in other words to instil good reading habits.

Habit has been defined as a default pattern of behaviour that is nurtured by repeating (Iftanti, 2012); habits are performed constantly and regularly. In this respect, good reading habits denote a large amount of regular reading practice; this contributes greatly to L2 reader's language development, and to vocabulary, in particular.

Certain factors have been cited as affecting the development of reading habits, including gender (Scales & Rhee, 2001), peer and school context (Tse & Xiao, 2014), decoding abilities (Abou-Elsaad, Ali & Abd El-Hamid, 2015), classroom practices (Wigfield, Guthrie & Vonsecker, 2000), access to print materials (McQuillan & Au, 2001) and L1 reading behaviour (Pichette et al, 2003). In essence, these variables have a primary impact on reading motivation, which results in related behaviours. In terms of reading, research indicates that there is a dual relationship between reading amount and reading motivation: highly motivated learners read more, and learners who are engaged in more reading become more motivated towards reading (Guthrie et al., 2004; Schaffner, Schiefele, & Ulferts, 2013; Wigfield & Guthrie, 1997). Although this is not conclusive in all cases, action and motivation feed each other, and the research reveals that students tend to develop positive attitudes as the amount of reading increases (Yamashita, 2013). As such, extensive reading activities that emphasize personal interests and pleasure strengthen positive attitudes toward reading (Day & Bamford, 1998; Grabe, 2009; Richards & Schmidt, 2002), as well as "improv[ing] abilities and skills, [and] providing learners with solid linguistic and cognitive resources to help them read more demanding texts" (Yamashita, 2013, p. 251).

Several studies have reported reading motivation as a prominent predictor of reading habits (Guthrie, Wigfield, & VonSecker, 2000; Wigfield & Guthrie, 1997). In Guthrie et al.'s study (2000), for instance, it is suggested that reading comprehension is identified by reading motivation. In other words, motivation increases reading amount, and a greater reading amount increases text comprehension. This relationship can be explained in two aspects. First, learners who spend more time on reading expand their knowledge, which enables them to

comprehend texts more readily. Second, learners who engage with reading more often are more likely to be more fluent in using the cognitive strategies that are required in reading comprehension.

A quasi-experimental study by Guthrie et al. (1999) consisted of two parts and attempted to explore the influence of the instructional process on reading achievement with third, fifth, eighth and tenth-grade students. The initial phase was carried out with third and fifth graders who took two text comprehension tests, as well as measures of reading amount, reading motivation, past achievement and reading efficacy. The results of this phase showed that reading amount significantly explained text comprehension. Moreover, reading motivation also significantly predicted reading amount. In the second study, the same variables were investigated among eighth and tenth graders. Quite similarly, the results indicated that reading amount was found to be a significant predictor of text comprehension and motivation was found to be the strongest predictor of reading amount. As for other variables, past achievement explained neither reading amount nor self-efficacy. On the other hand, when reading motivation was examined in terms of its sub-dimensions, intrinsic motivation was recorded as the major contributor to the prediction of reading amount.

In another instance, De Naeghel, Van Keer, Vansteenkiste and Rosseel (2012) investigated the relationships between “reading motivation”, “reading self-concept”, “reading engagement” “reading frequency” and “reading comprehension”. Reading comprehension was evaluated with a standardized test, and reading engagement was measured through teachers’ evaluations based on given criteria. Reading frequency was determined via a questionnaire consisting of four items and conducted with 1,260 fifth-grade students and their 67 teachers. Structural equation modelling analysis showed that recreational autonomous reading motivation was connected with higher reading engagement and frequency and better reading comprehension. The study underlines the importance of instilling in students recreational autonomous reading motivation, which is a form of intrinsic reading motivation, in order to ensure L2 reading achievement.

McKool and Gespass (2009) handled the issue from a different aspect focusing on teachers’ reading motivation and habits as a factor affecting classroom practices, as well as students’ reading motivation and habits. Sixty-five

elementary school teachers whose average experience was around 10 years were surveyed. The teachers completed a three-day after-school activity log, and some of them were interviewed. According to the results, most of the teachers asserted that they valued reading, but few of them conveyed that they dedicated time to reading for more than 10 minutes a day. On the other hand, the teachers who read more than 30 minutes per day for pleasure employed different classroom practices such as applying “guided reading lessons”, conducting “literature circles”, stimulating “comprehension discussions”, engaging students with “silent reading”, “sharing their own personal reading”, and “suggesting books to students” (p.269). These teachers considered reading “a socially constructed activity” and created an environment for students in which they can talk about the books they read. In addition an interesting finding in relation to the reading habits of teachers was that the teachers who read for less than 45 minutes preferred extrinsic rewards to motivate students to read while those who read more employed intrinsic rewards.

In another study, Stutz, Schaffner and Schiefele (2016b) examined the interplay between intrinsic and extrinsic reading motivation, reading amount and reading comprehension. The participants were 1053 elementary students from several schools. Reading motivation was assessed through the “Reading Motivation Questionnaire for Elementary Students (RMQ-E)” developed by Stutz, Schaffner and Schiefele (2016a) to measure the dimensions of the intrinsic and extrinsic reading motivation of elementary school children. The participants’ reading amount was measured through a 3-item questionnaire. As for reading comprehension, the participants took a “German standardized reading comprehension test designed for Grades 1–6”, which consisted of three subtests: “word comprehension, sentence comprehension, and text comprehension”. The socioeconomic status of the parents was also determined via a questionnaire. In addition, the “Digit Symbol Substitution subtest” from the “Wechsler Intelligence Scale for Children” (Petermann & Petermann, 2011) was employed to measure the cognitive abilities of the participants. According to the results, the girls were found to be higher achiever on the Digit Symbol Substitution test than the boys, which suggests that girls exhibited higher cognitive ability, as supported by the results of the previous studies. Likewise, girls’ reading amount scores were higher than that of the boys’. On the other hand the boys appeared to be more

competitively motivated than the girls; and although the girls showed higher cognitive ability and reading amount, they did not outscore boys on a reading comprehension test which indicates insignificant gender effect in comprehension in line with previous studies. Moreover, inter-correlations exhibited that socioeconomic status and cognitive ability had positive relationships to the measures of reading comprehension. In this regard, socioeconomic status was positively correlated with the reading amount, but negatively correlated with “competition oriented reading motivation”. The students in the third grade gained higher scores in reading comprehension than students in the second grade, and reading amount and reading comprehension was identified by intrinsic reading motivation. On the other hand, competition-oriented reading motivation was insignificantly correlated with reading amount and reading comprehension. Additionally, reading amount was found to be a significant predictor of all elements of reading comprehension. In SEM analysis, two models were tested. The analysis of the first model revealed that involvement strongly and positively explained reading amount, which predicted reading comprehension, as well. However, competition did not explain reading amount, and in turn reading comprehension, but it did exhibit a significant direct negative association with reading comprehension. Socioeconomic status, cognitive ability, grade level and gender predicted reading comprehension, but they did not explain reading amount. In this sense, the results suggest that the students at higher grades with higher cognitive ability and socioeconomic status were more successful at reading comprehension.

The researchers then tested a second model to establish whether reading amount and reading comprehension were the result of motivation and the control variables of grade, gender, socioeconomic status and cognitive ability or the level of prior comprehension ability. Furthermore, the indirect influence of involvement on text comprehension was found to be significant. Similarly, competition was found to significantly, directly and negatively predicted text comprehension. Overall, the results suggest that involvement or in other words intrinsic reading motivation significantly predicted reading comprehension which was mediated through reading amount. In addition, extrinsic motivation was directly but negatively associated with reading comprehension.

From another perspective, Becker, McElvany and Kortenbruck (2010) examined the longitudinal relationship between reading motivation and literacy development with 740 students from 22 elementary schools tracking the participants from Grade 3 to Grade 6. Their reading comprehension and vocabulary development were measured through standardized tests, and a reading motivation measure was developed by the researchers consisting of two main factors of intrinsic and extrinsic motivation under each of which were three sub-factors. Student self-reports and parent questionnaires were also employed to measure the participants' reading amount. Structural equation modelling analysis revealed that reading amount mediated the relationship between intrinsic reading motivation and later reading literacy. Moreover, Grade 4 extrinsic reading motivation negatively correlated with Grade 4 extrinsic motivation and Grade 6 reading literacy, while Grade 4 reading amount predicted Grade 6 reading literacy. The students with high extrinsic motivation revealed lower amounts of reading, and in turn lower reading literacy later on. The results emphasize that extrinsic motivation was negatively associated with reading amount and reading literacy. Similarly, Grade 3 reading literacy negatively predicted extrinsic motivation and positively predicted intrinsic motivation. Overall, intrinsic reading motivation positively and significantly predicted reading literacy and this relationship was mediated by reading amount, which stays stable throughout the process from Grade 3 to Grade 6.

Another longitudinal study was conducted by Miyamoto, Pfof and Artelt (2018) in order to track the progress of the intrinsic reading motivation, reading amount and competence of 4,619 students from grade 5 to grade 7. The results revealed that reading amount mediated the reciprocal relationship between intrinsic motivation and reading competence for native students. This reciprocal relationship was not found in an immigrant group, in other words, intrinsic motivation did not influence immigrant students' reading competence. The researchers explained this as based on the skill-development model that advocates that intrinsic reading motivation is a result of reading competence rather than vice versa. However, considering the mediating role of reading amount, intrinsic reading motivation had a small but significant indirect effect on reading



competence. Therefore, it was suggested that intrinsic reading motivation plays some role in the reading competence of immigrant students' as well.

The aforementioned studies converge on the fact that in the pursuit of the most influential motivational dimension with respect to developing and retaining good reading habits and ensuring successful reading comprehension, intrinsic reading motivation stands as the best option to trigger and sustain the behaviour, and as the most enduring motivational source in the long run. Extensive reading can be employed as an effective tool to develop good reading habits of learners.

### **Cross-linguistic transfer of L1 reading motivation**

Despite a vast amount of research on transfer from L1 to L2, most of the existing studies are dedicated to linguistic aspects and very few of them address the transfer of affective aspects. As with reading, a skill that shares a common underlying domain, reading motivation acts in a similar way. At first, it seems reasonable to propose that if an individual is a good and motivated reader in L1, it is likely that he/she would be a dedicated reader in L2, as well. However, this case does not depict the entirety of L1 and L2 reading, because the context in which the reading is learned, experienced and practised in L1 versus L2 can be completely different in many cases. Similarly, motivation, self-efficacy and involvement underlying L1 and L2 reading also differ to a great extent (Grabe & Stoller, 2002). Varying levels of education, family and social environments, personal goals and other issues lead to different motivations.

Although research in this arena is scarce, some of the existing studies have determined that, in addition to the cognitive domain, L1 transfer takes place in the affective domain as well (Day & Bamford, 1998), and reading motivation and attitudes in L1 each constitute an important source of L2 reading motivation and attitude. Several studies in this regard have revealed that L1 reading attitude influences L2 reading attitude to a greater extent (Kamhi-Stein, 2003; Yamashita, 2004, 2007), while some research also suggests that L1 reading attitudes significantly linked to L2 reading attitudes (Juhee Lee & Schallert, 2014; Yamashita, 2004, 2007).

Yamashita (2004), for instance, investigated the relationship between L1 and L2 reading attitudes, in addition to L2 proficiency and L2 extensive reading

performance with the participation of 59 university students. The researcher developed a reading attitude instrument to measure learners' reading attitude in L1 and L2. In this respect, "comfort", "anxiety", "value", and "self-perception" were identified as dimensions of reading attitude. The dimensions were further classified as cognitive (value and self-perception) and affective (comfort and anxiety). The correlation analysis revealed that Comfort and Anxiety were negatively correlated with L1 and L2 reading attitude, and that "self-perception" correlated with "comfort" in L1 and L2. One more significant but weak negative correlation occurred between "self-perception" and "anxiety" in L1. These results suggest that reading attitude or affective transfer occurs between languages. The results further imply that L2 proficiency does not affect the transfer process which may be due to the fact that the transfer process differs in consideration of the cognitive and affective aspects of reading, as these domains "relate differently in L1 and L2" (2004, p. 1). Moreover, the results indicated that a positive reading attitude in both L1 and L2 increased learners' reading performance, while the study further suggests that "there is a transfer of reading attitudes, [and] EFL learners' positive feeling towards L2 reading is likely to originate, at least to some extent, from their positive attitude towards L1 reading" (2004, p. 15).

In another study, Yamashita (2007) dealt with the linguistic threshold hypothesis from a different perspective. This study focused on the role of linguistic threshold on affective aspects by focusing on the transfer of L1 and L2 reading attitudes. The reading attitudes of 291 university students in L1 and L2 were measured through a scale and L2 proficiency was assessed via a test. The students were placed in three groups according to their proficiency levels. The students had more positive L1 reading attitudes than L2 reading attitudes which were explained by the difficulties students faced in L2 reading. Furthermore, L1 reading attitudes contributed to L2 reading attitudes more strongly than L2 proficiency. For the group differences, ANOVA results showed that L1 reading attitude did not increase at higher levels of L2 proficiency. Overall, the study highlighted the cross-linguistic transfer of L1 reading attitudes to L2; however, as L2 proficiency did not play a significant role in relation to attitudes, the threshold hypothesis seems not to relate to the transfer of L1 reading attitudes.

Considering L2 reading motivation, the results of the studies examining the cross-linguistic transfer of L1 reading motivation revealed similar results to those of L2 reading attitudes. Kim (2011), for instance, attempted to determine the factors that motivate EFL learners to read. Furthermore, the study focused on the relationships between L1 and L2 reading motivation with respect to the role of academic majors and L2 reading proficiency with a total of 259 Korean EFL English non-major university students. The results showed that for L2 reading motivation, “learning goal-oriented motivation” and “utility value of L2 reading” gained the highest scores, with reference to instrumental motivation and extrinsic motivation types. In terms of L1 reading motivation, on the other hand, “utility value” and “information-related motivation” gained the highest scores. Both “utility value” and “learning goal-oriented motivation” reflect L2 reading motivation. This result also indicates that learners read for practical reasons rather than intrinsic motivation. For L1 reading motivation, aside from goal-oriented reasons, the participants’ information-related motivation indicated an intrinsic motivation toward reading. Furthermore, the low-achieving English-majors were found to be motivated to read for utility value related reasons whereas the high-achieving English-majors and non-English majors favoured intrinsic motivation. This suggests that proficiency levels affect motivation; however, there was an insignificant difference between the groups. Moreover, the positive and statistically significant correlation between the L1 and L2 reading motivation scales indicated a cross-linguistic transfer of L1 reading motivation characteristics. In this sense, L1 reading motivation explained 16.7% of the variance in L2 reading motivation which underscores the importance of L1 reading motivation in L2 reading achievement. The researcher further emphasized that “students should not be regarded simply as either motivated or unmotivated to read in the L2. Instead, they are motivated to read for purposes related to their motivation to read L1 and reading proficiency in the L2” (p. 878).

Similarly, Akbari, Ghonsooly, Ghazanfari and Shahriari (2017) dealt with the association between L1 and L2 reading attitudes and L2 reading achievement. A total of 230 Iranian EFL learners at the intermediate level participated in the study. L1 reading was found to be strongly correlated with and L2 reading attitudes ( $R=.71$ ), and regression analysis supported this relationship as well. In this case,

L1 reading attitude explained the 51% of the variance in L2 reading attitudes. In addition, only L2 reading attitudes predicted L2 reading achievement. Aside from the importance of developing strong and positive L2 reading attitudes, the researchers acknowledged the importance of L1 reading attitudes for L2 reading achievement.

Contrary to the aforementioned studies, Takase (2007) found an insignificant relationship between L1 and L2 reading motivation, which was measured through two different questionnaires gathered from 219 high school students. An extensive reading program of 11 months was prepared. The results showed that the amount of reading that the participants did in L1 and L2 on the basis of word tokens during the 11-month extensive reading period significantly correlated with the post Secondary Language English Proficiency test scores. Furthermore, L1 and L2 intrinsic reading motivation were found to be the two most prominent predictors of reading amount in both languages. Furthermore, the results demonstrated an insignificant relationship between L1 and L2 reading motivation, which implies that the students had different abilities in both languages, as well as different motivations as a result of their experiences.

Despite the limited amount of research on the transferability of affective aspects of L1 reading, the studies deliberated on above indicate that L2 reading motivation can be initiated by and fostered through L1 reading motivation. However, language proficiency and other factors influencing reading motivation in L1 and L2 are likewise important.

## **Summary**

In light of the aforementioned research, certain points should be summarized considering the predictors of vocabulary knowledge addressed in the current study. Despite the scarcity of research on the topic, the non-linguistics aspects and size of L1 vocabulary knowledge appear to play a significant role in L2 vocabulary knowledge development. Moreover, apart from the vast amount of research on the transferability of linguistic aspects of L1 vocabulary knowledge, the studies regarding language learning aptitude and bilingual language development highlight the fact that a well developed and rich L1 vocabulary can be

an indicator of L2 vocabulary development. In this sense, very few studies have investigated L1 vocabulary size as a predictor of L2 vocabulary size.

On the other hand, L1 reading skills have drawn somewhat greater attention from researchers than L1 vocabulary size. Along with L2 language proficiency, the research indicates that L1 reading skills are potential predictors of L2 reading skills, in other words, the two languages concurrently operate L2 reading process. Similarly, the affective aspects of L1 cannot be disregarded in L2 learning, and L1 reading motivation is no exception. The literature acknowledges that motivation plays one of the critical roles in every facet of L2 learning, and therefore, it has been widely studied. The existing research, some of which is deliberated above, asserts that motivation is domain-specific, and therefore, reading motivation should be handled independently from general language learning motivation. However, focusing on L2 reading motivation as a domain-specific issue should not disregard the effects of general language learning motivation and L1 reading motivation on L2 reading. Compared to L1 reading skills, the effect of L1 reading motivation on L2 reading has been scarcely studied. Nevertheless, the research that does exist points the transferability of L1 affective aspects to the L2 reading process.

As an outcome of reading motivation, according to the results of the relevant studies, reading habits, or more specifically, extensive reading, still plays a critical role in developing L2 vocabulary. In addition, parallel to the aforementioned implications regarding cross-linguistic transfer, L1 reading habits act as a prominent agent in developing L2 reading habits. Overall, the studies indicate that reading motivation is a significant predictor of reading competence and this relationship is mediated through reading amount; namely, through extensive reading. Although learners may have different motives to read in different languages, L1 reading habits can initiate and foster L2 reading habits. Longitudinal studies also suggest that reading habits can predict later reading competence as well. The relationship between reading habits and reading motivation has been determined to be reciprocal: not only do learners who are motivated to read in L2 read extensively, but also, those who participate in extensive reading for certain periods develop positive attitudes, and in turn motivation towards reading.

All of the implications summarized above emphasize the importance of L1 skills (reading habits and vocabulary size, in particular, within the scope of this study) and the relevant affective orientations as non-negligible factors in L2 learning.

## **Chapter 3**

### **Methodology**

This chapter involves the research methodology employed in this study. It presents the research questions, setting, sampling, participants, instruments, and procedures for data collection and data analysis. A survey research design provided a methodological and theoretical framework for the guidance and implementation. Several measures were used to form a model that attempts to determine the best predictors of L2 vocabulary: L2 motivation, L2 reading habits, L1 vocabulary, L1 reading motivation and L1 reading habits.

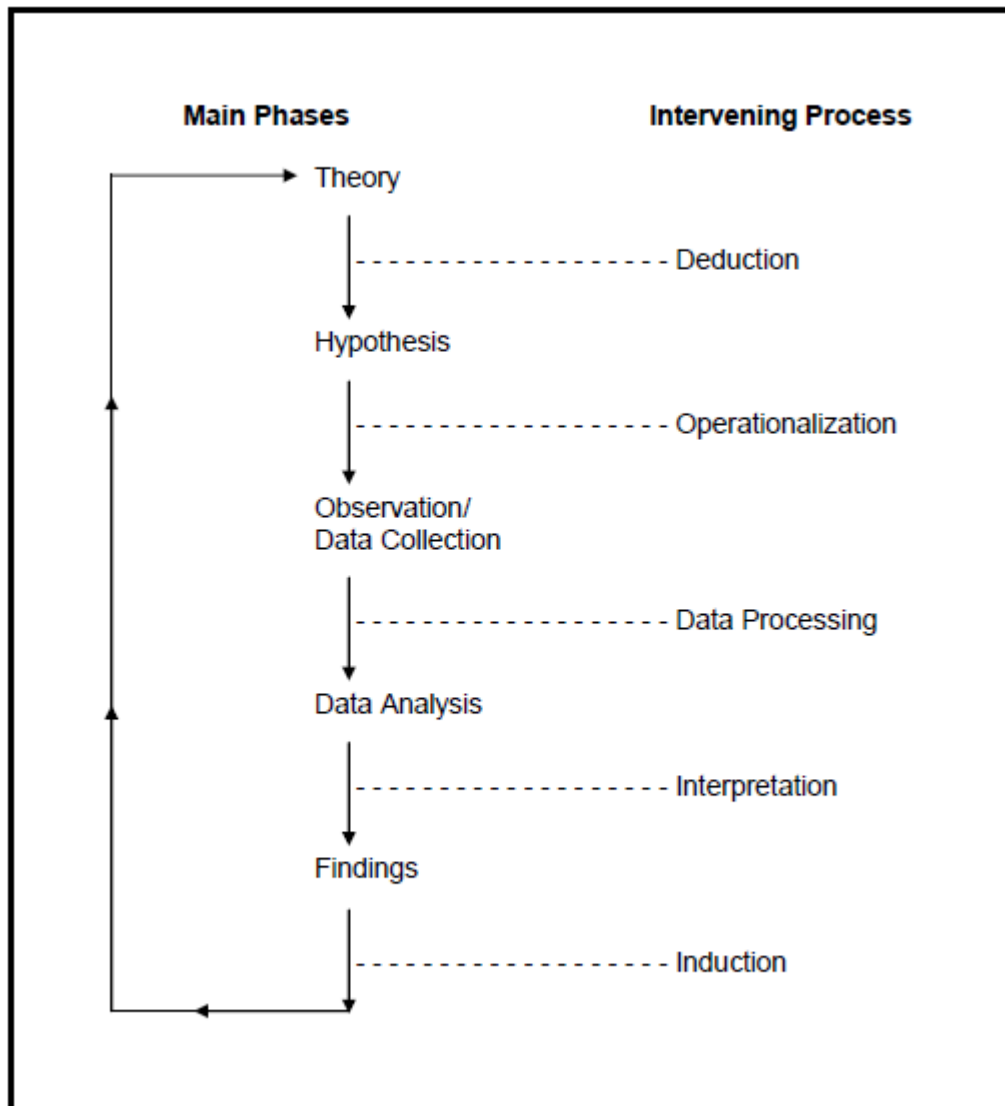
#### **The nature of quantitative research**

This study adopts a quantitative research design, as it is best suited to address the aim of the study and the research questions. The quantitative nature of this study allows for collecting a substantial amount of data from a large number of populations in order to develop a theoretical model of previously identified variables.

Quantitative research involves the first step toward formulating a *theory*, that is, an “explanation about some facet of reality” (Bryman, 1989, p. 4). The objective is to test the theory; therefore, a deductive way of thinking drives the study (Creswell, 2009). Certain hypotheses are tested via the concepts that comprise them. These are translated into measures; namely, they go through the process of *operationalization*. They are also called *variables*. This operationalization process can be achieved in several different ways. However, no matter what approach is followed, no measure can be a perfect representation of a concept in question, as “each will have its own limitations” (Bryman, 1989, p. 5).

To this end, researchers take some considerations into account regarding reliability and validity. In this sense, hypotheses are preoccupied with *causal effects* between the independent and dependent variable. The ability to establish cause-and-effect relationships is apparent in experimental research because researchers can manipulate the independent variable and observe the related changes. However, in survey research, this cause and effect relationship needs to be inferred.

The third characteristic of quantitative research is *generalization*, which is not a concern for qualitative researchers. Quantitative researchers, on the other hand, look for “the law-like findings” that can be generalized to a larger population (Bryman, 1989, p. 7). Other concern in quantitative research is *replication*, or a way of verifying the results through employing the same research design and measurement procedures.



(Bryman, 1988, p.20)

Figure 9. The logical structure of the quantitative research process

### Survey research design

With the aim of making generalizations from a sample to the target population a survey research design which provides researchers with the economy



of time and feasibility of data collection from large samples was adopted (Creswell, 2009). A survey research design involves “collecting systematically a body of quantifiable data” from “a number of units” who are considered as representative of the wider target population regarding variables and analyzing “the co-variation that exists between the variables” (Bryman, 1989, p. 87). In other words, it investigates “patterns of relationship between the variables” (Bryman, 1989, p. 22), primarily in order to develop a quantitative representation and “test theories or hypotheses” (Bryman, 1988, p. 11), through collecting “information about the same variables or characteristics from at least two (normally far more) cases to end up with a data grid” (De Vaus, 2002, p. 2).

The data in quantitative studies are collected mainly through structured interviews or questionnaires, but other data collection techniques such as “in-depth interviews”, “observations” and “content analysis” can also be employed in survey research (De Vaus, 2002). In this study, the data were collected by means of questionnaires, scales and achievement tests.

### **Pilot Study**

Before the main study, which attempted to test four structural models that were designed to test the predictors of L2 vocabulary with a set of linguistic and affective variables, a pilot study was conducted in order to eliminate the potential problems regarding the instruments and procedures. The data collection procedure was observed and the reliability of the instruments was tested. Then, according to the findings from the pilot study, the necessary adjustments were implemented for the main study.

**Aims of the Pilot Study.** The instruments and procedures intended for use in the main study were piloted prior to the implementation in order to identify possible problems with the instruments or procedures.

**Setting and participants.** The pilot study was performed at two state universities, in the second semester of the 2016-2017 academic years. A total of 162 university students participated in the pilot study, of whom 105 (64.8%) were male and 34 (21%) were female; only 23 (14.2%) participants did not specify any gender information. Of these 162 students, 92 (56.8%) were from a Maritime Faculty Preparatory Class, 36 (22.2%) were from an ELL Preparatory Class, and

34 (21%) were freshmen from the department of ELL. Although the ages of the participants ranged from 18 to 29, the mean age was 19 (SD=1.68). The demographic information of the participants is displayed in Table 6.

Table 6

*Demographic Information of the Participants in the Pilot Study*

Variables		N	%
Age	18,00	29	17.9
	19,00	46	28.4
	20,00	28	17.3
	21,00	10	6.2
	22,00	3	1.9
	23,00	3	1.9
	24,00	1	.6
	28,00	1	.6
	29,00	1	.6
	Missing	40	24.7
Total	162	100	
Gender	Male	105	64.8
	Female	34	21.0
	Missing	23	14.2
	Total	162	100
Department and class	Maritime Prep Class	92	56.8
	English Language and Literature Prep Class	36	22.2
	English Language and Teaching Freshmen	34	21.0
	Total	162	100

**Data Collection.** The data were collected during class time. There was no time constraint for the sessions. The matching of the instruments was ensured through the participants' use of nicknames. After obtaining approval from the

principles of the colleges, the tests were administered to the participants over four sessions in order to prevent the testing burnout with a 2- to 4-day break between the sessions. The tests were conducted following a specific sequence:

Table 7

*Data Collection Instruments and Timeline of the Pilot Study*

---

<i>Session I</i>
L1 Reading Motivation Scale and Reading Habits Questionnaire
<i>Session II</i>
The Turkish Vocabulary Size Test
<i>Session III</i>
L2 Reading Motivation Scale and Reading Habits Questionnaire
<i>Session IV</i>
The Vocabulary Levels Test: Version 2

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Prior to each session, details and procedures were explained to the participants. Further assistance and information was provided whenever needed.

Table 8

*Concepts and Instruments Used in the Pilot Study*

---

	<i>Concept</i>	<i>Instrument</i>	<i>Reference</i>
1	L2 vocabulary	“The Vocabulary Levels Test: Version 2”	Schmitt et al., 2001
2	L1 vocabulary	“Turkish Vocabulary Levels Test”	Erten, 2009
3	L2 reading motivation	“The Foreign Language Reading Attitudes and Motivation Scale (FLRAMS)”	Erten, Topkaya & Karakas, 2010
4	L1 reading motivation	“The Adult Motivation for Reading Scale”	Schutte & Malouff, 2007 Yildiz, et al., 2013
5	L2 reading habits	Questionnaire	Ro & Chen, 2014 Hedgecock & Atkinson, 1993 Iftanti, 2012 Clark & Foster, 2005
6	L1 reading habits	Questionnaire	Scales & Rhee, 2001 Datta & McDonald-Ross, 2002 Kus & Turkyilmaz, 2010 Clark & Foster, 2005

---

**Instruments.** The data were collected through two vocabulary tests, two scales and two questionnaires. Brief information about the instruments is presented in Table 8.

In the following section, the instruments used in the pilot study are explained in terms of their reliability and validity. Related studies that employed these measures are also discussed.

**The measure of L2 vocabulary.** The vocabulary size of the students was measured through “The Vocabulary Levels Test: Version 2” (Schmitt et al, 2001). This test was one of the latest versions of a standardized receptive vocabulary size test (See Appendix A). A receptive vocabulary levels test was used in the study for two reasons. First, research has revealed a strong correlation between receptive and productive vocabulary size which affects the significance of the relationships between the variables within the same theoretical model (Hajiyeva, 2015). This strong correlation also indicates that both vocabulary types can predict each other, as evidenced in some studies (Yamamoto, 2011). Secondly, another instrument can increase the rate of retention and participants’ fatigue. This test has 30 items for each band.

- 30 items for the 2000 level
- 30 items for the 3000 level
- 30 items for academic vocabulary
- 30 items for the 5000 level
- 30 items for the 10000 level

The test items were grouped in 10 sections in each band. These sections had six words and three target definitions. The participants wrote the numbers of the correct words next to their definitions.

1	copy	__6__	end or highest point
2	event		
3	motor	__3__	this moves a car
4	pity		
5	profit	__1__	thing made to be like another
6	tip		

Correct matches were coded as 1, and incorrect matches were coded as 0. This type of test is considered appropriate, “reliable and valid for placement and screening purposes” (Harsch & Hartig, 2015, p.4) for measuring vocabulary knowledge. It is also appropriate for a large number of test items and easy to administer in a short time.

Table 9 shows that the reliability analysis results for each band of the test were high. The Cronbach’s alpha values for each band were .922 for 2000, .927 for 3000, .927 for 5000, .924 for 10000 and .960 for academic vocabulary (Schmitt, et al., 2001). In this study, four bands were targeted: the 2000, 3000, 5000 and 10000 levels. Academic vocabulary band was not used in this study, as indicated by the framework.

Table 9

*Reliability of the Vocabulary Levels Test: Version 2*

	Cronbach’s Alpha
2000-word band	.922
3000-word band	.927
5000-word band	.927
10000-word band	.924

The test was translated into Turkish in order to address a wider range of students with different vocabulary levels (Nation, 2001). As the test includes only words, rather than sentences, translation of the test by two translators was thought to be reasonable. In light of the recommendations given by Nation (2001), Turkish equivalents of English words were provided. However, some words were supported with very brief descriptions in order to prevent any ambiguity.

- |   |        |       |                               |
|---|--------|-------|-------------------------------|
| 1 | copy   | __6__ | uç, bir şeyin ucu             |
| 2 | event  |       |                               |
| 3 | motor  | __3__ | arabayı çalıştıran şey, motor |
| 4 | pity   |       |                               |
| 5 | profit | __1__ | kopya                         |
| 6 | tip    |       |                               |

An equivalence check was performed by two professionals, and then, the final version was piloted with 6 students. Based on their results, some additional improvements were made.

***The Measure of L1 vocabulary.*** In order to assess the students' L1 vocabulary, the Turkish Vocabulary Levels Test for receptive vocabulary, developed by Erten (2009), was used in this study (See Appendix B). This is the only test available to measure Turkish vocabulary size. In this sense, this measure is unique and is expected to provide a substantial contribution to the field. The format of the test was based on Nation's (1999, 2001)'s vocabulary size test model. For the content, the word frequency data presented in Göz's (2003) study and different word frequency bands were used. A sample question from the test is presented below:

- |           |                  |
|-----------|------------------|
| 1. bacak  |                  |
| 2. peynir | ___5___bir çiçek |
| 3. gemi   | ___6___çocuk     |
| 4. kış    | ___1___bir organ |
| 5. gül    |                  |
| 6. evlat  |                  |

The descriptions of the target words were formed as much as possible using the words from the first 2000-word frequency band. The test has 6 sections that test a different frequency bands and consists of 30 questions.

- A. 2000 word frequency band
- B. 3000-word frequency band
- C. 6000-word frequency band
- D. 10000-word frequency band
- E. 16000-word frequency band
- F. 16000+ word frequency band

The test validation phase, which took about 30 minutes to complete, was carried out with a total of 506 students from grades 6, 8, 9, and 11 as well as university students. However, in consideration of missing data and control items, only 303 of the completed tests were used in the analyses. The Cronbach's Alpha results with respect to internal consistency, as demonstrated below in Table 10

demonstrate that all values for each band were above .90, indicating a high level of internal consistency.

Table 10

*Internal Consistency of Turkish Vocabulary Levels Test*

	Cronbach's Alpha
2000-word band	.931
3000-word band	.923
6000-word band	.955
10000-word band	.937
16000-word band	.915
16000+ word band	.901

To test the reliability of the instrument, Guttman Split Half Correlation Coefficient was run. The results for each frequency band were above .86, which indicates a high level of reliability. The values for each band are displayed in the table below.

Table 11

*Reliability of Turkish Vocabulary Levels Test*

	Guttman Split Half
2000-word band	.930
3000-word band	.920
6000-word band	.961
10000-word band	.902
16000-word band	.863
16000+ word band	.888

The overall results showed that the “Turkish Vocabulary Levels Test” is a reliable and valid measure for estimating receptive vocabulary size. As such, it is believed that this measure can enable us to investigate some important issues in vocabulary acquisition.

***The Measure of L2 reading motivation.*** In order to measure the participants’ L2 reading motivation, Turkish version of “*The Foreign Language*

*Reading Attitudes and Motivation Scale (FLRAMS)* (Erten, Topkaya & Karakas, 2010) was utilized (See Appendix C). The scale was administered to 580 randomly selected language-major and non-language-major students at a state university. However, the examination of care-check items suggested including only 443 in the analysis. The scale consisted of 5-point Likert-type items: “very appropriate for me” (5), “appropriate for me” (4), “indecisive” (3), “not appropriate for me”(2), and “not appropriate for me at all” (1).

The construct validity of the scale was determined through “principal component analysis” and “varimax rotation” and “contrasted groups” (Erten et al., 2010, p.189). For the principal component analysis, “a factor loading of .40 or above was adopted and 18 items which loaded less than .40 were eliminated” (Erten et al., 2010, p.189). The remaining 31 items were analysed and the results yielded 4 factors: “intrinsic value of reading” (16 items), “reading efficacy” (6 factors), “extrinsic utility value of reading” (5 items) and “foreign language linguistic utility” (4 items).

In the contrasted group analysis, two groups were compared via an independent samples t-test: language major and non-language major students. The analysis confirmed the hypothesis of the study that the language major students showed more positive attitudes and motivation than non-language major students (Cohen’s *d*: .710). As for internal consistency, the Cronbach’s alpha-coefficient of each subscale indicated a high level of reliability.

Table 12

*Reliability of FLRAMS*

<i>Factors</i>	<i>Alpha</i>
Intrinsic value of reading	.9408
Reading efficacy	.8702
Extrinsic value of reading	.8389
Foreign language linguistic utility	.7343

This scale was designed for L2 speakers of English in the Turkish context which makes it unique, because as existing reading motivation scales were developed for young L1 learners (Wigfield & Guthrie, 1995), adult L1 learners’ of English (Schutte & Malouff, 2007) and adult L2 learners (Mori, 2002).



Regarding these aspects, the present study adopted “*The Foreign Language Reading Attitudes and Motivation Scale (FLRAMS)*” (Erten, et al., 2010) to determine the participants’ L2 reading motivation. Several studies have employed this scale (Ölmez, 2015; Özender, 2015; Şentürk, 2015).

***The Measure of L1 reading motivation.*** To assess the participants’ L1 reading motivation, a version of “*The Adult Motivation for Reading Scale*” (Schutte & Malouff, 2007) and adapted for Turkish (Yildiz, et al., 2013) was used in the study, as it yields the highest level of reliability (See Appendix D). The original scale was developed with 220 volunteer participants from different settings including workplaces, as well as university students who were enlisted from various departments of a public university.

The original scale was developed by Schutte & Malouff (2007). The researchers drew several reading motivation items from studies on reading engagement theory and the “Children’s Motivation for Reading Questionnaire” (Wigfield & Guthrie, 1997). The researchers created 10 dimensions of reading motivation in 50 items: “reading efficacy”, “challenge”, “curiosity”, “involvement”, “importance”, “recognition”, “performance”, “social reasons”, “compliance”, and “avoidance”. The scale was designed as a five-point Likert scale, with scalar items from 1 to 5 with the end-points “strongly disagree” and “strongly agree.”

Table 13

*Reliability of the Adult Motivation for Reading Scale*

<i>Factors</i>	<i>Alpha</i>
Reading as a part of self	.87
Reading efficacy	.72
Reading for recognition	.83
Reading to do well in other realms	.70

After a total of six factors were determined through minimum average partial correlation test, a scree-test was applied to the data, which suggested four components: these four components were selected according to the analyses. The table below shows that all of the subscales are moderately inter-correlated with each other. As for internal consistency analysis, the overall scale indicates a high level of internal consistency with Cronbach’s alpha of .85.

The scale consists of 21 items factored under four subscales: “reading as part of the self” ( $\alpha=.87$ ), “reading efficacy” ( $\alpha=.72$ ), “reading for recognition” ( $\alpha=.83$ ) and “reading to do well in other realms” ( $\alpha=.70$ ). The “*Reading as part of self*” subscale is related to “the intrinsic end of the self-determination continuum” (Schutte & Malouff, 2007: 483). “*Reading efficacy*”, moreover, comprises readers’ dealing with difficult materials and their sense of efficacy in this regard. As for the third dimension, “*reading for recognition*” is related to the social rewards of reading, such as receiving others’ recognition as a result of reading. The fourth dimension, “*reading well to do well in other realms*”, pertains to reading that is fuelled by the desire to achieve in other areas apart from reading. Among these, “*Reading as part of the self*” and “*reading efficacy*” are considered as intrinsic motivation for reading which signifies the recreational, rather required reading (Schutte & Malouff, 2007). On the other hand, the two dimensions “*reading to do well in other realms*” and “*reading for recognition*” represent extrinsic motivation.

As it is the case for other concepts, reading motivation posits deviations regarding cultural differences. To this end, the Turkish adaptation of the scale by Yildiz et al. (2013) will be used in this study. In their study, Yildiz et al. (2013) aimed a similar participant profile with 261 participants from several workplaces (judges, solicitors, doctors, nurses, police officers, teachers, and other civil servants) and university (students from a faculty of education). The scale translation process was performed by 4 translators and a group of experts of the field. The scale was translated by 2 translators into Turkish, after which it was evaluated by experts, and necessary adjustments were made. The revised version was back-translated into English, and then, the final version of the Turkish form was created.

A confirmatory factor analysis using AMOS was performed with the data collected through the translated version of the scale. Considering the results, two items, which demonstrated a coefficient below .30, were excluded from the scale. According to the internal consistency analysis results, the Cronbach’s alpha values for each subscale was .82 for “reading as part of self”, .60 for “reading efficacy”, .78 for “reading for recognition”, and .72 for “reading to do well in other realms”.

The Cronbach's alpha value for the total scale was .86. The internal consistency analysis and test-retest analysis results showed that the scale is highly reliable.

Table 14

*Reliability of the Adult Motivation for Reading Scale Turkish Version*

<i>Factors</i>	<i>Alpha</i>
Reading as a part of self	.82
Reading efficacy	.60
Reading for recognition	.78
Reading to do well in other realms	.72

***The Measure of L2 reading habits.*** In order to determine the students' L2 reading habits, a list of items from questionnaires used in the literature was prepared. Ro and Chen (2014) examined, for instance, L2 reading habits in relation to L1 reading habits, L2 reading attitudes and motivation, using 3 questions to assess L2 reading habits: *“How often do you read something in English for pleasure?”*, *“What do you usually read in English during your leisure time?”*, *“In the last 12 months, how many books in English have you read for pleasure?”*

Hedgecock and Atkinson (1993), furthermore, examined L1 and L2 literacy through a questionnaire involving L2 reading habits. The first of the questions inquired about amounts of pleasure reading practised in elementary school and high school; the second question dealt with estimates of time currently dedicated to pleasure reading and school; and the last question measured the frequency of reading in four specific genre areas (textbooks and technical books, narrative fiction and biographies, newspapers and news magazines, and comic books) while in elementary school or high school.

Similarly, Iftanti's (2012) study examined L2 reading habits in relation to the reading motivation and beliefs of 546 Indonesian university students through a questionnaire survey and interviews. Five questions were used to assess the participants' reading habits regarding the amount of time dedicated to reading each day, the length of time they had considered themselves as regular readers and types of texts they read.

Reviewing the related literature on L2 reading habits, as shown in Table 15, 8 questions were selected for this study as a means to measure the participants' L2 reading habits.

Table 15

*L2 Reading Habits Questionnaire*

---

1. How often do you read in English?
  2. How many hours do you read in English a week?
  3. How many books did you read in English in the last six months?
  4. What do you like to read in English? (you can specify more than one)
  5. How many English books do you have approximately?
  6. How often do you buy English books?
  7. How often do you borrow English books from libraries?
  8. How often do you borrow English books from your friends?
- 

***The Measure of L1 reading habits.*** To determine the students' L1 reading habits, a list of questions was prepared from the questionnaires used in the literature. In this regard, L1 reading habits have been examined in relation to reading motivation (Kus & Turkyilmaz, 2010) and reading strategies (Scales & Rhee, 2001) or reading skills (Datta & McDonald-Ross, 2002) through a few questions, along with reading motivation or reading strategies scales or skills tests.

In a study with white and Asian American adults, Scales & Rhee (2001) examined reading habits and patterns through questions designed to elicit subjective frequency of reading and types of reading material. They used a 34-item questionnaire, with only 3 relating to reading habits: "*How often do you read?*", "*What do you like to read?*", "*How often do you read each of the following?*"

The study tested the differences between white and Asian Americans' reading habits; and ANOVA was employed to test the differences between educational levels in this respect. Each question regarding reading habits was analyzed and interpreted separately.

Similarly, Datta & McDonald-Ross (2002) applied three questions in their questionnaire on reading habits: "Do you read a newspaper regularly?", "Do you

read any magazine regularly?”, “How long is it since you last finished reading a book?”, “Title of the last book read?” They examined the effects of reading habits, gender, previous highest educational level, and age and course status variables on the reading test scores of Open University students. Again, each question regarding reading habits was analyzed and evaluated separately.

In another study, Kus & Turkyilmaz (2010) examined the reading habits and reading strategies of Turkish Language Teacher Candidates. Their questions regarding reading habits especially around frequency and amount of reading, were as follows:

- “How often do you read?”
- “How often do you buy books?”
- “Do you borrow books from libraries? (If yes) How often?”
- “How many hours do you read a day?”
- “How many books did you read last year?”

In line with the literature, the questions were analyzed and interpreted separately. Drawing from these studies (Clark & Foster, 2005; Kus & Turkyilmaz, 2010; Scales & Rhee, 2001; Datta & McDonald-Ross, 2002), the questions regarding reading habits were pooled, and then 10 questions were selected for the questionnaire, as shown in Table 16.

Table 16

*L1 Reading Habits Questionnaire*

- 
1. How often do you read?
  2. How many hours do you read in a week?
  3. How many books did you read in the last month?
  4. What do you like to read? (you can specify more than one)
  5. How many books do you have approximately?
  6. How often do you buy books?
  7. How often do you borrow books from libraries?
  8. How often do you borrow books from your friends?
-

**Findings of the Pilot Study.** The results of the reliability analyses of the scales and tests are presented in this section, and some implications are drawn from the piloting process for the main study.

**L2 vocabulary: The Vocabulary Levels Test: Version 2.** The reliability analysis revealed that the overall reliability based on the scale's alpha value was .972. The alpha values for each level which were all over .89, are displayed below in Table 17. It is clear that all levels are highly consistent, in line with the results of the original study.

Table 17

*Reliability of the Vocabulary Levels Test: Version 2*

	Schmitt, et al., 2001	Pilot study
	Cronbach's Alpha	Cronbach's Alpha
2000-word band	.922	.946
3000-word band	.927	.940
5000-word band	.927	.917
10000-word band	.924	.898

**L1 vocabulary: Turkish Vocabulary Levels Test.** The results of the reliability analysis showed that the overall scale had a high level of internal consistency with Cronbach's alpha of .928.

Table 18

*Reliability of the Turkish Vocabulary Levels Test*

	Erten, 2009	Pilot study
	Cronbach's Alpha	Cronbach's Alpha
2000 -word band	.931	.638
3000-word band	.923	.663
6000-word band	.955	.796
10000-word band	.937	.828
16000-word band	.915	.875
16000+word band	.901	.808

Although the 2000-word band and the 3000-word band demonstrated moderate internal consistency, with alpha values of .638 and .663 respectively, the other bands demonstrated high reliability with alpha values of .796 (6000-word band), .828 (10000-word band), .875 (16000-word band) and .808 (16000+ word band) (Hinton et al., 2004), as illustrated in Table 18.

**L2 Reading Motivation: The Foreign Language Reading Attitudes and Motivation Scale (FLRAMS).** The overall FLRAMS scale was found to have a high level of internal consistency with Cronbach’s alpha of .946.

Table 19

*Reliability of FLRAMS*

	Alpha	
	Erten, Topkaya & Karakas, 2010	Pilot study
Intrinsic value of reading	.940	.945
Reading efficacy	.870	.899
Extrinsic value of reading	.838	.799
Foreign language linguistic utility	.734	.857

Each subscale was found to have good internal consistency, varying between .799 and .945 as represented in Table 19.

**L1 Reading Motivation: The Adult Motivation for Reading Scale**

A high level of internal consistency, with Cronbach’s alpha of .874 was found for the overall scale. As shown in Table 20, the “*reading as a part of self*” and “*reading for recognition*” subscales had a good internal consistency, with alpha of .863 and .762 respectively. While two of the subscales demonstrated slightly lower alpha indexes ( $\alpha=.680$ ,  $\alpha=.692$ ), they can still be considered within the acceptable range (Kayış, 2010; Özdamar, 1999, 2011), because scales with a small number of items particularly less than 10, are unlikely to have an acceptable Cronbach’s alpha value. In this case, the mean inter-item correlation value should be considered. For this scale, the mean inter-item correlations for each subscale ranged from .35 to .51, which suggests a strong relationship among the items (Pallant, 2010).

Table 20

*Reliability of the Adult Motivation for Reading Scale*

	Alpha	
	Yildiz, et al., 2013	Pilot study
Reading as a part of self	.940	.945
Reading efficacy	.870	.899
Reading for recognition	.838	.799
Reading to do well in other realms	.734	.857

**Implications for the main study**

The pilot study aimed to gather information about the reliability of the scales and test as well as the wording of the reading habits questionnaires and the data collection procedure. On the other hand, the results suggested that the scales and vocabulary test had adequate internal consistency. On the other hand, a noteworthy number of the participants suggested that some of the items in the questionnaires were not relevant to their practices, such as borrowing books (they preferred downloading books or doing online reading). Most of the participants complained about the sessions being repeated several times and about the difficulty of the vocabulary tests. The test results also supported this fact, as very few participants were able to complete all of the tests; the retention rate was quite high. In this respect, the most critical outcome of the pilot study was the indication that the sessions should be rearranged.

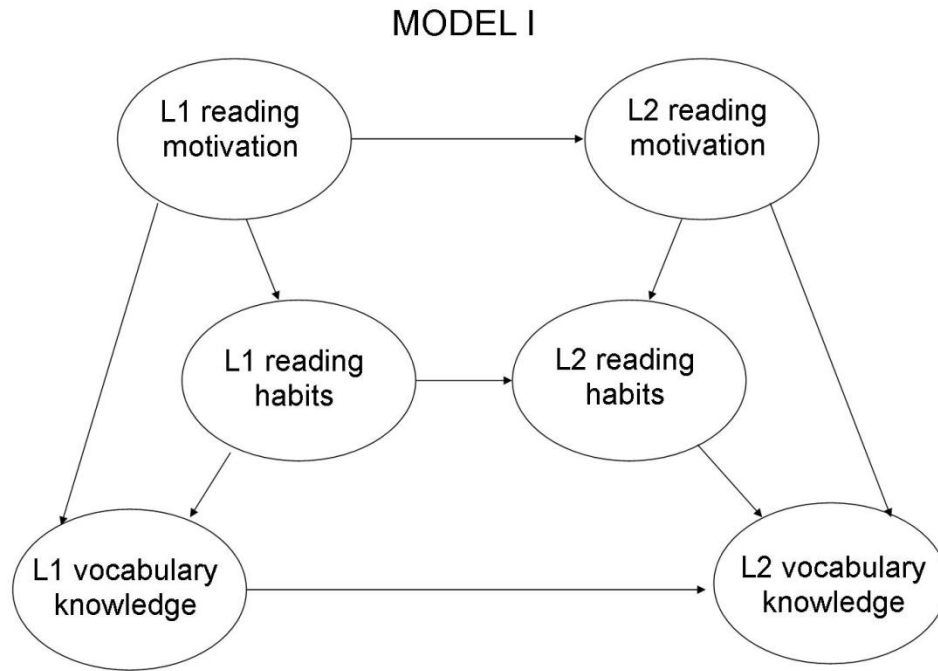
**Main Study**

**The aim of the Study.** This study aimed to investigate the Turkish (L1) and English (L2) vocabulary levels of Turkish EFL learners, as well as their reading habits and reading motivation in both languages. The main aim of the study is to determine the interrelationships between L1 and L2 vocabulary, L1 and L2 reading habits, and L1 and L2 reading motivation. Moreover, the study aims to determine the best predictors of L2 vocabulary between L2 reading motivation, L2 reading habits, L1 vocabulary knowledge, L1 reading motivation and L1 reading habits. In this regard, it was assumed that L2 reading habits would be the most potent predictor of L2 vocabulary. The affective variable of L2 reading motivation was expected to explain less variance. As for cross-linguistic effects, L1 reading habits



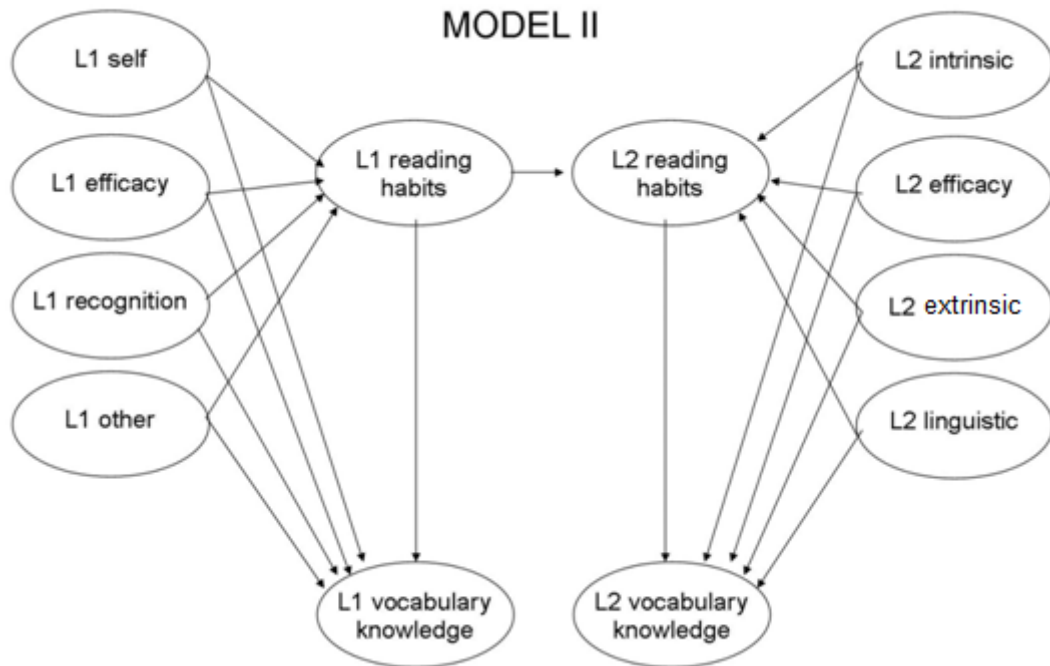
were expected to explain high degrees of variance of L2 reading habits. Similarly, L1 reading motivation was assumed to account for high variance in L2 reading motivation. Finally, L1 vocabulary knowledge was assumed to explain a significant variance in L2 vocabulary, following L2 reading habits. This study differs from previous studies by attempting to explain L2 vocabulary by combining both L1 and L2 linguistic and affective variables: L2 reading motivation, L2 reading habits, L1 vocabulary knowledge, L1 reading motivation and L1 reading habits.

In the light of previous studies, the current study proposes four models. The first model presupposes that L2 vocabulary is directly influenced by L2 reading habits and motivation and by L1 vocabulary. There is also a direct path between L2 reading motivation and L2 vocabulary in order to illustrate the direct effect of motivation, as well as to demonstrate the weight of the indirect role of reading habits in the process. It has been speculated that the indirect paths between L2 vocabulary and L2 reading motivation are mediated by L2 reading habits; similarly, the L1 reading habits component has been hypothesized as mediating the relationship between L1 reading motivation and vocabulary knowledge. Likewise, a direct path is seen between L1 reading motivation and L1 vocabulary. Moreover, the model assumes that L1 reading motivation directly influences L2 reading motivation; and that L1 reading habits directly influence L2 reading habits. Finally, a direct relationship is presumed between L1 and L2 vocabulary, namely, learners with high vocabulary knowledge in L1 are expected to have high vocabulary knowledge in L2, as well. The direct, indirect, and causal relationships among the variables are displayed in the structural equation model (See figure 10).



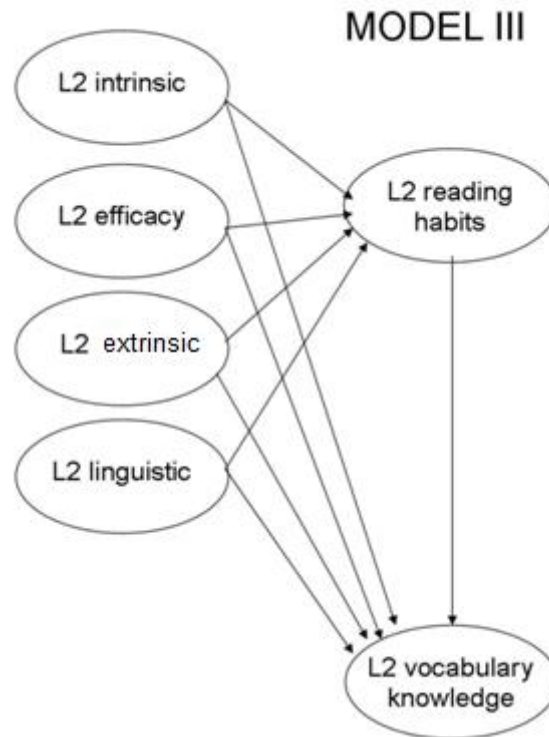
*Figure 10.* Conceptual framework: Model I

In order to explore which motivational constructs play the greater part in the process, a second model was framed. In the second model, each of the four constructs forming L2 reading motivation has been hypothesized to have a direct effect on L2 reading habits and L2 vocabulary knowledge. There are also indirect paths between these four constructs of L2 reading motivation and L2 vocabulary knowledge mediated through L2 reading habits, which also has a direct link to L2 vocabulary knowledge. Likewise, each of the four constructs forming L1 reading motivation has been hypothesized to have a direct effect on L1 reading habits and L1 vocabulary knowledge. Furthermore, there are indirect paths between the four constructs of L1 reading motivation and L1 vocabulary knowledge, mediated through L2 reading habits, which also have a direct path to L1 vocabulary knowledge.



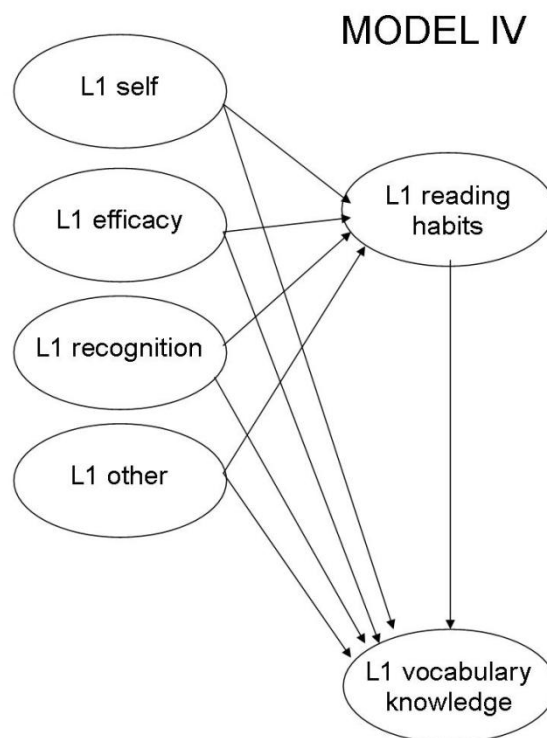
*Figure 11.* Conceptual framework: Model II

In order to examine the interrelationships of the components belonging to each language separately, the second model was split in two. In the first half of the second model, as with the first model, all of the constructs of L2 reading motivation have a direct path to L2 reading habits and L2 vocabulary knowledge. However, L2 reading habits mediate the relationship between these constructs and L2 vocabulary knowledge in addition to having a direct path to L2 vocabulary knowledge.



*Figure 12.* Conceptual framework: Model III

In the second half of the model, all of the constructs of L1 reading motivation have a direct path to L1 reading habits and L1 vocabulary knowledge. With the direct path to the L1 vocabulary knowledge, L2 reading habits mediate the relationship between these constructs and L2 vocabulary knowledge.



*Figure 13. Conceptual framework: Model IV*

Through a structural equation modelling analysis technique, the study aimed to explain the following research questions and hypotheses on which the models were based:

1. What are the Turkish EFL learners' L2 vocabulary size levels?
2. What are the Turkish EFL learners' L1 vocabulary size levels?
3. What are Turkish EFL learners' levels of L2 reading motivation?
  - 3.1. What L2 reading motivational constructs are favoured by Turkish EFL learners?
4. What are Turkish EFL learners' levels of L1 reading motivation?
  - 4.1. What L1 reading motivational constructs are favoured by Turkish EFL learners?
5. What are Turkish EFL learners' levels of L2 reading habits?
6. What are Turkish EFL learners' levels of L1 reading habits?
7. What are the relationships between Turkish EFL learners' L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation and L1 reading habits?

**8.** Is the first model - which describes the effects among the variables of L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation, L1 reading habits - consistent with the observed relationships among these variables?

**8.1.** Does the first model support the following hypotheses?

**H<sub>1</sub>:** "L1 reading motivation has a statistically significant direct effect on L2 reading motivation".

**H<sub>2</sub>:** "L2 reading motivation has a statistically significant direct effect on L2 vocabulary size".

**H<sub>3</sub>:** "L1 reading motivation has a statistically significant direct effect on L1 reading habits".

**H<sub>4</sub>:** "L1 reading habits have a statistically significant direct effect on L2 reading habits".

**H<sub>5</sub>:** "L2 reading habits have a statistically significant direct effect on L2 vocabulary size".

**H<sub>6</sub>:** "L2 reading motivation has a statistically significant direct effect on L2 reading habits".

**H<sub>7</sub>:** "L1 reading motivation has a statistically significant direct effect on L1 vocabulary size".

**H<sub>8</sub>:** "L1 reading habits have a statistically significant direct effect on L1 vocabulary size".

**H<sub>9</sub>:** "L1 vocabulary size has a statistically significant direct effect on L2 vocabulary size".

**9.** Is the second model - which describes the effects among the variables of "L2 vocabulary size", "L2 intrinsic value of reading", "L2 reading efficacy", "L2 extrinsic value of reading", "L2 linguistic utility", "L2 reading habits", "L1 vocabulary size", "L1 reading as a part of self", "L1 reading efficacy", "L1 reading for recognition", "L1 reading to do well in other realms", "L1 reading habits" - consistent with the observed relationships among these variables?

**9.1.** Does the second model support the following hypotheses?

**H<sub>10</sub>:** "L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size".

**H<sub>11</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>12</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>13</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>14</sub>:** “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”.

**H<sub>15</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 reading habits”.

**H<sub>16</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”.

**H<sub>17</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 reading habits”.

**H<sub>18</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 reading habits”.

**H<sub>19</sub>:** “L1 reading habits have a statistically significant direct effect on L2 reading habits”.

**H<sub>20</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”.

**H<sub>21</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”.

**H<sub>22</sub>:** “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading habits”.

**H<sub>23</sub>:** “L2 linguistic utility has a statistically significant direct effect on L2 reading habits”.

**H<sub>24</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>25</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>26</sub>:** “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>27</sub>:** “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>28</sub>:** “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”.

**10.** Is the third model - which describes the effects among the variables of “L2 vocabulary size”, “L2 intrinsic value of reading”, “L2 reading efficacy”, “L2 extrinsic value of reading”, “L2 linguistic utility”, and “L2 reading habits”- consistent with the observed relationships among these variables?

**12.1.** Does the third model support the following hypotheses?

**H<sub>29</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”.

**H<sub>30</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”.

**H<sub>31</sub>:** “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading habits”.

**H<sub>32</sub>:** “L2 linguistic utility has a statistically significant direct effect on L2 reading habits”.

**H<sub>33</sub>:** “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”.

**H<sub>34</sub>:** “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>35</sub>:** “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>36</sub>:** “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.

**H<sub>37</sub>:** “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”.

**11.** Is the fourth model - which describes the effects among the variables of “L1 vocabulary size”, “L1 reading as a part of self”, “L1 reading efficacy”, “L1 reading for recognition”, “L1 reading to do well in other realms”, “L1 reading habits”- consistent with the observed relationships among these variables?

**11.1.** Does the fourth model support the following hypotheses?

**H<sub>38</sub>:** “L1 reading as a part of self has a statistically significant direct effect on the L1 reading habits”.



**H<sub>39</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”.

**H<sub>40</sub>:** “L1 reading for recognition has a statistically significant direct effect on the L1 reading habits”.

**H<sub>41</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on the L1 reading habits”.

**H<sub>42</sub>:** “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”.

**H<sub>43</sub>:** “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>44</sub>:** “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>45</sub>:** “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”.

**H<sub>46</sub>:** “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”.

## Setting and Participants

The main study was carried out in the English Language Teaching Department and English Language and Literature Department at four state universities from Northern, Eastern and Western Turkey. Convenience sampling strategy was used to select the participants. A total of 490 undergraduate students (98 prep class students, 94 freshmen, 156 sophomores, 109 juniors and 33 seniors) participated in the study on a voluntary basis. The mean age was 20.

Table 21

### *Demographic Information of the Participants in the Main Study*

<i>Variables</i>	<i>N</i>	<i>%</i>
	17	.2
	18	9.0
Age	19	13.5
	20	21.4
	21	22.9
	22	8.8

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	23	22	4.5
	24	6	1.2
	25	2	.4
	26	1	.2
	28	2	.4
	29	2	.4
	30	2	.4
	34	1	.2
	Missing	81	16.5
	Total	490	100
	Male	148	30.2
Gender	Female	291	59.4
	Missing	51	10.4
	Total	490	100
Department	ELT	383	78.16
	ELL	107	21.83
	Prep	98	20
	Freshman	94	19.18
Class	Sophomore	156	31.83
	Junior	109	22.24
	Senior	33	6.73
	Total	490	100

---

## Data Collection

After obtaining approval from the principles of the colleges, in order to prevent retention and ensure the matching of the instruments, the tests were administered over two sessions within the same week with the volunteered students. The data were collected during class time and no time constraint was

imposed for completing the task. The tests were conducted following a specified sequence, as displayed in Table 22:

Table 22

*Data Collection Instruments and Timeline of the Main Study*

<i>Session I</i>	
L2 Reading Motivation Scale and L2 Reading Habits Questionnaire	10 mins
The Vocabulary Levels Test: Version 2	30 mins
<i>Session II</i>	
L1 Reading Motivation Scale and L1 Reading Habits Questionnaire	10 mins
The Turkish Vocabulary Size Test	40 mins

Table 23

*Concepts and Instruments Used in the Main Study*

	<i>Concept</i>	<i>Instrument</i>	<i>N of items</i>
1	L2 vocabulary	The Vocabulary Levels Test: Version 2 (Schmitt et al., 2001)	120 questions
2	L1 vocabulary	The Turkish Vocabulary Levels Test (Erten, 2009)	180 questions
3	L2 reading motivation	The Foreign Language Reading Attitudes and Motivation Scale (Erten, et al., 2010)	31 items
4	L1 reading motivation	The Adult Motivation for Reading Scale: Turkish Version (Yildiz, et al., 2013)	19 items
5	L2 reading habits	Questionnaire	4 items
6	L1 reading habits	Questionnaire	4 items

### **Instruments**

In consideration of the results of the reliability analyses of the pilot study, the data were collected through two vocabulary tests, two scales and two questionnaires that were revised following the pilot study. Some brief information about the instruments is presented in Table 23.

An overview of the instruments used in the main study is provided below.

**The Measure of L2 vocabulary.** The vocabulary size of the students was assessed with “The Vocabulary Levels Test: Version 2” (Schmitt et al., 2001) (See Appendix A) with its four sections consisting of a total of 120 questions:

- 30 items for the 2000 level
- 30 items for the 3000 level
- 30 items for the 5000 level
- 30 items for the 10000 level

Every band was designed with 10 sections, each of which included six-word choices for three definitions. The participants were asked to write the numbers corresponding to the correct words next to the right definitions. Cronbach’s alpha values for each band were .922, .927, .927, and .924 respectively (Schmitt, et al., 2001). The study made use of three bands: the 2000, 3000 and 5000 levels. The Turkish version of the test was employed in the study in consideration of the prep class students, as suggested in the literature (Nation, 2001) and described above in the pilot study. The translation was performed by two translators according to the prescriptions given in Nation (2001). The results of the pilot study also suggested supporting implications for the translated version of the test.

**The Measure of L1 vocabulary.** The students’ L1 vocabulary was measured through the “Turkish Vocabulary Levels Test” for receptive vocabulary developed by Erten (2009) (See Appendix B). The format of this test is very similar to “The Vocabulary Levels Test: Version 2” (Schmitt, Schmitt, & Clapham, 2001). The test has 6 sections each of which consists of 30 items for frequency bands of:

- 2000 words
- 3000 words
- 6000 words
- 10000 words
- 16000 words
- 16000+words

The Cronbach's Alpha results for each band ranges from .901 to .955, indicating a high internal consistency.

**The Measure of L2 reading motivation.** In order to measure the participants' L2 reading motivation, "*The Foreign Language Reading Attitudes and Motivation Scale (FLRAMS)*" (Erten et al., 2010), was utilized (See Appendix C) in the main study. This scale was designed in consideration of L2 speakers of English in the Turkish context which makes it currently a unique scale in this sense, as other reading motivation scales have been primarily developed for young L1 learners (Wigfield & Guthrie, 1995), adult L1 learners' of English (Schutte & Malouff, 2007) and adult L2 learners (Mori, 2002).

The 5-point Likert scale, with items ranging from "very appropriate for me" (5), "appropriate for me" (4), "indecisive" (3), "not appropriate for me" (2), "not appropriate for me at all" (1) consists of four factors: "intrinsic value of reading" (16 items), "reading efficacy" (6 items), "extrinsic utility value of reading" (5 items), and "foreign language linguistic utility" (4 items). The Cronbach's alpha values for each factor ranges from .73 to .94.

**The Measure of L1 reading motivation.** To assess the participants' L1 reading motivation, an adapted Turkish version (Yildiz et al., 2013) of "*The Adult Motivation for Reading Scale*" developed by Schutte & Malouff (2007) was used in the study, because this scale yields the highest reliability (See Appendix D). The scale, which is composed of four factors ("reading as a part of self", "reading efficacy", "reading for recognition", "reading to do well in other realms"), was designed according to a five-point Likert scale format with the end-points "strongly disagree" and "strongly agree."

According to the internal consistency analysis results, the Cronbach's alpha values for each subscale was .82 for "reading as part of self", .60 for "reading efficacy", .78 for "reading for recognition", .72 for "reading to do well in other realms". The Cronbach's alpha value of the total scale was .86. The internal consistency analysis and test-retest analysis results indicated that the scale is highly reliable.

**The Measure of L2 reading habits.** In order to measure the students' L2 reading habits, a list of questions was compiled from the questionnaires used in

the literature (Hedgecock & Atkinson, 1993; Iftanti, 2012; Ro & Chen, 2014). A total of 8 questions were selected for the pilot study. However, as pointed out in the pilot study, some of the items of in the questionnaire needed some arrangements. Accordingly, the L2 reading habits questionnaire was adjusted and reduced to 4 questions as can be seen in Table 24.

Table 24

*The L2 Reading Habits Questionnaire Used in the Main Study*

---

1. How often do you read in English?

- almost every day
- at least once in a week
- once or twice a month
- rarely
- never

2. How many hours do you read English a week?

- more than two hours
- one or two hours
- less than one hour
- none

3. When was the last time you read a book, a newspaper, a magazine etc. in English?

- in the last week
- in the last month
- in the last year
- more

4. Do you read English during holidays?

- yes
  - no
- 

The questions were focused on frequency and amount of reading, which were more appropriate for quantitative analyses. Also, drawing from the related literature and the participant opinions during the preparation and pre-piloting of the questionnaire, the questions did not discriminate based on participants' time spent on pleasure reading or required reading activities.

**The Measure of L1 reading habits.** Reviewing the literature (Datta & McDonald-Ross, 2002; Kus & Turkyilmaz, 2010; Scales & Rhee, 2001) items related to L2 reading habits were gathered and then 8 questions were selected for the questionnaire for the pilot study. In accordance with the outcome of the pilot

study, some items were removed from the questionnaire, and the questionnaire was revised. The resulting L1 reading habits questionnaire, as shown in Table 25, consisted of 4 items that were very similar to the ones used in the L2 Reading Habits Questionnaire.

Table 25

*The L1 Reading Habits Questionnaire Used in the Main Study*

---

1. How often do you read?

- almost every day
- at least once in a week
- once or twice a month
- rarely
- never

2. How many hours do you read a week?

- more than two hours
- one or two hours
- less than one hour
- none

3. When was the last time you read a book, a newspaper, a magazine etc.?

- in the last week
- in the last month
- in the last year
- more

4. Do you read in the holiday times?

- yes
  - no
- 

## **Data Analysis**

The SPSS version 21 and SmartPLS version 3.2.7 were utilized to analyze the data. Prior to conducting the statistical analyses, outliers, nonlinearity, and normality of data that could affect the variance-covariance among the variables were checked. Additionally, aside from the descriptives for the scales, a Cronbach's alpha reliability test was applied, and correlation analyses were conducted to describe the linear relationships.

Analysis of the model proposed in the study required a structural equation modelling technique. Among two techniques, with the consideration of the

properties of the data set and epistemic view of data to theory, a component-based technique Partial Least Squares Structural Equation Modelling (PLS-SEM) was adopted in preference to the “factor based covariance fitting approach” Covariance-Based Structural Equation Modelling (CB-SEM) (Chin, 1998, p. 295). Because the research goal of the study was to explore a theory, rather than to confirm an existing one through using a complex model of several variables with many indicators, PLS-SEM was believed to be an appropriate fit to the current study.

While “CB-SEM is based on covariance”, PLS-SEM is a variance based “causal-predictive” (Jöreskog & Wold, 1982, p. 270) analysis technique, namely, it explains or predicts a particular construct “using cause-effect relationship models” (Ringle, Sarstedt, Mitchell, & Gudergan, 2018, p. 2) and aims to maximize  $R^2$  (Hair, Hult, Ringle, & Sarstedt, 2014; Hair, Black & Babin, 2010). The two primary reasons for employing PLS-SEM technique relate to the model of the study in the sense that it consists of several components, and there are complex relationships among these factors; as well as properties of the data set, which includes varying data types (from binary to scalar) along with two single items (the total achievement scores of vocabulary tests) (Chin, 1998; Hair et al., 2014; Hair, Ringle, & Marko, 2011). This technique is best suited for “large complex models with latent variables” and “extensions of existing theories” (Avkiran, 2018, p. 6), as is the case with the current study. Moreover, among the various advantages of PLS-SEM, its robustness with respect to non-normal data and small sample sizes are also favourable (Rigdon, 2016). Avkiran (2018, p. 6) further summarized the reasons using PLS-SEM that Wold (2006) described in his study:

- “(a) the PLS-SEM approach has a broad scope and flexibility of theory and practice; and
- (b) PLS path model improvements such as the introduction of a new latent variable, and indicator, and an inner model relation, or the omission of such an element, are easily and quickly tested for predictive relevance.”

The PLS-SEM and CB-SEM have basic differences in terms of their measurement philosophy and analytical goals (Ringle et al., 2018). Therefore,



following a composite model approach, the PLS-SEM has its own models: an outer/ measurement model and an inner/structural model.

Ringle et al. (2018, p. 5) identify four aspects of PLS-SEM analysis process:

1. "Determining research goal"
2. "Structural model specification"
3. "Measurement model specification"
4. "Results evaluation"

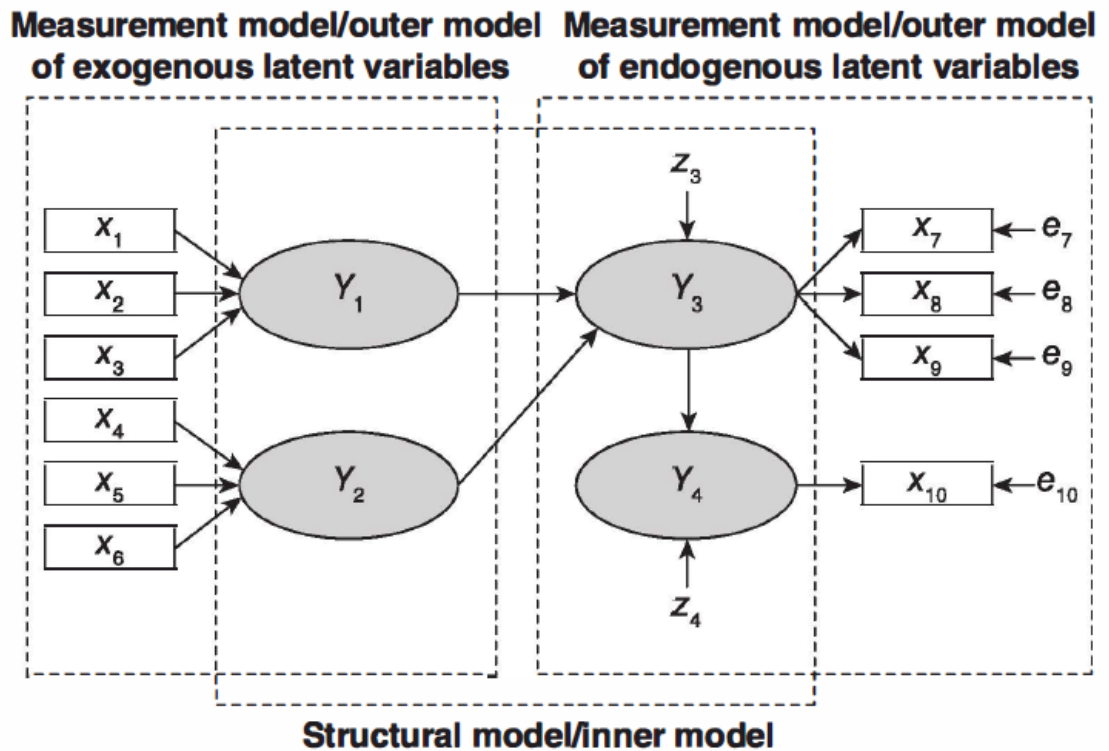


(Ringle et al., 2018, p.5)

Figure 14. Four aspects of PLS-SEM analysis

**Determination of the research goal.** As previously noted, the current study aimed to develop several models that consist of various components, with complex relationships among them. Moreover, the properties of the data set, which includes varying data types, from binary to scalar, as well as two single item components (total achievement scores of the vocabulary tests), were other important reasons for employing the PLS-SEM technique (Chin, 1998; Hair et al., 2014, 2011). The PLS-SEM offers an exploration of models, as well as measuring the predictive power of components, in addition to the direct, indirect and total effects among the variables. As such, it enables the assessment of complex models with the aim of developing and extending existing theories (Hegner-Kakar, Richter, & Ringle, 2018).

**Structural (inner) model specification.** As illustrated in Figure 14, the structural model defines the relationships between the constructs, exogenous and endogenous variables that are exhibited through the paths that represent the hypotheses. The constructs are located in the model in consideration of the "theory or the researcher's experience and accumulated knowledge" (Hair et al., 2014, p. 30).



(J. F. Hair et al., 2014, p. 11)

Figure 15. Simple PLS path model example

In this regard, the independent variables were placed on the left-hand side, whereas the dependent variable was on the right. The structural model depicts the direct, indirect (mediated) and interaction (moderated) effects of these relationships (Ringle et al., 2018). On the other hand, exogenous variables are considered as being defined from outside the model because they are not explained by any construct within the model; however, they are assumed to be explained by at least one construct in the model; and these relationships are considered linear (Henseler, Hubona, & Ray, 2017).

**Measurement (outer) model specification.** The measurement model defines “the relations between a construct and its observed indicators” (Henseler et al., 2017, p. 21). There are two different construct measurement models which are also displayed in Figure 14: reflective and formative. With the reflective measurement model, the “causality comes from the construct to its measures” (Hair et al., 2014, p.43), which requires a high correlation among the measures. On the contrary, in the formative models, “causality is from the indicators to the construct” (Hair et al., 2014, p.43), and does not consider any correlations

between any of the formative indicators (Hair et al., 2014). There is no clear-cut in the determination of the type of the measurement model, instead “the specification depends on the construct conceptualization and the objective of the study” (Hair et al., 2014, p.45).

**Results Evaluation.** The reflective measurement model that was employed in the current study ascertains “composite reliability to evaluate internal consistency, individual indicator reliability, and average variance extracted (AVE) to evaluate convergent validity” (Hair et al., 2014, p. 100). The measurement model displays the relationships between the indicators and their related constructs. The PLS-SEM utilizes different evaluation principles and procedures which are different from the ones such as a single goodness-of-fit criterion used in CB-SEM. The criteria are presented in below, in Table 26, which outlines the criteria used in the evaluation of the reliability and validity of the construct measures.

Table 26  
*Evaluation of PLS-SEM Results*

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*Evaluation of the reflective measurement model*

	Cut-off value	Reference
Internal consistency (composite reliability)	$\rho_c = 0.60-0.70$ (exploratory) $\rho_c = 0.70-0.90$ (advanced)	(Nunally & Bernstein, 1994)
Indicator reliability	standardized outer loadings $\geq 0.708$	(J. F. J. Hair, Hult, Ringle, & Sarstedt, 2014)
Convergent validity (average variance extracted, AVE)	AVE $\geq 0.50$	(J. F. J. Hair et al., 2014)
Discriminant validity	<ul style="list-style-type: none"> <li>o An indicator's outer loadings on a construct should be higher than all its cross-loadings with other constructs.</li> <li>o The square root of the AVE of each construct should be higher than its highest correlation with any other construct</li> </ul>	(J. F. J. Hair et al., 2014)

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(Fornell Larcker criterion).

*Evaluation of the structural model*

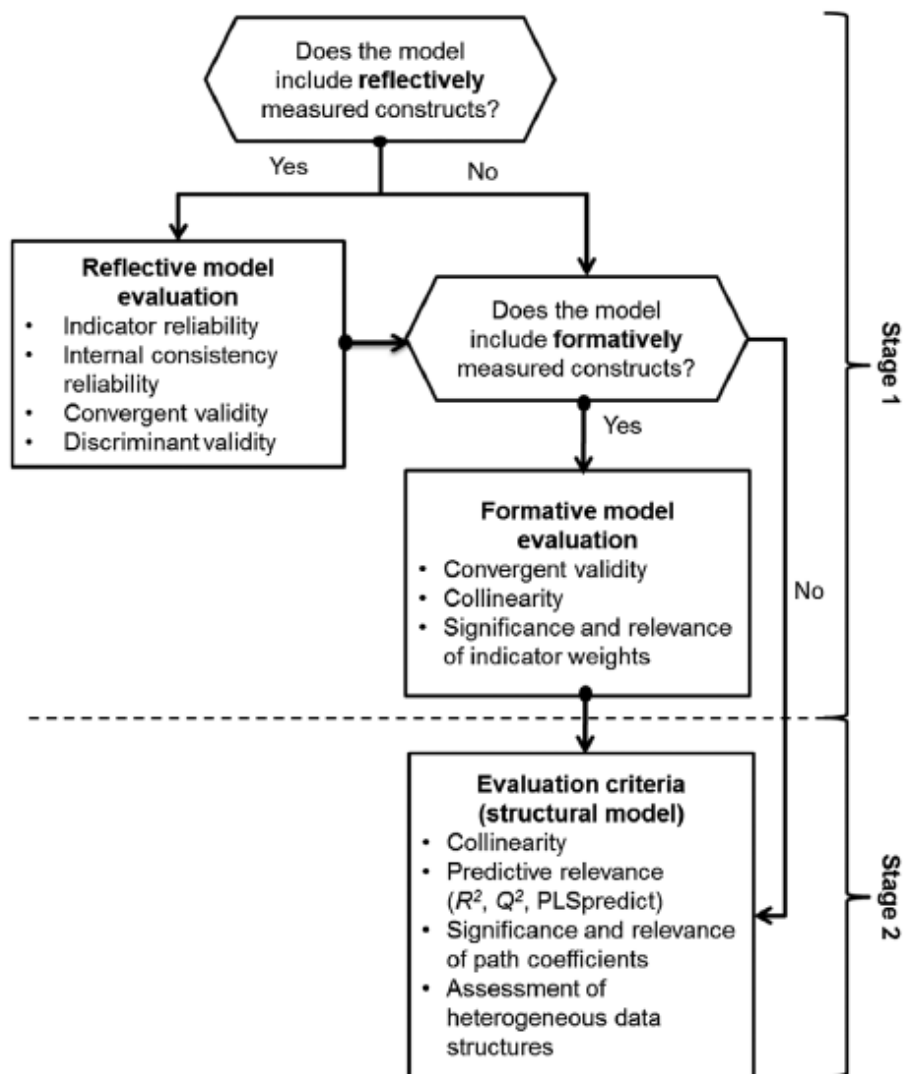
Collinearity	Tolerance $\leq 0.20$ VIF $\geq 5.00$	(J. F. J. Hair et al., 2014)
Path coefficients	Std. values between -1 and + 1 $t > 1.96$ (significance level of the critical value = 5%)	(J. F. Hair et al., 2011)
Assess the level of $R^2$	$R^2 = 0.75$ (substantial) 0.50 (moderate) 0.25 (weak)	(Joe F. Hair, Ringle, & Sarstedt, 2011)
Assess the effect sizes $f^2$	$f^2 = 0.02$ (small) 0.15 (medium) 0.35 (large)	(Cohen, 1988)
Assess the predictive relevance $Q^2$ and the $q^2$ effect sizes	omission distance = 5 -10 $Q^2 > 0$ $q^2 = 0.02$ (small) 0.15 (medium) 0.35 (large)	(J. F. J. Hair et al., 2014)

---

In the following, measurement and structural model evaluations are defined in detail.

**Evaluating measurement models.** In evaluating a measurement model, depending on its type, researchers follow different steps. If the measurement model is reflective, then indicator standardized loadings above 0.70 (Chin & Dibbern, 2010), Cronbach's  $\alpha$ ,  $\rho_A$ , as well as the composite reliability above 0.70 (Hair, Hult, Ringle, Sarstedt, & Thiele, 2017) must be assured. Moreover, the average variance extracted (AVE) for convergent validity is expected to be above 0.05. After ensuring that for Discriminant validity HTMT is lower than 0.90, bootstrapping should be run in order to determine the significance of the HTMT value (Ringle et al., 2018).

If the measurement model is formative, on the other hand, a redundancy analysis to evaluate the convergent validity indicators is required (Ringle et al., 2018). Then, the collinearity between the indicators should be assessed, which refers to the calculation of each item's VIF's (variance inflation factor) falling between 3.33 (Diamantopoulos & Siguaaw, 2006) and 5 (Hair et al., 2011). For the final steps, determining the indicator weights' significance and relevance through bootstrapping are required.

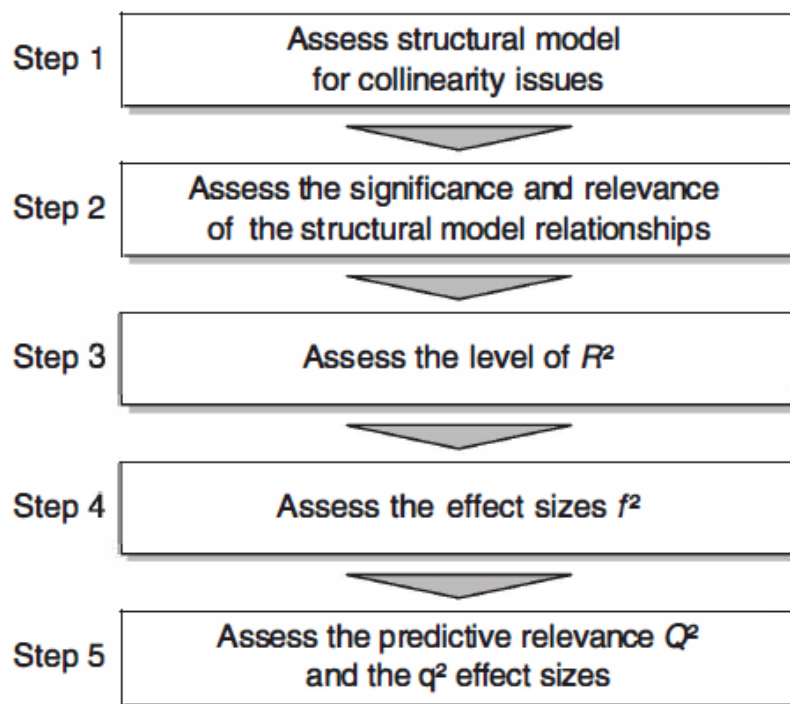


( Ringle et al., 2018, p. 9)

Figure 16. PLS-SEM evaluation guideline

**Evaluating structural models.** By confirming a satisfying measurement model, the structural model is assessed; in this process, a five-step evaluation is recommended (Hair et al., 2014). For the first step, researchers should ensure that

the tolerance values are below 0.20 and VIF above 5.00 which means there are no significant levels of collinearity among the predictor constructs. In the second step, the path coefficients are analyzed using bootstrapping techniques in order to assess the significance of coefficients which should be closer to +1 and statistically significant for a strong positive relationship (Hair et al., 2014). Then the empirical t-values are calculated through bootstrapping in order to determine “whether a formative indicator significantly contributes to its corresponding construct” (Hair et al., 2014, p. 171). The empirical t-values are compared to the quantiles from the normal distribution, which are accepted as critical values. Furthermore, an empirical t value that is larger than the critical value signifies that the coefficient is significant. Additionally, the direct, indirect and total effects should also be assessed (Ringle et al., 2018).



(Hair et al., 2014, p. 169)

Figure 17. Structural model assessment procedure

The third step in assessing a model is the evaluation of the coefficient of determination ( $R^2$  value), which refers to the model’s predictive accuracy (Hair et al., 2014). The cut-off values for  $R^2$  are defined as 0.25 for weak, 0.50 moderate,

and 0.75 for substantial accuracies (Hair et al., 2011). In Step 4, researchers calculate the  $f^2$  effect according to the following formula:

$$f^2 = \frac{R_{\text{included}}^2 - R_{\text{excluded}}^2}{1 - R_{\text{included}}^2}$$

In this regard, the critical values for  $f^2$  are 0.02 for small, 0.15 medium, and 0.35 for large effects (Cohen, 1988). For the final step, the model's predictive relevance is assessed through Stone-Geisser's Q2 value, which should be "larger than zero for a certain reflective endogenous latent variable [to] indicate the path model's predictive relevance for this particular construct" (Hair et al., 2014, p. 178). A final aspect that needs to be considered is heterogeneity which has two forms: observed and unobserved, as problems in this heterogeneity may cause inaccurate estimation. The finite mixture partial least squares approach is suggested in order to ascertain the data's heterogeneity (Hair et al., 2014; Sarstedt, Becker, Ringle, & Schwaiger, 2011).

## Chapter 4 Findings

This chapter is dedicated to the results of the descriptive statistics, reliability and PLS-SEM analyses. Before reporting the results, normality and linearity issues are explained.

### Data screening

Prior to conducting the analyses, the assumptions for a SEM analysis were checked. The data sets with missing values or incomplete parts were discarded, and then the data were screened for univariate and multivariate outliers and multicollinearity, as well as tested for violations of normality and linearity.

Table 27 shows the z scores for skewness and kurtosis, three of which are greater than the cutoff point of  $\pm 2.58$  for large samples, suggesting a departure from normality for these three instruments. Moreover, the Durbin-Watson value of 1.730 indicates that the residuals are independent; and all the tolerance values are below .9, which indicates that there is no multicollinearity.

Table 27  
*Descriptive Statistics*

	<i>M</i>	<i>%</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>Skewn.</i>	<i>Z score</i>	<i>Kurtosis</i>	<i>Z score</i>
L2 voc	82,349	68.61	14,10	47	120	,164	-3.11	-,302	,00
L1 voc	135,47	75.26	15,16	92	172	-,079	-2.39	-,373	2.49
L2 mot	3,940	78.8	,51	1,7	5,0	-,343	1.49	,371	-1.37
L1 mot	3,495	69.8	,60	1,3	4,9	-,263	-0.71	,549	-1.69
L2 hab	7,46	67.81	2,31	,00	11	-,379	-3.44	-,396	-1.8
L1 hab	8,14	74.00	2,32	,00	11	-,803	-7.3	,116	.00

a. Lilliefors Significance Correction



Likewise, the Kolmogorov-Smirnov and Shapiro-Wilk Normality Test results displayed in Table 28 suggest the violation of assumptions for some of the instruments, which is considered a normal case for large samples (Pallant, 2010).

Table 28  
*Test of Normality*

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
L2 vocabulary	.038	490	.096	.995	490	.079
L1 vocabulary	.041	490	.052	.995	490	.094
L2 reading motivation	.041	489	.053	.987	489	.000
L1 reading motivation	.045	490	.019	.990	490	.002
L2 reading habits	.119	490	.000	.959	490	.000
L1 reading habits	.173	490	.000	.919	490	.000

a. Lilliefors Significance Correction

Additionally, to generate a clearer shape of the distribution, normal probability plots were checked, and the results revealed that the instruments showed a normal distribution, with reasonably straight lines.

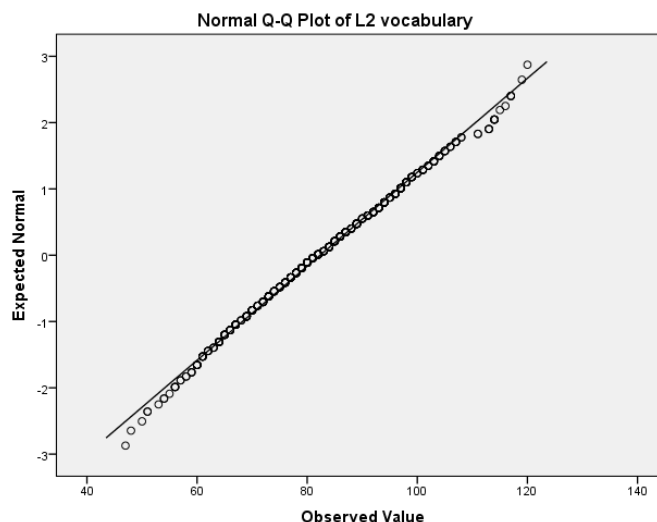


Figure 18. Normal QQ plot of L2 vocabulary

Figure 18 displays the distribution of L2 vocabulary, which follows a straight line and suggests a normal distribution. Likewise, the L1 vocabulary tests revealed a similar distribution, also indicating normality.

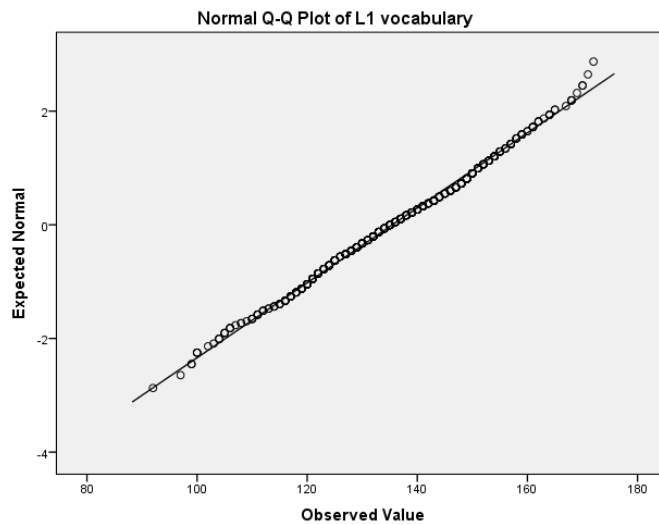


Figure 19. Normal QQ plot of L1 vocabulary

In Figure 19, the points fall along a straight line, which provides evidence for a uniform distribution.

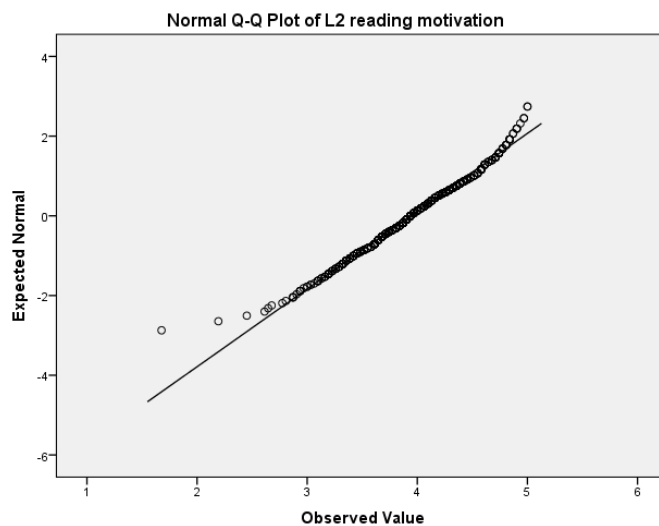
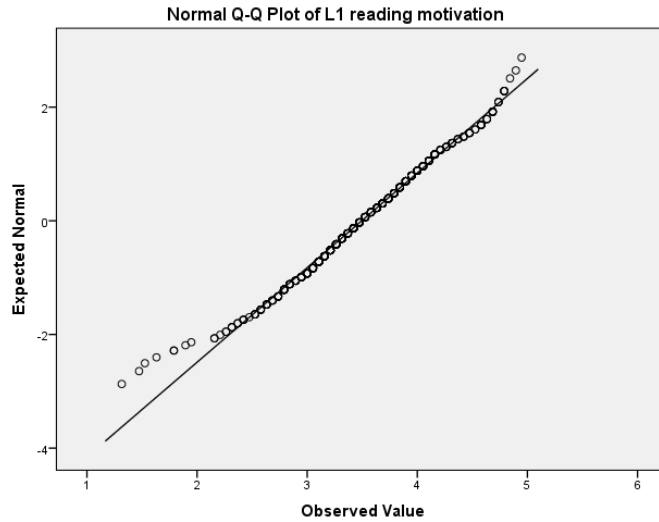


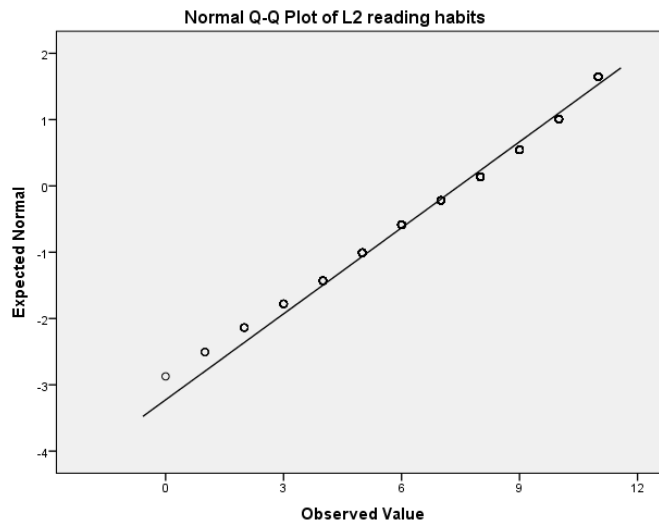
Figure 20. Normal Q-Q plot of L2 reading motivation

In Figure 20, although some minor deviations appear, the points fall along a straight line, which provides evidence for a uniform distribution.



*Figure 21.* Normal Q-Q plot of L1 reading motivation

As Figure 21 demonstrates, the points fall along a straight line in the Q-Q plot, which indicates that these data also come from a normal distribution. Although there is a small elusion at the left end of the plot, this is considered typical and does not disqualify the data from being normal.



*Figure 22.* Normal Q-Q plot of L2 reading habits

In Figure 22, it can be seen that all of the points lie quite close to the line indicating, that the data represent a normal distribution.

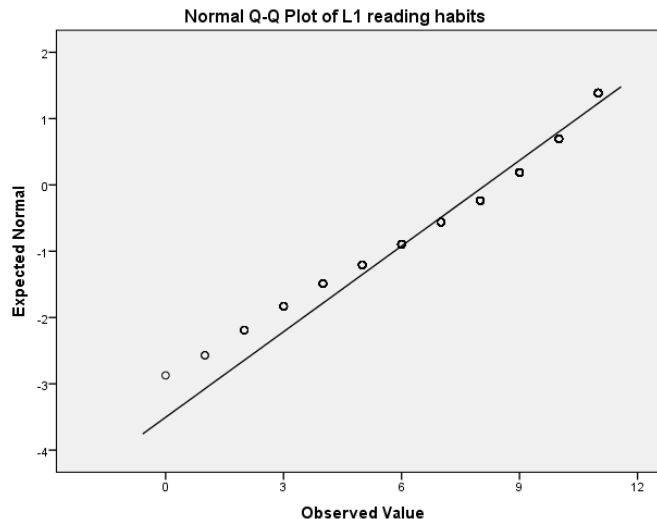


Figure 23. Normal Q-Q plot of L1 reading habits

The data relating to L1 reading habits displayed in Figure 23 reveal a similar distribution to the L2 reading habits data, with a normal distribution falling close to the line.

Although the Kolmogorov-Smirnov and Shapiro-Wilk tests demonstrated a non-normal distribution for some variables, the Q-Q plots indicate that the variables maintain a normal distribution. Thus, when the requirements of PLS-SEM are considered, the overall results of normality and linearity are acceptable. The data were also screened for multivariate outliers. The multivariate outliers that exceeded the Mahalanobis distance ( $\chi^2$  critical value of 19.657,  $df = 11$ ,  $p < .005$ ) and Cook's distance were excluded from the data.

### Reliability Analyses

Before proceeding with the analyses, a reliability analysis was run for each scale and vocabulary test.

**The reliability of the L2 vocabulary test.** The L2 vocabulary test instrument yielded high reliability, with Cronbach's alpha ranging from .708 to .909. The Cronbach's alpha values for each dimension are displayed in Table 29 below. As indicated in the Table 29, the 120 items comprising the total test had good internal consistency, with an alpha of .945.

Table 29

*Reliability of the Vocabulary Levels Test: Version 2*

	Schmitt, et al., 2001	Pilot study	Main study
	Cronbach's Alpha	Cronbach's Alpha	Cronbach's Alpha
2000 words band	.922	.946	.708
3000 words band	.927	.940	.821
5000 words band	.927	.917	.889
10000 words band	.924	.898	.909

**The reliability of L1 vocabulary test.** The reliability results displayed in Table 30 indicate that the mean Cronbach's Alpha coefficient is 0.78, and all the coefficients of the subscales are above 0.70; therefore, the scales are reliable. Overall, the test, comprising 180 items, had good internal consistency at .931.

Table 30

*Reliability of Turkish Vocabulary Levels Test*

	Erten, 2009	Pilot study	Main study
	Cronbach's Alpha	Cronbach's Alpha	Cronbach's Alpha
2000-word band	.931	.638	.617
3000-word band	.923	.663	.605
6000-word band	.955	.796	.640
10000-word band	.937	.828	.832
16000-word band	.915	.875	.887
16000+ word band	.901	.808	.872

**The reliability of the L2 reading motivation scale.** The results of the reliability analysis are summarised in Table 31. As indicated, the Cronbach's alpha indexes of the constructs were greater than .73, which indicated reasonably good internal consistency. Furthermore, with an alpha of .914, the total scale had good internal consistency.

Table 31

*Reliability of FLRAMS*

	Erten, Topkaya & Karakas, 2010	Pilot study	Main Study
Factors	Cronbach's Alpha	Cronbach's Alpha	Cronbach's Alpha
Intrinsic Value of Reading	.9408	.945	.921
Reading Efficacy	.8702	.899	.873
Extrinsic Value of Reading	.8389	.799	.762
Foreign Language Linguistic Utility	.7343	.857	.736

**The reliability of L1 reading motivation scale.** As shown in Table 32, the Cronbach's alpha indexes of internal consistency were acceptable for all subscales, varying between .681 and .857. The results of the reliability analysis are quite similar to the results of Yildiz, et al., (2013)'s study; and the 19 items comprising the total scale had good internal consistency, with an alpha of .883.

Table 32

*Reliability of the Adult Motivation for Reading Scale*

	Yildiz, et al., 2013	Pilot study	Main Study
Factors	Cronbach's Alpha	Cronbach's Alpha	Cronbach's Alpha
Reading as a part of self	.82	.863	.857
Reading efficacy	.60	.680	.681
Reading for recognition	.78	.762	.763
Reading to do well in other realms	.72	.692	.687

**Descriptive Statistics**

**Research Question 1: What are the Turkish EFL learners' L2 vocabulary size levels?**

**Research Question 2: What are the Turkish EFL learners' L1 vocabulary size levels?**

Table 33 summarizes the descriptive statistics for the total scores of the vocabulary tests. The mean score of 82.34 (out of 120) on the L2 vocabulary test indicates 68% achievement. The results show a slightly higher mean for the L1 vocabulary test, with a mean of 135.47 (out of 180), which roughly equals 75% achievement.

Table 33

*Descriptive Statistics for the English and Turkish Vocabulary Levels Test*

	N	Min	Max	M	%	SD
L2 Vocabulary Levels Test	490	47,00	120,00	82,3490	68.61	14,10879
L1 Vocabulary Levels Test	490	92,00	172,00	135,4735	75.26	15,16145

In Table 33, the mean values for each band of the L2 vocabulary test are displayed. The first 2000-word band received the highest value (M=29.05), and the mean values decreased as the bands increased, as expected. The results suggest that most of the participants were in control of the first 2000 and 3000 most frequent words in the L2.

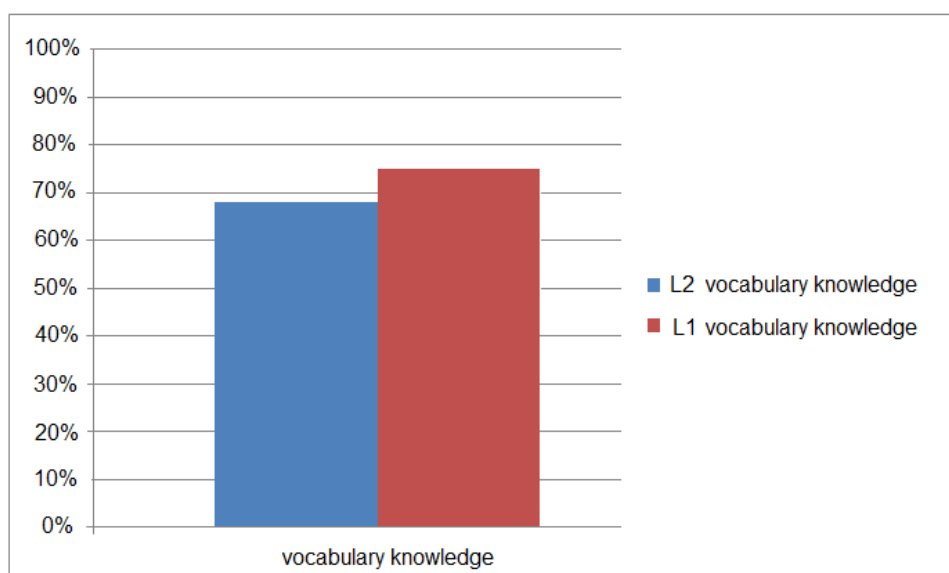


Figure 24. L1 and L2 vocabulary levels

However, they could not go further than 61% coverage in the 5000-word band (M=18.43); and as for the 10000-word band, the mean was 9.56 (31%). As

displayed in Table 35, the mean values of the first three bands (*2000-word band*  $M=29.53$ ; *3000-word band*  $M= 28.851$ ; *6000-word band*  $M= 29.23$ ) of the L1 vocabulary test had the highest values, which were nearly equal to the possible maximum score of the band (30). The results showed that the participants had mastered the first three levels (2000, 3000 and 6000) with a mean of 29.20 (97%) and had receptive vocabulary knowledge of almost all 6000 most frequent words in their L1.

Table 34

*Descriptive Statistics for the English Vocabulary Levels Test*

	N	Min	Max	M	%	SD
2000 words band	490	18,0	30,0	29,053	96.83	1,3987
3000 words band	490	7,0	30,0	25,045	83.46	4,0837
5000 words band	490	,0	30,0	18,431	61.43	6,4545
10000 words band	489	,0	30,0	9,562	31.86	6,6896

After the 6000-word band, the mean values decreased gradually as the bands increased. The results indicate that most of the participants had not covered the first 10.000 words yet in their L1 ( $M=23.11/30$ , 77%). Although some of the participants managed to reach 30 out of 30 in the 16.000-word band, the mean score indicates that most of the participants were competent in this band ( $M=15.46/30$ , 51%). In 16.000+ word band, none of the participants could reach the maximum score, but got quite close to it ( $Max=28$ ). The participants scored rather low in this band, with a mean of 8.19 (27%).

Table 35

*Descriptive Statistics for the Turkish Vocabulary Levels Test*

	N	Min	Max	M	%	SD
2000-word band	490	25,0	30,0	29,531	98.43	,7513
3000-word band	490	21,0	30,0	28,851	96.16	1,3968
6000-word band	490	19,0	30,0	29,233	97.43	1,3380
10000-word band	490	2,0	30,0	23,118	77.03	4,3046
16000-word band	490	,0	30,0	15,467	51.53	6,5582
16000+ word band	490	,0	28,0	8,190	27.03	5,7268



In the current study, the mean of the L2 vocabulary size of English-major undergraduates was found to be moderate ( $M=82.34/120$ , 68.61%). The minimum score was 47, and the maximum was 120. However, when the scores concerning the vocabulary levels bands were examined, the minimum score of 18 (out of 30) for the 2000-level band ( $M=29.05$ , 96.83%) indicates that some of the participants still had not yet covered the most frequent two thousand words. The mean of the 3000-level band was 25.04 (83.46%) which can be considered as high. The scores tended to be lower for the 5000-level band ( $M=18.43$ , 61.43%) and the 10000 level-band ( $M=9.56$ , 31.86%). These scores indicate that most of the participants had mastered the 2000- and 3000-word vocabulary bands, but had not yet covered the 5000- and 10000-word bands.

Table 36

*University A: L2 Vocabulary Size by Levels*

<i>University A</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>%</i>	<i>SD</i>
Prep class	65	56,00	111,00	79,0462	65.86	11,32397
Freshmen	33	54,00	105,00	74,0606	64.94	11,85311
Sophomores	55	54,00	107,00	76,9818	64.15	12,95504
Juniors	47	57,00	115,00	83,0851	69.23	12,03226
Seniors	33	53,00	104,00	77,9394	64.94	11,36040

Naturally, the discrepancy between the scores of English-major and non-major students is expected to be sizable; however, it is worth mentioning in order to demonstrate the interval. In this regard, Başöz (2018) found the mean vocabulary size of English non-major tertiary level Turkish undergraduate EFL learners who took the Vocabulary Levels Test Version 2 (Schmitt et al., 2001) to be 37.53 (25.02%) out of 150 (for the 2000, 3000, 5000, 10000 and academic level, each part consisting of 30 items). Considering the scores from prep classes to the tertiary level in the current study, all were above this score (37.53, 25.02%). Moreover, the minimum mean score was 74 (61.66%) for the ELL prep class, which highlights the fact that the difference between English-major and non-major students is quite large.

When the scores of the different levels of classes from the same university are tracked, those several years seem to contribute less than 10% to the vocabulary size of the students: prep class A (M=79.04, 65.86%), freshmen A (M=79.05, 65.87%), sophomore A (M=76.98, 64.15%), junior A (M=83.08, 69.23%); while for another university, the scores were reflected as freshmen B (M=87.26.05, 72.71%), sophomore B (M=92.18, 76.81%), junior B (M=95.02, 79.22%).

Table 37

*University A: L1 Vocabulary Size by Levels*

<i>University A</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>%</i>	<i>SD</i>
Prep class	65	99,00	165,00	129,1538	71.75	14,60440
Freshmen	33	99,00	168,00	134,2727	75.72	15,70683
Sophomores	55	97,00	167,00	131,4000	73.00	12,95090
Juniors	47	108,00	170,00	140,2128	77.89	13,23358
Seniors	33	105,00	171,00	136,3030	75.72	16,12158

With respect to the vocabulary size scores of the English-major students in the current study, the percentage of increase between the years of education seems unsatisfactory.

Table 38

*University B: L2 Vocabulary Size by Levels*

<i>University B</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>%</i>	<i>SD</i>
Prep class	-	-	-	-	-	-
Freshmen	60	60,00	116,00	87,2667	72.71	11,74570
Sophomores	27	73,00	117,00	92,1852	76.81	11,93584
Juniors	14	67,00	117,00	95,0714	79.22	15,18838
Seniors	-	-	-	-	-	-

When the scores are examined in terms of years of education, the increase in achievement from prep classes to the tertiary level was quite similar to that of

the L2 vocabulary increase, at maximum of 8%. Interestingly, the L1 vocabulary scores between beginning classes and upper classes increased in parallel to the L2 vocabulary scores. For instance, the classes that scored low on one vocabulary test scored similarly poor on the other, such as the prep-A and freshmen-A classes, who achieved the lowest scores on both the L1 and L2 vocabulary tests. Likewise, the junior-B and junior-C classes recorded the highest scores on both tests. The relationship between the vocabulary sizes can be observed between these scores, as well.

Table 39

*University B: L1 Vocabulary Size by Levels*

<i>University B</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>%</i>	<i>SD</i>
Prep class	-	-	-	-	-	-
Freshmen	60	110,00	168,00	141,4833	78.60	12,91628
Sophomores	27	122,00	159,00	141,7407	78.74	10,05214
Juniors	14	122,00	168,00	145,8571	81.02	14,43211
Seniors	-	-	-	-	-	-

**Summary.** The participants' scores of L2 vocabulary size indicate that most of the participants have accomplished 2000 and 3000 vocabulary bands; however, 5000 and 10000 bands still need to be covered, which indicates that most of the learners have not reached 98% text coverage. Similarly, the percentage of increase between the years of education seems unsatisfactory in the current study, compared to the vocabulary gains reported in the longitudinal study of Zhang and Lu (2014), which roughly equals to a 24% increase in 11 months. When the scores of the different levels of classes from the same university are tracked, those several years seem to contribute less than 10% to the vocabulary size of the students. The fact that vocabulary knowledge is an indicator of general language proficiency, both in L1 and in L2 (Gallego & Llach, 2009) calls for dealing with vocabulary growth and proficiency development in English-major departments. On the other hand, another reason for this could be the participants' being English-majors who study certain subjects that cover particular vocabulary therefore those years contribute to the depth of vocabulary rather than breadth. As

a result of focusing on one study area, English-majors come across similar vocabulary throughout their study; therefore, in some cases freshmen students' vocabulary size may be higher than that of seniors.

As for L1 vocabulary scores, a 75.26% achievement in the L1 vocabulary level test, particularly the scores on the first three bands, indicates that the participants had covered only the first 10.000 words in their L1. Because studies regarding the vocabulary sizes of Turkish native speakers and any criteria for select groups of speakers are not available, the results of the current study cannot be compared. However, when the scores are examined in terms of years of education, the increase in achievement from prep classes to the tertiary level was quite similar that of the L2 vocabulary increase, at maximum of 8%. Interestingly, the L1 vocabulary scores between the beginning classes and upper classes increased in parallel to the L2 vocabulary scores. For instance, classes that scored low on one vocabulary test scored similarly poor on the other, such as the prep-A and freshmen-A classes, who achieved the lowest scores on both the L1 and L2 vocabulary tests. Likewise, the junior-B and junior-C classes recorded the highest scores on both tests. The cross-linguistic effect of L1 vocabulary size on L2 vocabulary size can be observed between these scores, as well.

**Research Question 3: What are the Turkish EFL learners' levels of L2 reading motivation?**

**3.1. What L2 reading motivational constructs are favoured by Turkish EFL learners?**

Before dealing with the sub-factors of each motivation scale, the total scores are presented in the following table.

Table 40

*Descriptive Statistics for Reading Motivation in L1 and L2*

	N	Min	Max	M	%	SD
L2 reading motivation	489	1,7	5,0	3,940	78.8	,51
L1 reading motivation	489	1,3	4,9	3,495	69.8	,60

When L2 Reading Motivation is examined, Table 40 shows that all of the categories reached a point of agreement above 3.7, indicating that most of the participants possessed a somewhat strong motivation for reading in L2. The mean scores for each scale suggest that participants had a slightly high level of motivation.

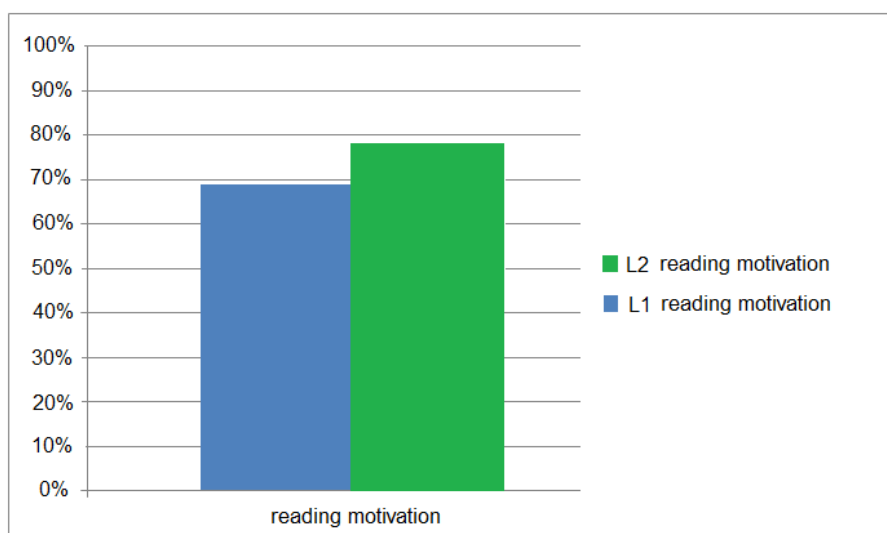


Figure 24. L1 and L2 reading motivation

As for the subfactors relating to L2 reading motivation, “L2 foreign language linguistic utility value of reading” exhibited the highest value (M=4.45), while “L2 reading efficacy” (M=3.72) exposed the lowest mean. “L2 intrinsic” (M=3.89) and L2 “extrinsic” (M=3.93) motivation for reading maintained quite similar percentages.

Table 41

*Descriptive Statistics for the L2 Reading Motivation Scale*

	N	Min	Max	M	%	SD
L2 intrinsic value of reading	489	1,00	5,00	3,8946	77.8	,71608
L2 reading efficacy	490	1,00	5,00	3,7235	74.4	,65368
L2 extrinsic utility value of reading	490	1,00	5,00	3,9367	78.6	,70010
L2 foreign language linguistic utility value of reading	490	1,00	5,00	4,4500	89	,56260

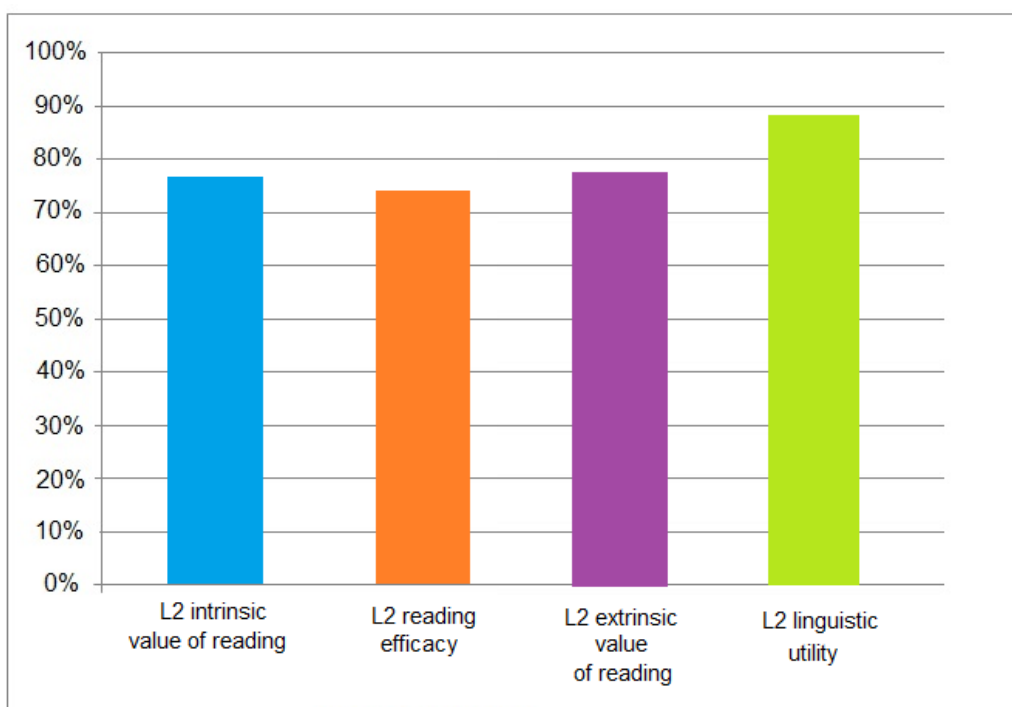


Figure 26. L2 reading motivation

#### Research Question 4: What are the Turkish EFL learners' levels of L1 reading motivation?

##### 4.1. What L1 reading motivational constructs are favoured by Turkish EFL learners?

With respect to L1 reading motivation, the values were lower compared to L2 reading motivation. Although the variances across the subscales of L1 reading motivation are approximately equal to each other, the participants reported higher *L1 reading motivation for self* (M=3.62) compared to other L1 reading motivation constructs; and *reading for recognition* received the lowest value (M=3.10).

Interestingly, the results revealed that the participants did less reading in L2 compared to L1. Although they reported higher L2 reading motivation than L1 reading motivation, their scores for L2 reading habits (M=7.46, 67.81%, with a possible maximum score of 11) were lower than that of L1 (M=8.14, 74%, with a possible maximum score of 11).

As for reading motivation, the results indicate that L2 reading motivation (M=3.94, 78.8%) of the participants was higher than their L1 reading motivation

(M=3.49, 69.8%), which may be due to the participants' being English-major students.

Table 42

*Descriptive Statistics for the L1 Reading Motivation Scale*

	N	Min	Max	M	%	SD
L1 reading for self	490	1,00	5,00	3,6207	72.4	,73720
L1 reading efficacy	490	1,00	5,00	3,5097	70	,71754
L1 reading for recognition	490	1,00	5,00	3,1075	62	1,00160
L1 reading to do well in other realms	490	1,00	5,00	3,5194	70.2	,72663
Valid N (listwise)	489					

The sub-factors of the L2 reading motivation scale indicate that “*L2 foreign language linguistic utility value of reading*” received the highest mean (4.45, 89%), followed by “*extrinsic motivation*”, with a mean of 3.93 (78.6). On the other hand, the mean of “*L2 intrinsic value of reading*” was 3.89 (77.8%), while “*L2 reading efficacy*” received the lowest mean (M=3.72, 74.4%).

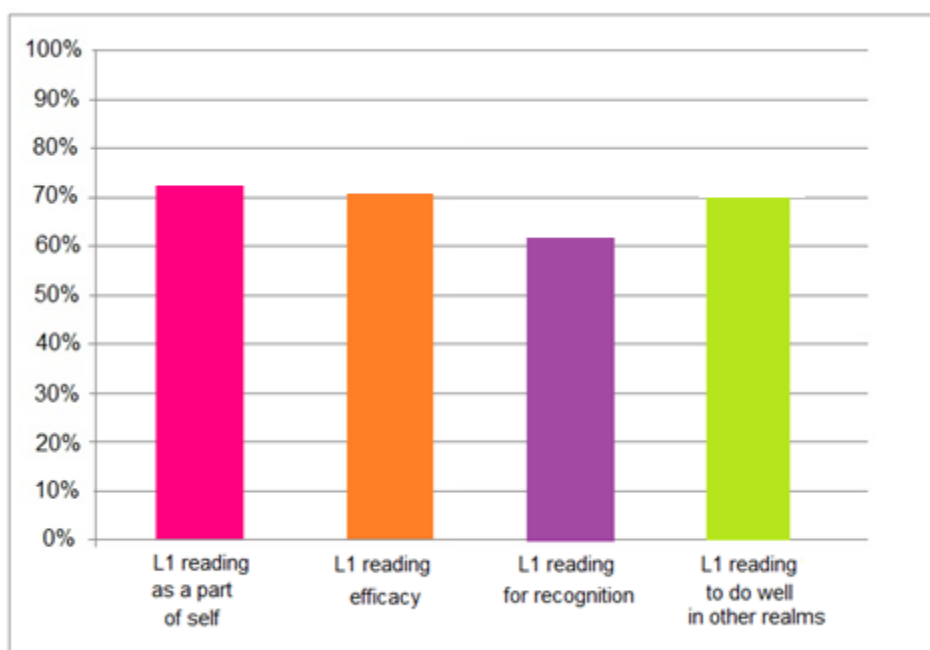


Figure 27. L1 reading motivation

The mean scores for the L1 reading motivation sub-factors indicate that reasons for L1 reading slightly diverge from those for L2 reading. “L1 reading for self” got the highest mean score (M=3.62, 72.4%) which was followed by “L1 reading to do well in other realms” (M=3.51, 70.2) and “L1 reading efficacy” (M=3.50, 70%). “L1 reading for recognition” (M=3.10, 62%) was the least favored reason for reading in L1. The overall results with regard to reading motivation in L1 and L2 suggest that students have different reasons to read in L1 and L2. In the current study, students were more motivated to read in L2 for linguistic and extrinsic reasons, and their “L2 reading efficacy” was relatively low compared to their L1 reading efficacy. On the other hand, they were motivated to read in L1 for both intrinsic and extrinsic reasons.

**Research Question 5: What are the Turkish EFL learners’ levels of L2 reading habits?**

**Research Question 6: What are the Turkish EFL learners’ levels of L1 reading habits?**

With respect to reading habits, both of the questionnaires concerning this issue allowed 11 as maximum value, and this score was achieved by some of the participants on both. Here, as well, L1 reading habits (M=8.14) received a higher value in comparison with L2 reading habits (M=7.46).

Table 43

*Descriptive Statistics for the Reading Habits in L1 and L2*

	N	Min	Max	M	%	SD
L2 reading habits	490	,00	11,00	7,4612	67.81	2,31195
L1 reading habits	490	,00	11,00	8,1412	74.00	2,32856

**Summary.** Interestingly, the results revealed that the participants who were English-majors did less reading in L2 compared to L1. Although they reported higher L2 reading motivation than L1 reading motivation, their scores for L2 reading habits were lower than that of L1. As for reading motivation, the results indicate that L2 reading motivation of the participants was higher than their L1 reading motivation, which may be due to the participants’ being English-major students. The sub-factors of L2 reading motivation scale indicate that “L2 foreign



*language linguistic utility value of reading*” received the highest mean. On the other hand, the mean scores of the sub-factors of L1 reading motivation indicate that reasons for L1 reading slightly diverge from those for L2 reading. L1 reading for self got the highest mean score. The overall results with regard to reading motivation in L1 and L2 suggest that students have different reasons to read in L1 and L. In the current study, students were more motivated to read in L2 for linguistic and extrinsic reasons and their L2 reading efficacy was relatively low compared to their L1 reading efficacy. On the other hand, they were motivated to read in L1 for both intrinsic and extrinsic reasons. It is reasonable to be more intrinsically motivated to read in L1 than L2 or to be more motivated linguistically for L2 reading.

In the literature, intrinsic motivation and instrumental motivation appear to be two dominant motivational orientations in L1 whereas instrumental motivation and extrinsic motivation are two most highly reported reasons for reading in L2 (Kim, 2011; Schutte & Malouff, 2007; Lin, Wong and Chan, 2012; Ölmez, 2015; Erten et al., 2010; Özönder, 2015). In this respect, the results of the current study support these findings. Interestingly, L1 reading efficacy was reported lower than L2 reading efficacy. However, this may be explained by the fact that, as English-majors, the participants spend more time with L2 texts more than they do with L1 texts. And are therefore, likely to have more sense of control in L2 reading.

## **Correlations**

Among the variables of L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation and L1 reading habits, the most outstanding correlation appeared between L2 vocabulary and L1 vocabulary ( $r=.475$ ,  $p<0.01$ ).

Afterward, L2 reading efficacy ( $r=.274$ ,  $p<0.01$ ) was determined as a second factor that had a correlation with L2 vocabulary. In this regard although there was a correlation between vocabulary and reading habits in both languages, the correlation between L1 vocabulary and L1 reading habits ( $r=.202$ ,  $p<0.01$ ) was larger than the correlation between L2 vocabulary and L2 reading habits ( $r=.115$ ,  $p<0.05$ ).

Table 44

*The Results of the Reliability Analysis of the Adult Motivation for Reading Scale*

	1	2	3	4	5	6	7	8	9	10	11
1 L2 voc	-										
2 L1 voc	,475**	-									
3 L2 hab	,115*	,057	-								
4 L1 hab	-,012	,202**	,334**	-							
5 L2 intrin	,085	-,043	,370**	,145**	-						
6 L2 effic	,274**	,110*	,378**	,157**	,419**	-					
7 L2 extrin	,030	,075	,255**	,085	,260**	,154**	-				
8 L2 ling	-,003	-,024	,231**	,078	,273**	,228**	,484**	-			
9 L1 self	,020	,259**	,281**	,553**	,221**	,158**	,216**	,187**	-		
10 L1 effic	,044	,255**	,296**	,423**	,189**	,236**	,126**	,138**	,664**	-	
11 L1 rec	-,019	,060	,108*	,127**	,031	,089*	,243**	,134**	,361**	,297**	-
12 L1 other	-,068	,013	,298**	,338**	,315**	,161**	,283**	,238**	,500**	,417**	,304**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Furthermore, L1 vocabulary also correlated with L1 reading for self ( $r=.259$ ,  $p<0.01$ ) and L1 reading efficacy ( $r=.255$ ,  $p<0.01$ ), and a medium correlation was found between L2 reading habits and L1 reading habits ( $r=.334$ ,  $p<0.01$ ). There was also a medium correlation between L2 reading habits and L2 reading motivation constructs (intrinsic  $r=.370$ ,  $p<0.01$ ; efficacy  $r=.378$ ,  $p<0.01$ ; extrinsic  $r=.255$ ,  $p<0.01$ ; linguistic  $r=.231$ ,  $p<0.01$ ). The correlations between L1 reading habits and L1 reading motivational constructs were relatively higher; there was a strong correlation between L1 reading habits and reading for self ( $r=.553$ ,  $p<0.01$ ), and there was a medium correlation between L1 reading habits and efficacy ( $r=.423$ ,  $p<0.01$ ) and other reasons ( $r=.338$ ,  $p<0.01$ ). Reading for recognition also correlated with L1 reading habits, but unremarkably so ( $r=.127$ ,  $p<0.01$ ). As shown in Table 44, significant correlations ( $p<0.01$ ) were also observed between L2 reading motivation and L1 reading motivation, ranging from  $r=.126$  to  $r=.315$ .

## Evaluation of the models

This study employed structural equation modelling (SEM) analysis, which is a statistical model that aims to explain the relationships between multiple variables. Among two SEM techniques, in consideration of the properties of the data set and an epistemic view of data to theory, a component-based technique of Partial Least Squares Structural Equation Modelling (PLS-SEM) was adopted over “factor based covariance fitting approach” Covariance-Based Structural Equation Modelling (CB-SEM) (Chin, 1998, p. 295). Whereas CB-SEM is grounded on covariance, PLS-SEM is based on variance and aims to maximize  $R^2$  (Hair, Black & Babin, 2010; Hair et al., 2014). As the research goal of the study was to explore a theory rather than confirm an existing one through using a complex model of several variables with many indicators, PLS-SEM was deemed well-suited to the current study.

The two main reasons for employing the PLS-SEM technique were as follows: (1) the model applied in the study consisted of several components, with complex relationships among these factors; and (2) the properties of the data set included varying data types, from binary to scalar, as well as two single items (the total achievement scores of the vocabulary tests) (Chin, 1998; Hair et al., 2014, 2011). In this regard, PLS SEM serves best for “large complex models with latent variables” and “extensions of existing theories” (Avkiran, 2018, p. 6), as was the case with the current study. Moreover, robustness with non-normal data and small sample sizes are also favoured (Rigdon, 2016).

In this study, PLS-SEM analyses were run through SmartPLS 3.2.7 (Ringle, Wende, & Becker, 2015), and a total of four models were developed, as described in the introduction.

**Models evaluation criteria.** The PLS-SEM employs different model evaluation criteria, which are described in detail in the Methodology Chapter and displayed again in Table 45 below. The measurement model of the PLS-SEM is similar to the measurement model of CB-SEM technique, and although based on different approaches, it serves the same purpose, defining the relationships between the indicators and the related latent variable (Chin, 1998).

Table 45  
*Models Evaluation Criteria*

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Evaluation of the reflective measurement model

	Cut-off value	Reference
Internal consistency (composite reliability)	$\rho_c = 0.60-0.70$ (exploratory) $\rho_c = 0.70-0.90$ (advanced)	(Nunally & Bernstein, 1994)
Indicator reliability	standardized outer loadings $\geq 0.708$	(Hair et al., 2014)
Convergent validity (average variance extracted, AVE)	AVE $\geq 0.50$	(Hair et al., 2014)
Discriminant validity	<ul style="list-style-type: none"> <li>o An indicator's outer loadings on a construct should be higher than all of its cross-loadings with other constructs.</li> <li>o The square root of the AVE of each construct should be higher than its highest correlation with any other construct (Fornell Larcker criterion).</li> </ul>	(Hair et al., 2014)
<i>Evaluation of the structural model</i>		
Collinearity	Tolerance $\leq 0.20$ VIF $\geq 5.00$ Std. values between -1 and + 1	(Hair et al., 2014)
Path coefficients	$t > 1.96$ (significance level of the critical value = 5%)	(Hair et al., 2011)
Coefficient of determination (R <sup>2</sup> )	R <sup>2</sup> = 0.75 (substantial) 0.50 (moderate) 0.25 (weak)	(Hair et al., 2011)

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<i>Effect sizes( f<sup>2</sup>)</i>	<i>f<sup>2</sup> =0.02 (small)</i> 0.15 (medium) 0.35 (large)	(Cohen, 1988)
<i>Predictive relevance Q<sup>2</sup></i>	omission distance = 5 -10 <i>Q<sup>2</sup>&gt;0</i>	(Hair et al., 2014)

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On the other hand, PLS-SEM utilizes different evaluation criteria and procedures from the single goodness-of-fit criterion used in the CB-SEM. In this study, a reflective measurement model was employed in which “the causality comes from the construct to its measures”, (Hair et al., 2014, p. 43) and the measures maintain high intercorrelation. Considering the characteristics of the measures, the complex model proposed and the objective of the study, the reflective measurement model was determined for each model (Hair et al., 2014).

### Evaluation of Model I

**Measurement (outer) model.** The L1 and L2 reading motivation scales were treated as second-order constructs and were measured through reflective-reflective approach. Because the constructs are measured by the subcomponents (e.g. L1 reading efficacy, L2 reading efficacy) of the constructs, they were not expected to exhibit high inter-correlations. In reflective measurement models, the direction of the causal action is from latent variables to indicators (Hair et al., 2014).

Table 46

*Measurement (Outer) Model Results: Model I*

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Variables	Loadings	Composite reliability	AVE
L1 READING MOTIVATION		.837	.573
<i>L1 reading for self</i>	.934	.902	.571
“Without reading, my life would not be the same.”	.726		
“My friends sometimes are surprised at how much I read.”	.764		
“My friends and I like to exchange books or articles we particularly enjoy.”	.588		
“It is very important to me to spend time reading.”	.876		

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"In comparison to other activities, reading is important to me."	.863		
"I set a good model for others through reading."	.677		
"Reading helps make my life meaningful."	.756		
<i>L1 reading efficacy</i>	.818	.841	.639
"I like hard, challenging books or articles."	.751		
"I am confident I can understand difficult books or articles."	.816		
"I am a good reader."	.828		
<i>L1 reading for recognition</i>	.529	.864	.679
"It is important to me to get compliments for the knowledge I gather from reading."	.875		
"I like others to question me on what I read so that I can show my knowledge."	.793		
"It is important to me to have others remark on how much I read."	.801		
<i>L1 reading to do well in other realms</i>	.686	.810	.516
"If I am going to need information from material I read, I finish the reading well in advance of when I must know the material."	.694		
"Work performance or university grades are an indicator of the effectiveness of my reading."	.715		
"I do all the expected reading for work or university courses."	.765		
"I read to improve my work or university performance."	.698		
L2 READING MOTIVATION		.818	.532
<i>L2 intrinsic value of reading</i>	.861	.924	.513
"Reading in a foreign language is enjoyable."	.727		
"I like reading in a foreign language."	.816		
"Reading in a foreign language is boring.*"	.472		
"I feel peaceful while reading in a foreign language."	.789		
"I have a great desire to read in a foreign language."	.822		
"I never read in a foreign language unless I have to *"	.478		
"The more I read in a foreign language, the more I want to read."	.797		
"I love reading in a foreign language."	.802		
"Reading in a foreign language makes me happy."	.862		
"I read in a foreign language even if I do not have to."	.700		
"I spend the time to read in a foreign language."	.725		
"I do not read in a foreign language even if I have time.*"	.423		
<i>L2 reading efficacy</i>	.662	.906	.615
"I comprehend the texts in a foreign language at first reading."	.755		
"I can comprehend most of what I read in a foreign language."	.770		

"I can read in a foreign language fluently."	.777		
"My reading skill in a foreign language is at an advanced level."	.783		
"I have no problems with comprehending a foreign language text."	.780		
"I am successful at reading in a foreign language"	.840		
<i>L2 extrinsic utility value of reading</i>	.693	.843	.519
"Reading in a foreign language provides us with a better education."	.644		
"Reading in a foreign language helps us to become better individuals."	.753		
"Reading in a foreign language helps to prepare a better future for ourselves."	.792		
"Reading in a foreign language helps to find a better job."	.690		
"Reading in a foreign language is beneficial for self-development."	.716		
<i>L2 foreign language linguistic utility value of reading</i>	.683	.845	.578
"Reading in a foreign language contributes to the development of grammar in a foreign language."	.754		
"Reading in a foreign language contributes to the development of writing skill in a foreign language."	.816		
"Reading in a foreign language is an essential instrument to enlarge our vocabulary."	.793		
"Reading in a foreign language helps fluency in speech in a foreign language."	.670		
L2 VOCABULARY		Single Item	
L1 VOCABULARY		Single Item	
L1 READING HABITS		.819	.610
"How often do you read in Turkish?"	.878		
"How many hours do you read a week?"	.869		
"When was the last time you read a book, a newspaper, a magazine etc. in Turkish?"	.551		
L2 READING HABITS		.780	.554
"How often do you read in English?"	.855		
"How many hours do you read a week?"	.834		
"When was the last time you read a book, a newspaper, a magazine etc. in English?"	.487		

*Composite reliability*, which assesses internal consistency, should range from .60 to .95 (Nunally & Bernstein, 1994). Table 46 indicates that all the values fell within the higher end of this range indicating high levels of internal consistency (Wong, 2016).

Table 47

*AVE Values and the Fornell-Larcker Test of Discriminant Validity for Model I*

Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 L2 hab	.745													
2 L2 voc	.129	SI												
3 L1 effic	.279	.059	.799											
4 L1 hab	.345	.035	.463	.781										
5 L1 voc	.077	.475	.269	.244	SI									
6 L1 rec	.103	- .019	.324	.146	.060	.824								
7 L1 mot	.311	.007	-	.544	.230	-	.756							
8 L1 oth	.265	- .068	.430	.319	.013	.306	-	.719						
9 L1 self	.277	.018	.702	.565	.255	.348	-	.502	.756					
10 L2 int	.468	.122	.278	.145	.037	.148	.366	.357	.321	.716				
11 L2 mot	.489	.147	.289	.185	.070	.216	.389	.365	.332	-	.729			
12 L2 effic	.357	.269	.256	.162	.105	.089	.209	.166	.153	.512	-	.784		
13 L2 ling	.222	.003	.109	.076	- .023	.126	.209	.231	.182	.411	-	.247	.760	
14 L2 ext	.249	.024	.114	.103	.070	.237	.267	.284	.225	.456	-	.163	.494	.721

**Note:**

1-AVE values cannot be calculated for single item constructs and therefore the related cells are blank. Discriminant validity between second-order constructs and the sub-constructs of the second-order constructs was not analyzed (Hair, Sarstedt, Ringle, & Gudergan, 2017)

2- The values in bold are the square roots of the AVE values

To address *indicator reliability*, all of the constructs were measured as reflective; and factor loadings below .4, as well as those that had factor loadings between .4 and .7, but that affected average variance extracted (AVE) and the



composite reliability of the latent variables negatively, were discarded from the analysis.

As such, a total of 2 items from the L1 reading motivation construct, 4 items from the L2 reading motivation construct and 1 item from the L1 and L2 reading habits measures were excluded from the analysis to secure AVE and composite reliability (Hair et al., 2014; Wong, 2016).

To establish *convergent validity*, which determines the positive correlation between a measure and the sub-measures of the same construct (Hair et al., 2014), the outer loadings of the indicators and the average variance extracted (AVE) were examined; the results showed that extending within the suggested range all the outer loadings and exceeding .5 AVE values, convergent validity was ensured (Garson, 2016; Hair et al., 2014; Hegner-Kakar et al., 2018).

In order to secure *discriminant validity*, which “is the extent to which a construct is truly distinct from other constructs by empirical standards” (Hair et al., 2014, p. 104), a “more conservative approach” (Hair et al., 2014, p. 105) the Fornell-Larcker criterion, was employed. This is measured by examining the square root of the AVE values and the correlations of the other variables in the model (Fornell & Larcker, 1981); in this regard “the AVE should exceed the squared correlation with any other construct” (Hair et al., 2014, p. 105), as was determined in the present study (See Table 47).

**Structural (inner) model.** After establishing the criteria for the measurement model, a structural model was tested. Initially, collinearity assessment was performed, and as all of the VIF values were below .5, as displayed in Table 48, no implication of collinearity between predictor variables was determined (Hair et al., 2017; Wong, 2016).

Considering that path coefficients ranged from -1 to +1 in this case as shown in Table 48, and that values closer to +1 or -1 indicate a strong relationship, whereas values closer to 0 indicate a weak relationship, all of the paths were found to significantly conform to the hypotheses except the hypothesized path relationship between L2 reading habits → L2 vocabulary knowledge ( $\beta = .049$   $p < .05$ ). This demonstrates that L1 reading habits do not predict L2 vocabulary knowledge. On the other hand, L1 vocabulary was found to have the strongest

effect on L2 vocabulary ( $\beta = .465$   $p < .05$ ), and L2 reading motivation also significantly but weakly affects L2 vocabulary ( $\beta = .091$   $p < .05$ ). However, L1 reading habits ( $\beta = .170$   $p < .05$ ) were found to have a statistically significant moderate effect on L1 vocabulary with L1 reading motivation ( $\beta = .137$   $p < .05$ ). With respect to the other path relationships, L1 reading motivation had a moderately strong effect on L1 reading habits ( $\beta = .544$   $p < .05$ ), which represented the strongest relationship among all hypothesized path relationships. Moreover, L2 reading motivation was also moderately affected by L1 reading motivation ( $\beta = .389$   $p < .05$ ). Lastly, in terms of L2 reading habits, L2 reading motivation ( $\beta = .440$   $p < .05$ ) was found to have a stronger effect than L1 reading habits ( $\beta = .264$   $p < .05$ ).

Constituting the essential part of the structural model evaluation, the coefficient of determination refers to the assessment of R<sup>2</sup> values. These have a cut-off value of 0.75 for a substantial coefficient of determination, 0.50 for moderate and 0.25 for weak (Hair et al., 2011). The R<sup>2</sup> values, which are displayed in Figure 27, indicate that L1 reading habits received the highest value (.306), which is quite close to the moderate range (J. F. Hair et al., 2014) and suggests that L2 reading motivation, together with L1 reading habits, can explain 30% of the variance of L2 reading habits. Similarly, nearly 30% of *L1 reading habits* explained only one exogenous construct of L1 reading motivation ( $R^2 = .296$ ). Regarding *L2 vocabulary size*, a total of 24% variance was explained by L2 reading motivation and L1 vocabulary size. However, *L1 vocabulary size* ( $\beta = .465$   $p < .05$ ,  $f^2 = .283$ ) was far stronger than L2 reading motivation ( $\beta = .091$   $p < .05$ ,  $f^2 = .008$ ), as hypothesized.

Overall, however, L1 reading motivation and L1 reading habits explained the very weak variance of *L1 vocabulary* ( $R^2 = .073$ ). Lastly, about 14% of L2 reading motivation was explained by L1 reading motivation ( $R^2 = .149$ ,  $\beta = .000$   $p < .05$ ).

*Effect sizes* were handled within the hypothesis evaluation below, and for *predictive accuracy*, Stone-Geissers' Q<sup>2</sup> was employed. A Q<sup>2</sup> above 0 is suggested, and it is clear from Figure 27 that predictive accuracy was ascertained and the model demonstrated good predictive relevance (Chin, 1998; Hair et al., 2014).

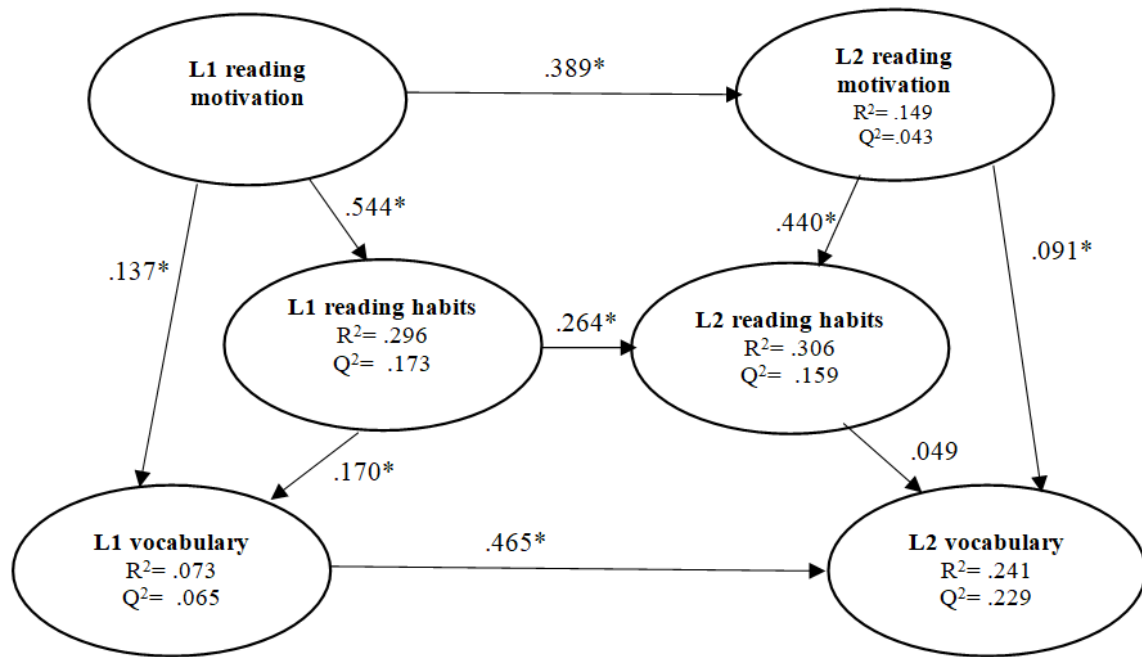


Figure 28. Structural (Inner) model results for Model I

**Research Question 8: Is the first model - which describes the effects among the variables of L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation, L1 reading habits - consistent with the observed relationships among these variables?** As Table 48 indicates, aside from one path that describes the relationship between L2 reading motivation and L2 vocabulary knowledge, the relationship was found to be insignificant.

Table 48

Structural Model Results for Model I

Hypothesis	Efect	$\beta$	$t$	Result	VIF	$f^2$
H <sub>1</sub>	L1 mot→ L2 mot.	.389	7.703	Accepted	1.000	.270
H <sub>2</sub>	L2 mot→ L2 voc.	.091	2.131	Accepted	1.316	.008
H <sub>3</sub>	L1 mot→ L1 hab.	.544	17.103	Accepted	1.000	.421
H <sub>4</sub>	L1 hab→ L2 hab.	.264	6.872	Accepted	1.035	.097
H <sub>5</sub>	L2 hab→ L2 voc.	.049	.995	Not Supported	1.317	.002
H <sub>6</sub>	L2 mot→ L2 hab.	.440	11.444	Accepted	1.035	.270
H <sub>7</sub>	L1 mot→ L1 voc.	.137	2.603	Accepted	1.421	.022
H <sub>8</sub>	L1 hab→ L1 voc.	.170	3.279	Accepted	1.421	.014
H <sub>9</sub>	L1 voc→ L2 voc.	.465	13.539	Accepted	1.007	.283

In order to test the hypotheses, the significance and the effect of the independent variables on  $R^2$  and  $Q^2$  values,  $f^2$  values were calculated. The evaluation of  $f^2$  values was based on Cohen's (Cohen, 1992) criteria: .02 small, .15 medium and .35 large effect.

***H<sub>1</sub>: "L1 reading motivation has a statistically significant direct effect on L2 reading motivation"***. Table 48 shows that L1 reading motivation had a statistically significant positive moderate effect on L2 reading motivation ( $\beta = .389$   $p < .05$ ,  $f^2 = .289$ ) which supported accepting  $H_1$ .

***H<sub>2</sub>: "L2 reading motivation has a statistically significant direct effect on L2 vocabulary size"***. L2 reading motivation also had a statistically significant positive but small effect on L2 vocabulary knowledge ( $\beta = .091$   $p < .05$ ,  $f^2 = .008$ ) which indicated acceptance of  $H_2$ .

***H<sub>3</sub>: "L1 reading motivation has a statistically significant direct effect on L1 reading habits"*** Similarly, Table 48 reveals that  $H_3$  was also accepted, considering that L1 reading motivation had a statistically significant positive large effect on L1 reading habits ( $\beta = .544$   $p < .05$ ,  $f^2 = .421$ ).

***H<sub>4</sub>: "L1 reading amount has a statistically significant direct effect on L2 reading habits"***. L1 reading habits had a statistically significant and positive effect on L2 reading habits with a small effect size, thus supported  $H_4$  ( $\beta = .264$   $p < .05$ ,  $f^2 = .097$ ).

***H<sub>5</sub>: "L2 reading habits have a statistically significant direct effect on L2 vocabulary size"***. According to the analysis, L2 reading habits did not have a statistically significant effect on L2 vocabulary ( $\beta = .049$   $p < .05$ ,  $f^2 = .002$ ) which indicated that  $H_5$  was not supported.

***H<sub>6</sub>: "L2 reading motivation has a statistically significant direct effect on L2 reading habits"***. In terms of the 6<sup>th</sup> hypothesis, L2 reading motivation had a statistically significant and positive effect on L2 reading habits ( $\beta = .440$   $p < .05$ ,  $f^2 = .270$ ) with a medium effect size, which supported acceptance of  $H_6$ .

***H<sub>7</sub>: "L1 reading motivation has a statistically significant direct effect on L1 vocabulary size"***. Despite the small effect size, L1 reading habits had a

statistically significant and positive effect on L1 vocabulary ( $\beta = .137$   $p < .05$ ,  $f^2 = .022$ ), which implied that  $H_7$  could be accepted.

**$H_8$ : “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”.** Likewise, L1 reading habits had a statistically significant and positive effect on L1 vocabulary with a small effect size, which supported acceptance of  $H_8$  w ( $\beta = .170$   $p < .05$ ,  $f^2 = .014$ ).

**$H_9$ : “L1 vocabulary size has a statistically significant direct effect on L2 vocabulary size”.** Lastly, L1 vocabulary had a statistically significant and positive effect on L2 vocabulary with a small effect size ( $\beta = .465$   $p < .05$ ,  $f^2 = .283$ ), which supported accepting  $H_9$ .

Table 49 displays the direct, indirect and total effects; as shown, L2 reading motivation had only one predictor variable and was directly and strongly predicted by L1 reading motivation ( $\beta = .389$   $p < .05$ ).

Table 49  
*Direct, Indirect and Total Effects for the Model I*

<i>Predicted variable</i>	<i>Predictor variable</i>	<i>Direct effect</i>	<i>Indirect effect</i>	<i>Total effect</i>
L2 Reading mot.	L1 mot.	.389*		.389*
	L2 mot.	.091*	.022	.112*
	L2 habits	.049		.049
L2 Vocabulary	L1 vocab.	.465*		.465*
	L1 habits		.092*	.092*
	L2 mot.	.440*		.440*
L2 reading habits	L1 habits	.264*		.264*
	L1 mot.		.315*	.315*
L2 reading habits	L1 mot.	.544*		.544*
	L1 habits	.170*		.170*
L1 Vocabulary	L1 mot.	.137*	.092*	.230*

\*  $p < .05$

Among the predictors of L2 vocabulary, despite the low  $\beta$  value, L2 reading motivation had a statistically significant and direct effect on L2 vocabulary ( $\beta = .091, p < .05$ ). However, as L2 reading habits did not mediate the relationship between L2 reading motivation and L2 vocabulary ( $\beta = .049, p > .05$ ), the indirect effect of L2 reading motivation on L2 vocabulary was insignificant. On the other hand, L1 vocabulary had a direct and strong effect on L2 vocabulary ( $\beta = .465, p < .05$ ). Finally, the indirect and small effect of L1 reading habits via L1 vocabulary on L2 vocabulary was statistically significant ( $\beta = .092, p < .05$ ).

With regard to L2 reading habits, L2 reading motivation ( $\beta = .440, p < .05$ ) had a large direct effect, and L1 reading habits had a medium direct effect ( $\beta = .264, p < .05$ ); and finally, L1 reading motivation influenced L2 reading habits indirectly but nearly to a large extent ( $\beta = .315, p < .05$ ).

As for L1 reading habits, unlike L2 reading motivation's influence on L2 reading habits, L1 reading motivation exhibited quite a strong effect ( $\beta = .544, p < .05$ ).

Furthermore, L1 vocabulary was predicted directly by L1 reading habits ( $\beta = .170, p < .05$ ), and L1 reading motivation also indirectly influenced L1 vocabulary, but with lower predictive relevance ( $\beta = .092, p < .05$ ).

**Summary of the results and the discussion of Model I.** The results of the PLS-SEM analysis of Model I revealed that only one path, from L2 reading habits to L2 vocabulary size, was found to be insignificant. This may be explained by the fact that extensive reading by itself is not a significant predictor of L2 vocabulary despite several studies indicating that extensive reading promotes vocabulary substantially (Al-Homoud & Schmitt, 2009; Chun, Choi, & Kim, 2012; Pigada & Schmitt, 2006a; Suk, 2016; Tiryaki & Tütüniş, 2012). However, as the study did not focus on the reading habits of the participants in detail such as how they manage texts or unknown vocabulary or the type and the level of the texts, it is not possible to conclude that extensive reading by itself is not a significant predictor of L2 vocabulary. In this regard, the studies that suggest that extensive reading should be supported with explicit vocabulary practice and follow-up activities merit consideration (Min, 2008; Teng, 2014; Yamamoto, 2011) and in

future studies other factors that may potentially affect L2 vocabulary should be included in the model.

Regarding the other paths, L1 reading motivation significantly predicted L2 reading motivation which was in line with the literature. In this respect, several studies have revealed that despite the fact that reading motivation in L1 and L2 are affected by different factors as a result of the contexts in which both languages are used, L1 reading attitudes and motivation remains a significant source of influence on L2 reading and motivation (Kim, 2011; Lee & Schallert, 2014; Yamashita, 2004, 2007). In existing studies, students possessed different motivational orientations in L1 versus L2. In one instance, intrinsic and instrumental reasons were found as two main motivational orientations driving L1 reading (Schutte & Malouff, 2007b; Yıldız, et al., 2013), whereas in another case, in L2 reading, instrumental and extrinsic motivations (Erten et al., 2010; Ölmez, 2015; Özönder, 2015) were determined as two most dominant motivational orientations respectively. These results are supported by the current study; although the most highly-reported motivations were somewhat different in both languages, by looking at the correlations analysis in the current study, it can be seen that each sub-construct significantly correlated with the others, aside from the relationship between L1 reading for recognition and L2 intrinsic value of reading. In this regard, the significant correlations between the sub-constructs of the same motivational construct suggests that reading motivation as a driving force may change its way to be considered as the most advantageous route in the target language.

Additionally, L1 reading motivation was also a significant predictor of L1 reading habits; and likewise, L2 reading motivation, which was directly predicted by L1 reading motivation, significantly contributed to L2 reading habits. In this respect the results were in line with several studies that found reading motivation, especially intrinsic reading motivation, to be a strong predictor of reading amount (Baker & Wigfield, 1999; Guthrie et al., 1999; Miyamoto et al., 2018; Stutz et al., 2016a). In this sense, participants who are highly motivated to read are likely to report higher reading amount.

Another significant path was found between L1 reading motivation and L1 vocabulary; and likewise, L2 reading motivation significantly contributed to L2

vocabulary. Although the literature lacks studies dealing with the reading motivation and vocabulary relationship, studies on reading motivation and reading comprehension can shed some light on this relationship, revealing that reading competence and achievement is related to reading motivation (intrinsic motivation) (Guthrie et al., 1999; Lau, 2004; Miyamoto et al., 2018; Schaffner et al., 2013; Wang & Guthrie, 2004). Students who have higher reading motivation cope with texts more effectively and for a longer time, and in addition they are better at using cognitive resources and reading strategies. Therefore, vocabulary knowledge is likely to benefit from this process. Another point that can explain this result is that substantial aspect of the relationship between reading motivation and vocabulary in L1 is mediated by reading habits.

Furthermore, L1 reading habits also significantly and directly predicted L1 vocabulary, another finding that corresponds to previous studies. However, as discussed above, the path between L2 reading habits and L2 vocabulary was found to be insignificant, whereas several studies have concluded that extensive reading improved vocabulary substantially (Al-Homoud & Schmitt, 2009; Chun et al., 2012; Kweon & Kim, 2008; Pigada & Schmitt, 2006b; Suk, 2016; Tiryaki & Tütüniş, 2012). Although tracking the full impact of extensive reading on vocabulary knowledge is difficult to track, because it functions as a tool for strengthening already-known vocabulary and related aspects of knowing a word (e.g., grammatical context, discursal context, inflectional and derivational forms), some studies have indicated that it created a measurable and significant effect on vocabulary knowledge even within short periods of time (1-3 months) (Al-Homoud & Schmitt, 2009; Chun et al., 2012; Kweon & Kim, 2008; Suk, 2016). Nevertheless, a number of studies indicate that extensive reading practice should be supported and strengthened through explicit vocabulary learning activities (Min, 2008; Teng, 2015; Yamamoto, 2011).

Secondly, L1 reading habits predicted L2 reading habits directly and significantly, as with previous studies (Camiciottoli, 2001; Ro & Chen, 2014) that investigated the effects of L1 reading habits on L2 reading behaviour. In this respect, the current study contributes to the literature by supporting the existing findings that learners who have better reading habits in L1 are likely to develop better reading habits in L2.



Moreover, the most salient path was found between L1 vocabulary and L2 vocabulary, as L1 vocabulary significantly predicted L2 vocabulary, and compared to the other paths, this one was quite strong. Previously, comparisons of L1 and L2 vocabulary have only been investigated in papers focusing on bilingualism, and particularly on the language development of bilingual immigrant children (kindergarten, first graders, and second graders in ESL contexts). In these few studies, the relationship between L1 and L2 vocabulary was found to be insignificant (Carlisle, et. al., 1999; Mase, 2011; San Francisco, Carlo, August, & Snow, 2006). On the other hand, L1 vocabulary was found to be a significant predictor of L2 aptitude in Sparks et al.'s (2009a) study, while similarly, Raudszus et al. (2018) suggested in their study testing a model of reading comprehension that L1 vocabulary knowledge should be given attention as a potential predictor of L2 learning aptitude.

## **Evaluation of Model II**

**Measurement (Outer) Model.** The analysis of measurement model II followed the same steps that were described in detail for the first model.

With respect to *Composite reliability*, which assesses internal consistency, values should range from .60 to .95 (Nunally & Bernstein, 1994). Table 50 indicates that all the values fell within the higher end of this range indicating high levels of internal consistency (Wong, 2016).

For *indicator reliability*, all of the constructs were measured as reflective and factor loadings below .4, and those that had factor loadings between .4 and .7, but that affected average variance extracted (AVE) and the composite reliability of the latent variables negatively were discarded from the analysis. In this sense, a total of 2 items from the L1 reading motivation construct, 5 items from the L2 reading motivation construct and 1 item from L1 and L2 reading habits measures were excluded from the analysis (Hair et al., 2014).

To establish *convergent validity*, which determines the positive correlation between a measure and the sub-measures of the same construct (Hair et al., 2014), the outer loadings of the indicators and the average variance extracted (AVE) were examined; the results showed that extending within the suggested

range all the outer loadings and exceeding .5 AVE values, convergent validity was ensured (Garson, 2016; Hair et al., 2014; Hegner-Kakar et al., 2018).

Table 50  
*Measurement (Outer) Model Results for Model II*

<i>Variables</i>	<i>Loadings</i>	<i>Composite reliability</i>	<i>AVE</i>
<b>L1 READING MOTIVATION</b>			
<i>L1 reading for self</i>		.901	.570
“Without reading, my life would not be the same.”	.741		
“My friends sometimes are surprised at how much I read.”	.780		
“My friends and I like to exchange books or articles we particularly enjoy.”	.596		
“It is very important to me to spend time reading.”	.880		
“In comparison to other activities, reading is important to me.”	.867		
“I set a good model for others through reading.”	.644		
“Reading helps make my life meaningful.”	.735		
<i>L1 reading efficacy</i>		.839	.636
“I like hard, challenging books or articles.”	.716		
“I am confident I can understand difficult books or articles.”	.823		
“I am a good reader.”	.847		
<i>L1 reading for recognition</i>			
“It is important to me to get compliments for the knowledge I gather from reading.”	.927		
“I like others to question me on what I read so that I can show my knowledge.”	.768		
“It is important to me to have others remark on how much I read.”	.747		
<i>L1 reading to do well in other realms</i>		.810	.516
“If I am going to need information from material I read, I finish the reading well in advance of when I must know the material.”	.678		
“Work performance or university grades are an indicator of the effectiveness of my reading.”	.719		
“I do all the expected reading for work or university courses.”	.782		
“I read to improve my work or university performance.”	.691		
<b>L2 READING MOTIVATION</b>			
<i>L2 intrinsic value of reading</i>		.925	.540
“Reading in a foreign language is enjoyable.”	.722		
“I like reading in a foreign language.”	.817		

“Reading in a foreign language is boring.”*	.424		
“I feel peaceful while reading in a foreign language.”	.783		
“I have a great desire to read in a foreign language.”	.830		
“I never read in a foreign language unless I have to”*	.443		
“The more I read in a foreign language, the more I want to read.”	.793		
“I love reading in a foreign language.”	.803		
“Reading in a foreign language makes me happy.”	.861		
“I read in a foreign language even if I do not have to.”	.711		
“I spend the time to read in a foreign language.”	.751		
<i>L2 reading efficacy</i>		.906	.615
“I comprehend the texts in a foreign language at first reading.”	.746		
“I can comprehend most of what I read in a foreign language.”	.764		
“I can read in a foreign language fluently.”	.782		
“My reading skill in a foreign language is at an advanced level.”	.801		
“I have no problems with comprehending a foreign language text.”	.779		
“I am successful at reading in a foreign language”	.833		
<i>L2 extrinsic utility value of reading</i>		.842	.519
“Reading in a foreign language provides us with a better education.”	.613		
“Reading in a foreign language helps us to become better individuals.”	.785		
“Reading in a foreign language helps to prepare a better future for ourselves.”	.778		
“Reading in a foreign language helps to find a better job.”	.664		
“Reading in a foreign language is beneficial for self-development.”	.745		
<i>L2 foreign language linguistic utility value</i>		.843	.573
“Reading in a foreign language contributes to the development of grammar in a foreign language.”	.788		
“Reading in a foreign language contributes to the development of writing skill in a foreign language.”	.807		
“Reading in a foreign language is an essential instrument to enlarge our vocabulary.”	.747		
“Reading in a foreign language helps fluency in speech in a foreign language.”	.681		
L2 VOCABULARY	Single Item		
L1 VOCABULARY	Single Item		
L1 READING HABITS		.823	.614
“How often do you read in Turkish?”	.870		

“How many hours do you read a week?”	.860		
“When was the last time you read a book, a newspaper, a magazine etc. in Turkish?”	.586		
L2 READING HABITS		.781	.554
“How often do you read in English?”	.847		
“How many hours do you read a week?”	.827		
“When was the last time you read a book, a newspaper, a magazine etc. in English?”	.510		

In order to secure *discriminant validity*, which “is the extent to which a construct is truly distinct from other constructs by empirical standards” (Hair et al., 2014, p. 104), the Fornell-Larcker criterion was used. In this analysis, “the AVE should exceed the squared correlation with any other construct” (Hair et al., 2014, p. 105). This criterion was secured in the present study (See Table 51).

**Structural (Inner) Model.** After establishing the criteria for the measurement model and the reliability and validity issues, the structural model was tested. Initially, *collinearity assessment* was determined through ensuring VIF values below .5. Table 52 illustrates that all of the VIF values were below this level in this study (Hair et al., 2017).

The *Path coefficients* displayed in Table 52 demonstrate that several of the paths were insignificant. The insignificant paths indicate that L2 extrinsic utility value of reading ( $\beta = .027$   $p > .05$ ) and L2 linguistic utility ( $\beta = .010$   $p > .05$ ) did not predict L2 reading habits. On the other hand, L2 intrinsic reading motivation ( $\beta = .374$   $p < .05$ ) was found to be the best predictor of L2 reading habits when compared to L2 reading efficacy ( $\beta = .117$   $p < .05$ ) and L1 reading habits ( $\beta = .259$   $p < .05$ ). In considering the predictors of L2 vocabulary knowledge, L2 reading efficacy was a unique predictor ( $\beta = .284$   $p < .05$ ), and the other paths were all insignificant. Similarly, L1 reading habits were predicted only by L1 reading for self ( $\beta = .475$   $p < .05$ ). Parallel to the relationship between L2 reading habits and L2 intrinsic motivation for reading, L2 reading for self received a considerable value. However, contrary to L2 vocabulary, besides L1 reading efficacy ( $\beta = .191$   $p < .05$ ), which obtained the highest value of all, L1 reading for self ( $\beta = .145$   $p < .05$ ) and L1 reading habits ( $\beta = .124$   $p < .05$ ) also predicted L1 vocabulary size.

Table 51

*AVE Values and the Fornell-Larcker Test of Discriminant Validity for Model II*

	1	2	3	4	5	6	7	8	9	10	11	12
1 L2 hab	.744											
2 L2 voc	.124	SI										
3 L1 effi	.280	.063	.797									
4 L1 hab	.338	.027	.465	.784								
5 L1 voc	.072	.475	.273	.237	SI							
6 L1 rec	.111	-.015	.324	.154	.063	.818						
7 L1 oth	.270	-.067	.427	.324	.015	.300	.719					
8 L1 self	.278	.023	.710	.569	.261	.340	.488	.755				
9 L2 int.	.490	.124	.288	.154	.047	.164	.356	.330	.735			
10 L2 eff	.356	.273	.259	.158	.108	.095	.165	.154	.511	0,785		
11 L2 lin	.231	-.002	.114	.082	-.025	.126	.232	.182	.423	.248	.757	
12 L2 ext	.252	.028	.115	.098	.073	.240	.283	.222	.472	.156	.479	.720

**Note:**

1-AVE values cannot be calculated for single-item constructs and therefore the related cells are blank. Discriminant validity between second-order constructs and the sub-constructs of the second-order constructs was not analyzed (Hair et al., 2017).

2- The values in bold are the square roots of the AVE values

With respect to the  $R^2$  values displayed in Figure 28, L1 reading habits received the highest  $R^2$  value (.337), which can be interpreted within the range between weak to moderate (Hair et al., 2014). This 33% variance was explained only by one variable: L1 reading for self ( $\beta = .475$   $p < .05$ ,  $f^2 = .152$ ). The  $R^2$  value (.321) of L2 reading habits was closer to that of L1, and 32% variance was explained by L2 intrinsic reading motivation ( $\beta = .374$   $p < .05$ ,  $f^2 = .115$ ) with the highest variance, followed by L1 reading habits ( $\beta = .259$   $p < .05$ ,  $f^2 = .095$ ) and L2 reading efficacy respectively ( $\beta = .117$   $p < .05$ ,  $f^2 = .015$ ). Vocabulary size in both languages was predicted by reading efficacy variables with the highest values, and L2 reading efficacy ( $\beta = .284$   $p < .05$ ,  $f^2 = .062$ ) explained the total of .08% variance in L2 vocabulary knowledge. As for L1 vocabulary knowledge, the highest portion of the 11% variance was explained by L1 reading efficacy ( $\beta = .191$   $p < .05$ ,  $f^2 = .020$ ), followed by L1 reading for self ( $\beta = .145$   $p < .05$ ,  $f^2 = .009$ ) and L1 reading habits ( $\beta = .124$   $p < .05$ ,  $f^2 = .012$ ) respectively.

Effect sizes were explained regarding each of the hypotheses below. For predictive accuracy, Stone-Geissers' Q2 was employed, and the values which should be above 0, ascertained predictive accuracy; therefore, the model demonstrated good predictive relevance (Chin, 1998; Hair et al., 2014).

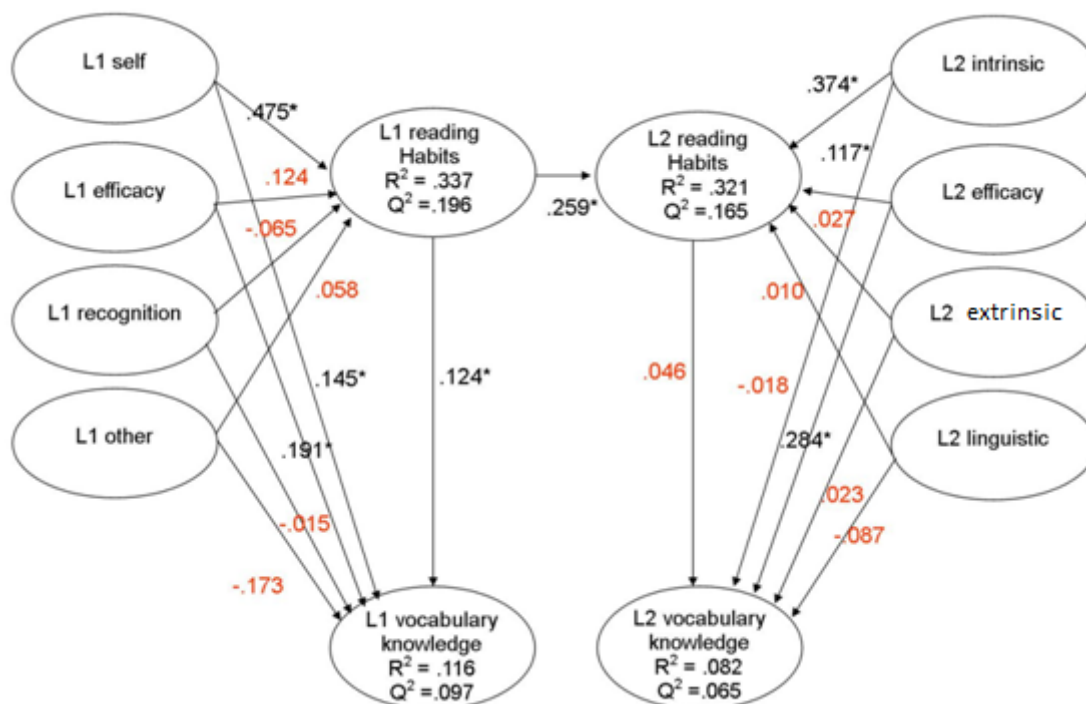


Figure 29. Structural (Inner) model results for Model II

**Research Question 10. Is the second model - which describes the effects among the variables of “L2 vocabulary size”, “L2 intrinsic value of reading”, “L2 reading efficacy”, “L2 extrinsic value of reading”, “L2 linguistic utility”, “L2 reading habits”, “L1 vocabulary size”, “L1 reading as a part of self”, “L1 reading efficacy”, “L1 reading for recognition”, “L1 reading to do well in other realms”, “L1 reading habits” - consistent with the observed relationships among these variables?** As Table 52 reveals, half of the eighteen paths were found to be insignificant. In order to test the hypotheses, the significance and effect of the independent variables on the  $R^2$  and  $Q^2$  values and the  $f^2$  values were calculated. The evaluation of  $f^2$  values was based on Cohen's (1992) criteria: .02 small, .15 medium and .35 large effect.

**Research Question 10.1. Does the second model support the following hypotheses?**

**H<sub>15</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”** Table 52 shows that *L1 reading as a part of self* had a statistically significant positive but very small effect on L1 vocabulary ( $\beta = .145$ ,  $p < .05$ ,  $f^2 = .009$ ), which supports acceptance of H15.

**H<sub>16</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”.** L1 reading efficacy had also a statistically significant positive but small effect on L1 vocabulary knowledge ( $\beta = .191$   $p < .05$ ,  $f^2 = .020$ ) which indicated that H16 could be accepted.

Table 52

*Structural Model Results for Model II*

<i>Hypothesis</i>	<i>Effect</i>	$\beta$	<i>t</i>	<i>Result</i>	<i>VIF</i>	$f^2$
H <sub>15</sub>	L1 self→L1 voc	.145	2.209	Accepted	2.575	.009
H <sub>16</sub>	L1 effic →L1 voc	.191	3.142	Accepted	2.098	.020
H <sub>17</sub>	L1 rec→L1 voc	-.015	.319	<i>Not Supported</i>	1.181	.000
H <sub>18</sub>	L1 other→L1 voc	-.173	3.292	<i>Not Supported</i>	1.371	.025
H <sub>19</sub>	L1 hab →L1 voc	.124	2.373	Accepted	1.508	.012
H <sub>20</sub>	L1 self→1 hab	.475	8.338	Accepted	2.234	.152
H <sub>21</sub>	L1 effic →L1 hab	.124	1.956	<i>Not Supported</i>	2.075	.011
H <sub>22</sub>	L1 recog→L1 hab	-.065	1.700	<i>Not Supported</i>	1.181	.005
H <sub>23</sub>	L1 other→L1 hab	.058	1.409	<i>Not Supported</i>	1.371	.004
H <sub>24</sub>	L1 hab →2 hab	.259	6.787	Accepted	1.035	.095
H <sub>25</sub>	L2 intrin →2 hab	.374	7.377	Accepted	1.784	.115
H <sub>26</sub>	L2 eff→ L2 hab	.117	2.320	Accepted	1.394	.015
H <sub>27</sub>	L2 extrin→L2 hab	.027	.564	<i>Not Supported</i>	1.496	.001
H <sub>28</sub>	L2 ling →L2 hab	.010	.209	<i>Not Supported</i>	1.399	.000
H <sub>29</sub>	L2 intr →L2 voc	-.018	.288	<i>Not Supported</i>	1.986	.000
H <sub>30</sub>	L2 effic→L2 voc	.284	5.820	Accepted	1.410	.062
H <sub>31</sub>	L2 extrin→L2 voc	.023	.405	<i>Not Supported</i>	1.496	.000
H <sub>32</sub>	L2 ling →L2 voc	-.087	1.630	<i>Not Supported</i>	1.399	.006
H <sub>33</sub>	L2 hab→L2 voc	.046	.821	<i>Not Supported</i>	1.345	.002

**H<sub>17</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”.** In this instance, L1 reading for recognition did not

have a statistically significant effect on L1 vocabulary ( $\beta = -.015$ ,  $p > .05$ ,  $f^2 = .000$ ), which indicated that H17 was not supported.

**H<sub>18</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”.** Likewise, L1 reading to do well in other realms did not have a statistically significant effect on L1 vocabulary ( $\beta = .049$ ,  $p > .05$ ,  $f^2 = .002$ ) to a statistically significant level, which indicated that H18 was also not supported.

**H<sub>19</sub>: “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”.** As shown in the table, L1 reading habits had a statistically significant and positive effect on L1 vocabulary ( $\beta = .124$ ,  $p < .05$ ,  $f^2 = .012$ ) with a low effect size, which evidenced that H19 was accepted.

**H<sub>20</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 reading habits”.** Similarly, Table 52 showed that H20 could be accepted, considering the fact that *L1 reading for self* had a statistically significant positive but small effect on L1 reading habits ( $\beta = .475$ ,  $p < .05$ ,  $f^2 = .152$ ).

**H<sub>21</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”.** Table 52 showed that H21 was not supported, as L1 reading efficacy did not have a statistically significant influence on L1 reading habits to a statistically significant level ( $\beta = .124$ ,  $p > .05$ ,  $f^2 = .011$ ).

**H<sub>22</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 reading habits”.** L1 reading for recognition did not have a statistically significant influence on L1 reading habits ( $\beta = -.065$ ,  $p > .05$ ,  $f^2 = .005$ ) which indicates that H22 was not supported.

**H<sub>23</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on L1 reading habits”.** H23 was also not supported, as L1 reading to do well in other realms did not have a statistically significant influence on L1 reading habits ( $\beta = .058$ ,  $p > .05$ ,  $f^2 = .004$ ).

**H<sub>24</sub>: “L1 reading amount has a statistically significant direct effect on L2 reading habits”.** Concerning this hypothesis, L1 reading habits had a statistically significant and positive effect on L2 reading habits ( $\beta = .259$ ,  $p < .05$ ,  $f^2 = .095$ ) with low effect size, which indicated that H24 could be accepted.



**H<sub>25</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”.** The L2 intrinsic value of reading had a statistically significant and positive effect on L2 reading habits ( $\beta = .374$ ,  $p < .05$ ,  $f^2 = .115$ ) with a low effect size, meaning that H25 was accepted.

**H<sub>26</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”.** Table 52 showed that H26 was also accepted, as L2 reading efficacy had a statistically significant positive but low effect on L2 reading habits ( $\beta = .475$ ,  $p < .05$ ,  $f^2 = .015$ ).

**H<sub>27</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading amount”.** The L2 extrinsic value of reading did not have a statistically significant influence on L2 reading habits ( $\beta = .027$ ,  $p > .05$ ,  $f^2 = .001$ ). Therefore, H27 was not supported.

**H<sub>28</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 reading amount”.** Table 52 showed that H28 was not supported, as L2 linguistic utility did not have a statistically significant influence on L2 reading habits ( $\beta = .010$ ,  $p > .05$ ,  $f^2 = .000$ ).

**H<sub>29</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.** H29 was likewise not supported, as L2 intrinsic value of reading did not have a statistically significant influence on L2 vocabulary ( $\beta = -.018$ ,  $p > .05$ ,  $f^2 = .000$ ).

**H<sub>30</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”.** On the other hand, L2 reading efficacy had a statistically significant and positive effect on L2 vocabulary ( $\beta = .284$ ,  $p < .05$ ,  $f^2 = .062$ ) with a low effect size, supporting acceptance of H30 was accepted.

**H<sub>31</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.** L2 extrinsic value of reading did not have a statistically significant influence on L2 vocabulary ( $\beta = .023$ ,  $p > .05$ ,  $f^2 = .000$ ). Accordingly, H31 was not supported.

**H<sub>32</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”.** Table 52 showed that H32 was not supported. L2 linguistic

utility did not have a statistically significant influence on L2 vocabulary ( $\beta = -.087$ ,  $p > .05$ ,  $f^2 = .006$ ).

**H<sub>33</sub>: “L2 reading amount has a statistically significant direct effect on L2 vocabulary size”.** H<sub>33</sub> was also not supported, because L2 reading habits did not have a statistically significant influence on L2 vocabulary ( $\beta = .046$ ,  $p > .05$ ,  $f^2 = .002$ ).

**Summary and discussion of Model II.** Regarding Model II, several paths were found to be insignificant. With respect to L1 vocabulary, L1 reading efficacy made the greatest contribution, followed by L1 reading for self. This result suggests that the participants who had greater reading efficacy and intrinsic reading motivation were likely to have a larger vocabulary. Interestingly, L1 reading habits made the weakest contribution compared to the other two paths. In this respect, despite having a low impact, reading habits explained a small but significant amount of variance in L1 vocabulary size. On the other hand, L1 reading habits made a greater contribution to L2 reading habits.

The variable of L2 intrinsic value of reading explained the greatest variance of L2 reading habits, together with L1 reading habits, while L2 reading efficacy also made a small but significant contribution to L2 reading habits. As was the case in L1, the participants who were intrinsically motivated read more. In addition, L1 reading for self, which was the only contributor, predicted L1 reading habits, explained by the likelihood that the participants who were intrinsically motivated to read in L1 had good reading habits. Besides having intrinsic motivation towards L2 reading, those who read more in L1 and had higher reading efficacy in L2 engaged in L2 reading more. These results indicate that, although the participants reported instrumental motivation toward L2 reading as the most favoured reason, the results of Model II revealed that instrumental motivation did not make any contribution to reading habits or vocabulary size. Despite being the third-favoured reason, intrinsic L2 reading motivation was also a predictor of L2 reading habits. In this regard, several studies support the finding that reading motivation significantly contributes to reading amount, which promotes reading comprehension as a result of developing background knowledge, vocabulary knowledge and fluent use of cognitive skills (Guthrie et al., 2000; Guthrie et al., 1999; Wigfield & Guthrie, 1997). In particular, intrinsic motivation was found to make a major contribution to reading

amount and frequency (De Naeghel et al., 2012; John T Guthrie et al., 1999; Stutz et al., 2016a). On the other hand, in Stutz et al.'s study (2016a), extrinsic reading motivation was negatively correlated with reading amount and reading comprehension. Therefore, the research suggests that, although any kind of motivation may trigger reading habits, intrinsic motivation should be encouraged for developing better reading habits and promoting reading comprehension. Moreover, in Becker et al.'s longitudinal study (2010) with grade 4 students, intrinsic reading motivation was found to be the predictor of later reading literacy (Grade 6), and this relationship was mediated through reading amount. Additionally, students with high extrinsic reading motivation reported lower amounts of reading, and they also demonstrated lower reading literacy in later grades. Intrinsic reading motivation, on the contrary, exhibited a stable influence on reading amount and reading literacy from earlier to later grades. Overall, the results emphasize that extrinsic motivation was negatively related to reading amount and reading literacy, while intrinsic reading motivation facilitated readers' effective use of cognitive and reading-related skills effective. Furthermore, they were less likely to give up when dealing with difficult texts or unknown vocabulary.

However, the participants who engaged in L2 reading more often did not seem to benefit from reading with regard to vocabulary size. In this model, considering L1 and L2 vocabulary, a quite small variance was explained by the variables. Only the participants who had higher reading efficacy in L2 seemed to possess wider vocabulary in L2; however, the students with higher reading motivation in L1 seemed to have a larger vocabulary size. This finding may result from the fact that L2 reading motivation was dominated by instrumental orientation, whereas L1 reading motivation was overridden by intrinsic motivation.

In general, the results indicate that intrinsic reading motivation makes a greater contribution to reading habits in both languages, and that reading efficacy is the only predictor that affects vocabulary size in both L1 and L2. Furthermore, L1 vocabulary made the greatest contribution to L2 vocabulary.

### **Evaluation of Model III**

**Measurement (Outer) Model.** The analysis of the measurement model followed the same steps that were described in the first model in detail.

*Composite reliability* which assesses the internal consistency, should range from .60 to .95 (Nunally & Bernstein, 1994). Table 53 indicates that all of the values stand within the higher end of this range.

Table 53  
*Measurement (Outer) Model Results for Model III*

Variables	Loadings	Composite reliability	AVE
<b>L2 READING MOTIVATION</b>			
<i>L2 intrinsic value of reading</i>		.925	.540
"Reading in a foreign language is enjoyable."	.724		
"I like reading in a foreign language."	.818		
"Reading in a foreign language is boring.*"	.412		
"I feel peaceful while reading in a foreign language."	.783		
"I have a great desire to read in a foreign language."	.830		
"I never read in a foreign language unless I have to *"	.431		
"The more I read in a foreign language, the more I want to read."	.793		
"I love reading in a foreign language."	.804		
"Reading in a foreign language makes me happy."	.863		
"I read in a foreign language even if I do not have to."	.709		
"I spend the time to read in a foreign language."	.752		
<i>L2 reading efficacy</i>		.906	.615
"I comprehend the texts in a foreign language at first reading."	.746		
"I can comprehend most of what I read in a foreign language."	.764		
"I can read in a foreign language fluently."	.782		
"My reading skill in a foreign language is at an advanced level."	.801		
"I have no problems with comprehending a foreign language text."	.779		
"I am successful at reading in a foreign language"	.833		
<i>L2 extrinsic utility value of reading</i>		.842	.518
"Reading in a foreign language provides us with a better education."	.612		
"Reading in a foreign language helps us to become better individuals."	.786		
"Reading in a foreign language helps to prepare a better future for ourselves."	.777		

“Reading in a foreign language helps to find a better job.”	.663		
“Reading in a foreign language is beneficial for self-development.”	.746		
<i>L2 foreign language linguistic utility value</i>		.843	.573
“Reading in a foreign language contributes to the development of grammar in a foreign language.”	.787		
“Reading in a foreign language contributes to the development of writing skill in a foreign language.”	.807		
“Reading in a foreign language is an essential instrument to enlarge our vocabulary.”	.747		
“Reading in a foreign language helps fluency in speech in a foreign language.”	.681		
L2 VOCABULARY			
L2 READING HABITS		.780	.554
“How often do you read in English?”	.853		
“How many hours do you read a week?”	.830		
“When was the last time you read a book, a newspaper, a magazine etc. in English?”	.497		

For *indicator reliability*, all of the constructs were measured as reflective and factor loadings below .4 and those that had factor loadings between .4 and .7, but that affected average variance extracted (AVE) and the composite reliability of the latent variables negatively were discarded from the analysis.

Table 54

*AVE Values and the Fornell-Larcker Test of Discriminant Validity for Model III*

Factors	1	2	3	4	5	6
1 L2 hab	.745					
2 L2 voc	.127	<b>SI</b>				
3 L2 int	.489	.124	.735			
4 L2 effic	.357	.273	.511	.784		
5 L2 ling	.230	-.002	.423	.248	.757	
6 L2 ext	.257	.029	.472	.156	.479	.720

**Note:**

1-AVE values cannot be calculated for single-item constructs, and therefore, the related cells are blank. Discriminant validity between second-order constructs and the sub-constructs of the second-order constructs was not analyzed (Hair et al., 2017).

2- The values in bold are the square roots of the AVE values.

Accordingly, a total of 2 items from the L1 reading motivation construct, 5 items from the L2 reading motivation construct and 1 item from L1 and L2 reading habits measures were excluded from the analyses (Hair et al., 2014).

To establish *convergent validity*, which determines the positive correlation between a measure and the sub-measures of the same construct (Hair et al., 2014), the outer loadings of the indicators and the average variance extracted (AVE) were examined; the results showed that extending within the suggested range all the outer loadings and exceeding .5 AVE values, convergent validity was ensured (Garson, 2016; Hair et al., 2014; Hegner-Kakar et al., 2018).

In order to secure *discriminant validity*, the Fornell-Larcker criterion was used. In this analysis, “the AVE should exceed the squared correlation with any other construct” (J. F. Hair et al., 2014, p. 105). This criterion was secured in the present study (See Table 54).

**Structural (Inner) Model.** After establishing the criteria for the measurement model and reliability and validity issues, the structural model was tested. Initially, *collinearity* was determined through ensuring VIF values below .5. Table 55 illustrates that all the VIF values were below this level in the current study (Hair et al., 2017).

With regard to *path coefficients*, for which +1 or -1 indicates a strong relationship, and the values closer to 0 indicate a weak relationship, the results displayed in Table 55 demonstrated that only three of nine paths were significant, in line with the previous model. Likewise, L2 intrinsic reading motivation was the best predictor of L2 reading habits ( $\beta = .379$ ,  $p < .05$ ); however, L2 reading efficacy also predicted L2 reading habits ( $\beta = .148$ ,  $p < .05$ ). However, L2 reading efficacy better predicted L2 vocabulary knowledge as the unique predictor ( $\beta = .283$ ,  $p < .05$ ).

In terms of  $R^2$  values, which are displayed in Figure 29, L2 reading habits received the highest  $R^2$  value (.256). This 25% variance was explained by L2 intrinsic reading motivation ( $\beta = .379$ ,  $p < .05$ ,  $f^2 = .116$ ) and L2 reading efficacy ( $\beta = .148$ ,  $p < .05$ ,  $f^2 = .021$ ). A total of .08% variance in L2 vocabulary knowledge ( $R^2 = .082$ ) was explained solely by L2 reading efficacy ( $\beta = .283$ ,  $p < .05$ ,  $f^2 = .062$ ).

Effect sizes were explained under each hypothesis below. For *predictive accuracy*, Stone-Geissers' Q2 was employed, and the values, which should be above 0 suggested that predictive accuracy could be ascertained (Chin, 1998; Hair et al., 2014).

**12. Is the third model - which describes the effects among the variables of “L2 vocabulary size”, “L2 intrinsic value of reading”, “L2 reading efficacy”, “L2 extrinsic value of reading”, “L2 linguistic utility”, and “L2 reading habits”- consistent with the observed relationships among these variables?**

**Research Question 12.1. Does the third model support the following hypotheses?**

**H<sub>47</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”.** Table 55 shows that L2 intrinsic value of reading had a statistically significant and positive direct effect on L2 reading habits ( $\beta = .391, p < .05, f^2 = .116$ ). Although the effect size was weak, H<sub>47</sub> was accepted.

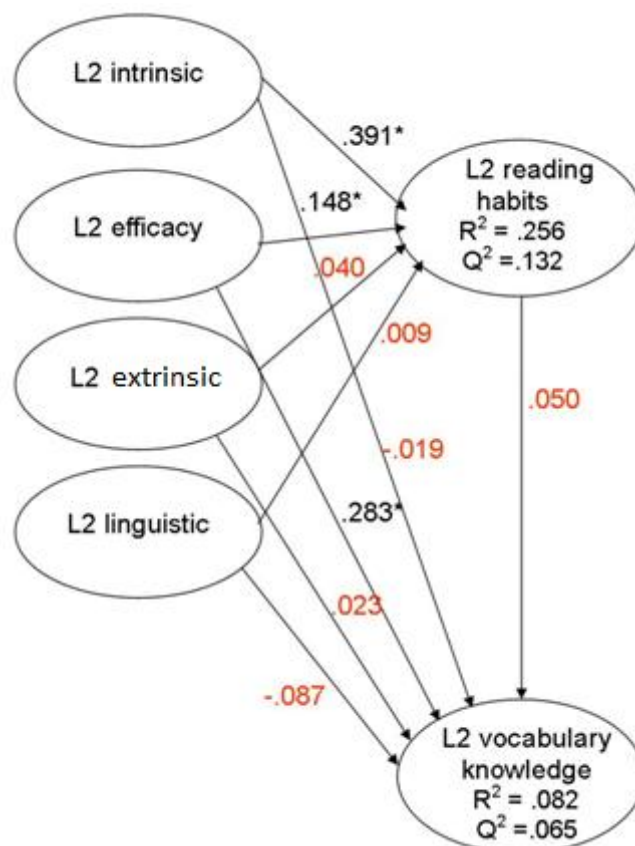


Figure 30. Structural (inner) model results for Model III

**H<sub>48</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”.** The variable of L2 reading efficacy had a statistically significant and positive direct effect on L2 reading habits with a low effect ( $\beta = .148, p < .05, f^2 = .021$ ), which supported accepting H<sub>48</sub>.

**H<sub>49</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading habits”.** The variable of L2 extrinsic value of reading did not have a statistically significant effect on L2 reading habits ( $\beta = -.040, p > .05, f^2 = .001$ ). Therefore, H<sub>49</sub> was not supported.

**H<sub>50</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 reading habits”.** Table 55 showed that H<sub>50</sub> was not supported, as L2 linguistic utility did not have a statistically significant influence on L2 reading habits ( $\beta = .009, p > .05, f^2 = .000$ ).

**H<sub>51</sub>: “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”.** H<sub>51</sub> was likewise not supported, considering that L2 reading habits did not have a statistically significant effect on L2 vocabulary size ( $\beta = .050, p > .05, f^2 = .002$ ).

Table 55

*Structural Model Results for Model IV*

<i>Hypothesis</i>	<i>Effect</i>	$\beta$	<i>t</i>	<i>Result</i>	<i>VIF</i>	$f^2$
H47	L2 int → L2 hab	.391	7.583	Accepted	1.780	.116
H48	L2 effic → L2 hab	.148	.2.918	Accepted	1.381	.021
H49	L2 ext → L2 hab	.040	.840	<i>Not Supported</i>	1.494	.001
H50	L2 ling → L2 hab	.009	.173	<i>Not Supported</i>	1.398	.000
H51	L2 hab → L2 voc	.050	.884	<i>Not Supported</i>	1.345	.002
H52	L2 ins → L2 voc	-.019	.316	<i>Not Supported</i>	1.985	.000
H53	L2 effic → L2 voc	.283	5.787	Accepted	1.411	.062
H54	L2 ext → L2 voc	.023	.411	<i>Not Supported</i>	1.398	.000
H55	L2 ling → L2 voc	-.087	1.617	<i>Not Supported</i>	1.496	.006

**H<sub>52</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.** The variable of L2 intrinsic value of reading did not have a statistically significant effect on L2 vocabulary size ( $\beta = -.019, p > .05, f^2 = .000$ ) which evidenced that H<sub>52</sub> was not supported.



**H<sub>53</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”.** Table 55 shows that L2 reading efficacy has a statistically significant direct but small effect on L2 vocabulary size ( $\beta = .283$ ,  $p < .05$ ,  $f^2 = .062$ ), supporting acceptance of H53.

**H<sub>54</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”.** Hypothesis H54 was not supported considering that L2 extrinsic value of reading did not have a statistically significant effect on L2 vocabulary size ( $\beta = .023$ ,  $p > .05$ ,  $f^2 = .000$ ).

**H<sub>55</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”.** The variable of L2 linguistic utility did not have a statistically significant influence on L2 vocabulary size ( $\beta = -.087$ ,  $p > .05$ ,  $f^2 = .006$ ), and therefore, H55 was not supported.

**Summary and discussion of Model III.** In this model, which was developed to evaluate the L2 related variables within themselves, except for the slight changes in the values, the results were the same as the paths in Model II. In this model, again, L2 vocabulary was predicted only by L2 reading efficacy. Likewise, L2 reading habits were explained through L2 intrinsic value for reading and reading efficacy. Intrinsic motivation made the greatest contribution to L2 reading habits, while L1 reading habits' weak contribution to L2 reading habits may stem from the participants' instrumental L2 reading motivation. In this sense, having different motivational orientations in the two languages may lower the affective transfer of L1 reading motivational disposition.

## **Evaluation of Model IV**

**Measurement (Outer) Model.** The analysis of the measurement model followed the same steps that were described in the first model in detail.

*Composite reliability* which assesses the internal consistency should range from .60 to .95 (Nunnally & Bernstein, 1994). Table 56 indicates that all the values extend within the higher end of this range.

For *indicator reliability*, all of the constructs were measured as reflective and factor loadings that were below .4 and those that had factor loadings between .4 and .7, but affected average variance extracted (AVE) and the composite reliability

of the latent variables negatively were discarded from the analysis. In this sense, a total of 2 items from the L1 reading motivation construct, 5 items from the L2 reading motivation construct and 1 item from L1 and L2 reading habits measures were excluded from the analysis (Hair et al., 2014).

Table 56

*Measurement (Outer) Model Results for Model IV*

Variables	Loadings	Composite reliability	AVE
L1 READING MOTIVATION		.901	.570
<i>L1 reading for self</i>			
	.740		
“Without reading, my life would not be the same.”			
“My friends sometimes are surprised at how much I read.”	.780		
“My friends and I like to exchange books or articles we particularly enjoy.”	.597		
“It is very important to me to spend time reading.”	.880		
“In comparison to other activities, reading is important to me.”	.867		
“I set a good model for others through reading.”	.644		
“Reading helps make my life meaningful.”	.735		
<i>L1 reading efficacy</i>		.839	.636
“I like hard, challenging books or articles.”	.715		
“I am confident I can understand difficult books or articles.”	.824		
“I am a good reader.”	.846		
<i>L1 reading for recognition</i>		.858	.669
“It is important for me to get compliments for the knowledge I gather from reading.”	.926		
“I like others to question me on what I read so that I can show my knowledge.”	.769		
“It is important to me to have others remark on how much I read.”	.748		
<i>L1 reading to do well in other realms</i>		.810	.516
“If I am going to need information from material I read, I finish the reading well in advance of when I must know the material.”	.679		
“Work performance or university grades are an indicator of the effectiveness of my reading.”	.719		
“I do all the expected reading for work or university courses.”	.783		

“I read to improve my work or university performance.”	.689		
L1 VOCABULARY	Single Item		
L1 READING HABITS		.825	.616
“How often do you read in Turkish?”	.867		
“How many hours do you read a week?”	.853		
“When was the last time you read a book, a newspaper, a magazine etc. in Turkish?”	.607		

To establish *convergent validity*, which determines the positive correlation between a measure and the sub-measures of the same construct (Hair et al., 2014), the outer loadings of the indicators and the average variance extracted (AVE) were examined; the results showed that extending within the suggested range all the outer loadings and exceeding .5 AVE values, convergent validity was ensured (Garson, 2016; Hair et al., 2014; Hegner-Kakar et al., 2018).

Table 57

*AVE Values and the Fornell-Larcker Test of Discriminant Validity for Model IV*

Factors	1	2	3	4	5	6
1 L1 effic	.797					
2 L1 hab.	.463	.785				
3 L1 voc.	.273	.233	SI			
4 L1 recog.	.324	.152	.063	.818		
5 L1 other	.426	.326	.015	.300	.719	
6 L1 self	.710	.568	.261	.340	.488	.755

**Note:**

1-AVE values cannot be calculated for single-item constructs and therefore related cells are blank. Discriminant validity between second-order constructs and the sub-constructs of the second-order constructs was not analyzed (Hair et al., 2017).

2- The values in bold are the square roots of the AVE values

AVE values exceeding the squared correlation with any other construct (Hair et al., 2014, p. 105) indicated that *discriminant validity* was secured in the present study according to the Fornell-Larcker criterion indicated (See Table 57).

**Structural (Inner) Model.** After establishing the criteria for the measurement model and reliability and validity issues, the structural model was

tested. Initially, *collinearity* was determined through ensuring VIF values below .5. Table 58 demonstrates that all of the VIF values were below this level in the current study (Hair et al., 2017).

The *Path coefficients* presented in Figure 30 demonstrate that only five of the nine paths were found to be significant, which was slightly different from the results of Model II. Namely, the same paths were found to be significant in the Model II analysis, with the exception of L1 reading to do well in other realms as a predictor of L1 vocabulary knowledge. In this model, L1 vocabulary knowledge was best explained by L1 reading efficacy ( $\beta = .192, p < .05$ ), while L1 reading for self ( $\beta = .148, p < .05$ ) and L1 reading habits ( $\beta = .119, p < .05$ ) also predicted L1 vocabulary knowledge. Interestingly, the other variable, L1 reading to do well in other realms, negatively predicted L1 vocabulary knowledge ( $\beta = -.173, p < .05$ ). As for L1 reading habits, L1 reading for self was the unique predictor ( $\beta = .474, p < .05$ ).

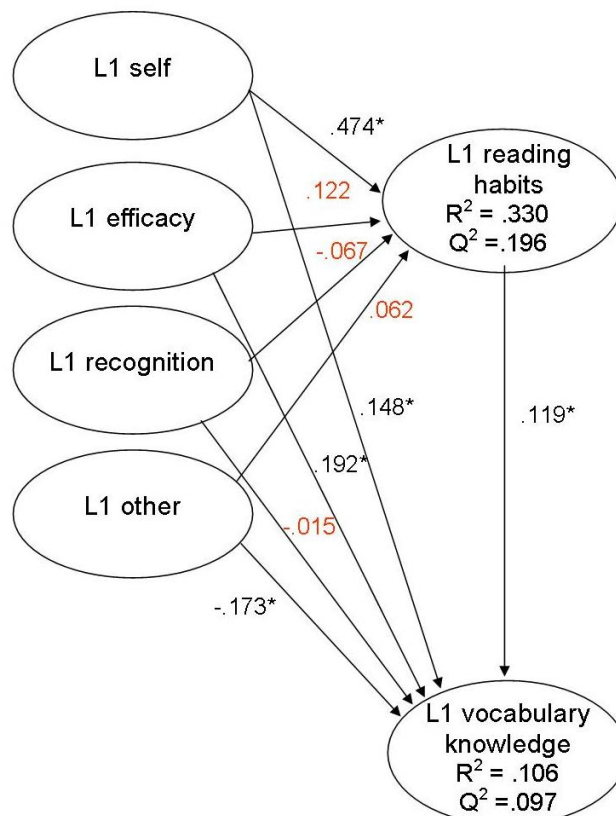


Figure 31. Structural (inner) model results for Model IV

In terms of the  $R^2$  values displayed in Figure 30, L1 reading habits received the highest  $R^2$  value (.330). In this model, 10% variance in L1 vocabulary knowledge ( $R^2=.106$ ) was explained by L1 reading efficacy, which was the strongest predictor ( $\beta = .192$ ,  $p<.05$ ,  $f^2=.020$ ), followed by L1 reading for self ( $\beta = .148$ ,  $p<.05$ ,  $f^2=.010$ ) and L1 reading habits ( $\beta = .119$ ,  $p<.05$ ,  $f^2=.011$ ). The variable of L1 reading to do well in other realms negatively predicted L1 vocabulary knowledge ( $\beta = -.173$ ,  $p<.05$ ,  $f^2=.025$ ); and as for L1 reading habits, 33% variance in L1 reading habits ( $R^2=.330$ ) was explained only by L1 reading for self ( $\beta = .474$ ,  $p<.05$ ,  $f^2=.152$ ).

The *Effect sizes* are explained under each hypothesis below. For *predictive accuracy*, Stone-Geissers' Q2 was employed, and the values, which should be above 0, suggested that predictive accuracy could be ascertained (Chin, 1998; Hair et al., 2014).

**Research Question 14: Is the fourth model - which describes the effects among the variables of “L1 vocabulary size”, “L1 reading as a part of self”, “L1 reading efficacy”, “L1 reading for recognition”, “L1 reading to do well in other realms”, “L1 reading habits”- consistent with the observed relationships among these variables?**

**Research Question 14.1: Does the fourth model support the following hypotheses?**

**H<sub>60</sub>: “L1 reading as a part of self has a statistically significant direct effect on the L1 reading amount”.** Table 58 clarifies that L1 reading as a part of self had a statistically significant direct but small effect on L1 reading amount ( $\beta = .474$ ,  $p>.05$ ,  $f^2=.152$ ), which demonstrated that H60 could be accepted.

**H<sub>61</sub>: “L1 reading efficacy has a statistically significant direct effect on L1reading amount”.** L1 reading efficacy did not have a statistically significant effect on L1reading amount ( $\beta = .122$ ,  $p>.05$ ,  $f^2=.011$ ). Therefore, H61 was not supported.

**H<sub>62</sub>: “L1 reading for recognition has a statistically significant direct effect on the L1 reading amount”.** Likewise, H 62 was also not supported, as L1 reading for recognition did not have a statistically significant impact on L1 reading amount ( $\beta = -.067$ ,  $p>.05$ ,  $f^2=.006$ ).

**H<sub>63</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on the L1 reading amount”.** The variable of L1 reading to do well in other realms did not have a statistically significant influence on the direct effect on the L1 reading amount. ( $\beta = .062$ ,  $p > .05$ ,  $f^2 = .004$ ). Consequently, H63 was not supported.

Table 58

*Structural Model Results for Model IV*

<i>Hypothesis</i>	<i>Effect</i>	$\beta$	<i>t</i>	<i>Result</i>	<i>VIF</i>	$f^2$
H <sub>60</sub>	L1 self → L1 hab	.474	8.448	Accepted	2.234	.152
H <sub>61</sub>	L1 effic → L1 hab	.122	1.958	Not Supported	2.074	.011
H <sub>62</sub>	L1 recog → L1 hab	-.067	1.759	Not Supported	1.175	.006
H <sub>63</sub>	L1 other → L1 hab	.062	1.490	Not Supported	1.366	.004
H <sub>64</sub>	L1 hab → L1 voc	.119	2.276	Accepted	1.505	.011
H <sub>65</sub>	L1 self → L1 voc	.148	2.244	Accepted	2.572	.010
H <sub>66</sub>	L1 eff → L1 voc	.192	3.147	Accepted	2.097	.020
H <sub>67</sub>	L1 recog → L1 voc	-.015	.316	Not Supported	1.182	.000
H <sub>68</sub>	L1 other → L1 voc	-.173	3.321	Accepted	1.372	.025

**H<sub>64</sub>: “L1 reading amount has a statistically significant direct effect on L1 vocabulary size”.** The results indicate that L1 reading amount had a statistically significant direct positive but small effect on L1 vocabulary size ( $\beta = .119$ ,  $p < .05$ ,  $f^2 = .011$ ). Thus, H64 was accepted.

**H<sub>65</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”.** H65 was accepted in consideration of the fact that L1 reading as a part of self had a statistically significant direct effect on L1 vocabulary size ( $\beta = .148$ ,  $p < .05$ ,  $f^2 = .010$ ).

**H<sub>66</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”.** Despite its low impact, L1 reading efficacy was found to have a statistically significant direct positive effect on L1 vocabulary size ( $\beta = .192$ ,  $p < .05$ ,  $f^2 = .020$ ); therefore, H66 was accepted.

**H<sub>67</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”.** The variable of L1 reading for recognition was

found to have no statistically significant direct effect on L1 vocabulary size ( $\beta = -.015$ ,  $p > .05$ ,  $f^2 = .000$ ). Hence, H67 was not supported.

**H<sub>68</sub>:** *“L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”*. Lastly, L1 reading to do well in other realms had a statistically significant and direct effect on L1 vocabulary size with a low impact ( $\beta = -.173$ ,  $p < .05$ ,  $f^2 = .025$ ). Due to this result, H68 was accepted.

**Summary and discussion of Model III.** In this model, which was developed to evaluate the L2 related variables within themselves, except for the slight changes in the values, the results were the same as the paths in Model II. In this model, again, L2 vocabulary was predicted only by L2 reading efficacy. Likewise, L2 reading habits were explained through L2 intrinsic value for reading and reading efficacy. Intrinsic motivation made the greatest contribution to L2 reading habits, while L1 reading habits' weak contribution to L2 reading habits may stem from the participants' instrumental L2 reading motivation. In this sense, having different motivational orientations in the two languages may lower the affective transfer of L1 reading motivational disposition.

As the L1 half of the Model II, Model IV exhibited similar results to the L1 half of Model II. For instance, intrinsic reading motivation was found to be the only predictor of L1 reading habits; while L1 vocabulary was predicted by L1 reading efficacy, L1 reading for self and L1 reading habits, respectively. Interestingly, in this model, L1 reading to do well in other realms made the greatest, but negative contribution to L1 vocabulary, which suggests that high extrinsic reading motivation is associated with low vocabulary size. Although no studies on the relationship between reading motivation and vocabulary size are available, research on reading motivation and reading comprehension and achievement found similar results.

## **Summary of the findings**

### **1. What are the Turkish EFL learners' levels of L2 vocabulary size?**

The participants demonstrated approximately 68% success in the L2 vocabulary test of 10.000-word.

## **2. What are the Turkish EFL learners' levels of L1 vocabulary size?**

The participants demonstrated approximately 75% success in the L2 vocabulary test of 26.000-word.

## **3. What are the Turkish EFL learners' levels of L2 reading motivation?**

The participants demonstrated a mean score of 3.9 (out of 5). This reflected that they had strong motivation in L2 reading.

**3.1. What L2 reading motivational constructs are favoured by the Turkish EFL learners?** The participants were found to be most highly motivated to read linguistic reasons ("*L2 foreign language linguistic utility value of reading*").

## **4. What are the Turkish EFL learners' levels of L1 reading motivation?**

The participants demonstrated a mean score of 3.4 (out of 5). This indicated that participants had somewhat strong motivation in L1 reading.

**4.1. What L1 reading motivational constructs are favoured by the Turkish EFL learners?** Reading for self was found to be the most highly endorsed motivation in L1 reading.

## **5. What are the Turkish EFL learners' levels of L2 reading habits?**

The participants demonstrated a mean score of 7.4 (out of 11). This indicated that they have moderately good reading habits.

## **6. What are the Turkish EFL learners' levels of L1 reading habits?**

The participants demonstrated a mean score of 8.1 (out of 11). This suggested that they had better reading habits in L2 than they did in L1.

**7. What are the relationships between the Turkish EFL learners' L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation and L1 reading habits?** L2 vocabulary was highly correlated with L1 vocabulary. L2 reading habits were correlated with L1 reading habits, L1 reading for self and L1 reading efficacy. L1 vocabulary had a weak correlation with L1 reading habits, which had somewhat strong correlation with L1 reading for self and L1 reading efficacy.

**8. Is the first model - which describes the effects among the variables of L2 vocabulary size, L2 reading motivation, L2 reading habits, L1 vocabulary size, L1 reading motivation, L1 reading habits - consistent with**



**the observed relationships among these variables?** Except the path between L2 reading habits and L2 vocabulary, the model was consistent with the observed relationships among these variables.

### **8.1. Does the first model support the following hypotheses?**

H<sub>1</sub>: “L1 reading motivation has a statistically significant direct effect on L2 reading motivation”: Accepted

H<sub>2</sub>: “L2 reading motivation has a statistically significant direct effect on L2 vocabulary size”: Accepted

H<sub>3</sub>: “L1 reading motivation has a statistically significant direct effect on L1 reading habits”: Accepted

H<sub>4</sub>: “L1 reading habits have a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>5</sub>: “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>6</sub>: “L2 reading motivation has a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>7</sub>: “L1 reading motivation has a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>8</sub>: “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>9</sub>: “L1 vocabulary size has a statistically significant direct effect on L2 vocabulary size”: Accepted

**9. Is the second model - which describes the effects among the variables of “L2 vocabulary size”, “L2 intrinsic value of reading”, “L2 reading efficacy”, “L2 extrinsic value of reading”, “L2 linguistic utility”, “L2 reading habits”, “L1 vocabulary size”, “L1 reading as a part of self”, “L1 reading efficacy”, “L1 reading for recognition”, “L1 reading to do well in other realms”, “L1 reading habits” - consistent with the observed relationships among these variables?** Several paths were not consistent with the observed relationships among these variables.

### **9.1. Does the second model support the following hypotheses?**

H<sub>10</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>11</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>12</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”: *Not supported*

H<sub>13</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”: *Not supported*

H<sub>14</sub>: “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>15</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 reading habits”: Accepted

H<sub>16</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”: *Not supported*

H<sub>17</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 reading habits”: *Not supported*

H<sub>18</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on L1 reading habits”: *Not supported*

H<sub>19</sub>: “L1 reading habits have a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>20</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>21</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>22</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading habits”: *Not supported*

H<sub>23</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 reading habits”: *Not supported*

H<sub>24</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>25</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”: Accepted

H<sub>26</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>27</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>28</sub>: “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”: *Not supported*

**10. Is the third model - which describes the effects among the variables of “L2 vocabulary size”, “L2 intrinsic value of reading”, “L2 reading efficacy”, “L2 extrinsic value of reading”, “L2 linguistic utility”, and “L2 reading habits”- consistent with the observed relationships among these variables?** Several paths were not consistent with the observed relationships among these variables.

### **12.1. Does the third model support the following hypotheses?**

H<sub>29</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>30</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 reading habits”: Accepted

H<sub>31</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 reading habits”: *Not supported*

H<sub>32</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 reading habits”: *Not supported*

H<sub>33</sub>: “L2 reading habits have a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>34</sub>: “L2 intrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>35</sub>: “L2 reading efficacy has a statistically significant direct effect on L2 vocabulary size”: Accepted

H<sub>36</sub>: “L2 extrinsic value of reading has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

H<sub>37</sub>: “L2 linguistic utility has a statistically significant direct effect on L2 vocabulary size”: *Not supported*

**11. Is the fourth model - which describes the effects among the variables of “L1 vocabulary size”, “L1 reading as a part of self”, “L1 reading efficacy”, “L1 reading for recognition”, “L1 reading to do well in other realms”, “L1 reading habits”- consistent with the observed relationships among these variables?** Several paths were not consistent with the observed relationships among these variables.

**11.1. Does the fourth model support the following hypotheses?**

H<sub>38</sub>: “L1 reading as a part of self has a statistically significant direct effect on the L1 reading habits”: Accepted

H<sub>39</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 reading habits”: *Not supported*

H<sub>40</sub>: “L1 reading for recognition has a statistically significant direct effect on the L1 reading habits”: *Not supported*

H<sub>41</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on the L1 reading habits”: *Not supported*

H<sub>42</sub>: “L1 reading habits have a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>43</sub>: “L1 reading as a part of self has a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>44</sub>: “L1 reading efficacy has a statistically significant direct effect on L1 vocabulary size”: Accepted

H<sub>45</sub>: “L1 reading for recognition has a statistically significant direct effect on L1 vocabulary size”: Not supported

H<sub>46</sub>: “L1 reading to do well in other realms has a statistically significant direct effect on L1 vocabulary size”: Accepted

In the current study, the participants completed about 68% of the L2 vocabulary test successfully. Their *L1 vocabulary size* scores were slightly higher (75%). With respect to reading motivation, the participants demonstrated moderately higher motivation in L2 than in L1 which was thought to be the result of their being English major students. The participants mostly reported *L2 linguistic motivation of reading* whereas *L2 reading efficacy* received the lowest score among other sub-dimensions. Moreover, the participants showed different motivational orientation in L1. They were found to be mostly intrinsically motivated towards reading, while “L1 reading for recognition” was the least favoured reason for reading. Although the participants were found to have higher reading motivation in L2 than L1, on the contrary, their *L2 reading habits* were lower than *L1 reading habits*.

The PLS-SEM analysis regarding Model I revealed that all of the paths were significantly conformed except for the hypothesized path relationship between *L2 reading habits* → *L2 vocabulary size*, which demonstrated that *L1 reading habits* did not predict *L2 vocabulary size*. Rather, *L1 vocabulary size* was found to have the strongest effect on *L2 vocabulary size*. In addition, *L2 reading motivation* also has a significant but weak effect on *L2 vocabulary size*, and contrary to the relationship between *L2 vocabulary size* and *L2 reading habits*, *L1 reading habits* were found to have a statistically significant moderate effect on *L1 vocabulary size* with *L1 reading motivation*. For the other path relationships, *L1 reading motivation* had a moderately strong effect on *L1 reading habits* which also represents the strongest relationship among all hypothesized path relationships. *L2 reading motivation* was also moderately affected by *L1 reading motivation*. Finally, on *L2 reading habits*, *L2 reading motivation* was found to have a stronger effect than *L1 reading habits*.

Furthermore, *L1 reading habits* explained 30% of the variance of *L2 reading habits*. Similarly, almost 30% of *L1 reading habits* were explained the single exogenous construct of *L1 reading motivation*. Regarding *L2 vocabulary size*, a total of 24% variance was explained by *L2 reading motivation* and *L1 vocabulary size*. However, *L1 vocabulary size* was far stronger than *L2 reading motivation* as

it was hypothesized. All the same, *L1 reading motivation* and *L1 reading habits* explained the very weak variance of *L1 vocabulary*. Lastly, about 14% of *L2 reading motivation* was explained by *L1 reading motivation*.

Considering indirect and total effects, *L2 reading motivation* had only one predictor variable, *L1 reading motivation*. Among the predictors of *L2 vocabulary size*, *L2 reading motivation* had a statistically significant and direct effect on *L2 vocabulary*. On the other hand, *L1 vocabulary size* had a direct and strong effect on *L2*. Moreover, *L2 reading motivation* had a large direct effect and *L1 reading habits* had a medium direct effect on *L2 reading habits*. On the contrary, *L1 reading motivation* indirectly but to nearly a large extent influenced *L2 reading habits*, displaying quite a strong effect on *L1 reading habits*. Finally, *L1 vocabulary size* was predicted directly by *L1 reading habits* and *L1 reading motivation*, which also indirectly influenced *L1 vocabulary size*.

The PLS-SEM results of Model II, which were more complex than those of Model I, clarified the relationships between the variables with regard to the sub-dimensions of the motivational constructs. The path coefficients showed that several paths were insignificant in Model II, indicating that “L2 extrinsic value of reading” and “L2 linguistic utility” did not predict *L2 reading habits*. On the other hand, “L2 intrinsic reading motivation” was found to be the best predictor of *L2 reading habits* in comparison to “L2 reading efficacy” and *L1 reading habits*. Considering the predictors of *L2 vocabulary size*, “L2 reading efficacy” was the only predictor; the other paths were all insignificant. Similarly, *L1 reading habits* were predicted only by “L1 reading for self” and parallel to the relationship between *L2 reading habits* and “L2 intrinsic motivation for reading”, “L2 reading for self-received” a considerable value. However, contrary to *L2 vocabulary*, aside from “L1 reading efficacy”, which obtained the highest value of all, “L1 reading for self” and *L1 reading habits* also predicted *L1 vocabulary size*.

*L1 reading habits* received the highest  $R^2$  value and this 33% variance was explained only by one variable: “L1 reading for self”. Vocabulary size in both languages was predicted by reading efficacy in L1 and L2. As for *L1 vocabulary size*, the highest portion of the 11% variance was explained by “L1 reading efficacy”, followed by “L1 reading for self” and *L1 reading habits*.

Model III was designed to deliberate on the relationships between L2 vocabulary, L2 reading habits and the sub-dimensions of L2 reading motivation. The results were parallel to the relevant sub-model presented in Model II. Similarly, Model IV attempted to examine the relationships between L1 vocabulary, L1 reading motivation and habits. Model IV revealed slightly different results compared to the compact Model II. The same paths were found to be significant in Model II analysis except for L1 reading to do well in other realms as a predictor of L1 vocabulary knowledge.

## Chapter 5

### Conclusion, Discussion and Suggestions

This chapter summarizes and discusses the major findings of the study in the light of the current literature. After conclusion, methodological, theoretical and pedagogical implications and followed by suggestions for further research.

**Summary of the study.** The present study examined the cross-linguistic effect of L1 vocabulary, reading motivation and habits on L2 vocabulary, reading motivation and habits. In this respect, proposing a model that covers less studied aspects of reading behaviour and cross-linguistic effect of L1, the study aims to contribute to the foreign language education and research. Moreover, the study also contributes to the Turkish language studies through illustrating Turkish vocabulary size, about which there are very few studies, as well as reading motivation and habits of university students.

With respect to the sample size and data collection tools required by the complex theoretical model proposed, the study employed a quantitative survey research design. The data were collected through vocabulary size tests, reading motivational scales and reading habits questionnaires from a total of 490 participants at four different state universities. The model proposed in the study was analyzed via the PLS-SEM technique. The main findings of the study are as follows:

1- The results showed that L1 vocabulary size and reading efficacy were the two predictors of L2 vocabulary size. However, L1 vocabulary size was the best predictor.

2- Whereas L1 reading habits explained L1 vocabulary size, L2 reading habits did not predict L2 vocabulary size.

3- Although the participants' most highly endorsed reading motivational dispositions in L1 and L2 were different, only intrinsic reading motivation explained reading habits in L1 and L2.

4- There were significant relationships between L1 and L2 reading motivational sub-factors, and L1 reading motivation significantly predicted L2 reading motivation.



5- As with motivation, the influence of L1 was apparent in reading habits: L1 reading habits significantly predicted L2 reading habits.

Considering the results of the current study, the acknowledgment of the role of L1 vocabulary in L2 vocabulary development seems to propose a new perspective in L2 vocabulary research, as well as providing a distinct contribution to cross-linguistic studies, which have focused on the effects of other linguistic aspects. The results also draw attention to the relationship between reading habits/extensive reading and vocabulary development, given that L2 vocabulary development and L2 reading should be handled differently from the relationship between L1 vocabulary development and L1 reading. Likewise, the impact of reading motivation displays convergent results regarding L1 and L2 reading habits. The results of the current study are discussed in the following sections:

- 1-The role of expanded L1 vocabulary in L2 vocabulary development
- 2- The differing effect of reading habits on vocabulary development in L1 and L2
- 3- The nature of the relationship between reading motivation and reading habits in L1 and L2
- 4- The effect of L1 reading habits and reading motivation on L2 reading habits and reading motivation
- 5- The role of reading efficacy in relation to L2 vocabulary development and reading habits

### **The role of expanded L1 vocabulary in L2 vocabulary development.**

The current study has revealed a strong relationship between L1 and L2 vocabulary size. Moreover, L1 vocabulary size has been found the best predictor of L2 vocabulary size among the variables of L2 reading motivation and L2 reading habits. In this sense, L1 vocabulary size as an indicator of decoding skills, working memory capacity, syntactic integration (Kahn-Horwitz et al., 2006; Franceschini et al. 2003) can be a good predictor of vocabulary size in L2 and “general language learning aptitude” (Raudsuz et al., 2018).

In studies regarding the relationship between L1 and L2 vocabulary, the focus has been primarily on bilingual children's vocabulary development and cross-linguistic transfer. In this sense, research asserts that an individual's L1 vocabulary is a significant indicator of L2 aptitude (Raudszus et al., 2018; Sparks et al., 2009a), the effect of which can be measured at the very early stages, so that L1 skill differences in early elementary school years can predict later L2 proficiency and achievement (Sparks, Patton, Ganschow, & Humbach, 2012; Sparks, Patton, Ganschow, Humbach, & Javorsky, 2008; Sparks, Patton, Ganschow, & Humbach, 2009; Sparks et al., 2009a). Mental lexicon studies also support this relationship. The parallel activity of several aspects across two languages and the activation of both languages during comprehension and production in only one language suggest that it is very likely for learners who exhibit stronger L1 skills to be more successful in L2 (Kroll & Hermans, 2011). Similarly, in a study that reviewed neurobiological research on mental lexicon, Franceschini et al. (2003, p. 160) assert that the relevant studies "revealed overlapping regions for the processing of single words in various languages". L1 language skills (e.g. reading, writing, listening, speaking, decoding) can be a mirror of the effectiveness of these specific language areas in the brain, which are employed for L2, as well.

Some other evidence can be found in the studies that have examined L1 and L2 skills connections. Research has shown that the level of L1 skills (listening, speaking, reading and writing) of L2 learners is closely related to their L2 attainment (Sparks, 2012). Particularly in terms of early literacy measures, levels of L1 vocabulary and cognitive ability have a long term effect on L2 learning; therefore, that early L1 skills are predictive of L2 skills (Sparks, Patton, Ganschow, Humbach, & Javorsky, 2006). In this respect, the current study provided further evidence for the L1 and L2 vocabulary relationship; in this regard, the participants who had rich vocabulary knowledge in L1 were characterized by higher levels of vocabulary knowledge in L2.

Poor L1 vocabulary, which could be the result of limited reading and poor decoding skills, is considered one of the indicators of risk for L2 learning (Kahnhorwitz et al., 2006). In this respect, Sparks and Ganschow (Sparks & Ganschow, 1991; Sparks, 1995; Sparks & Ganschow, 1993) found in several studies that

“weak L2 learners appeared to have particular difficulties in specific aspects of their L1” (Sparks, Patton, Ganschow, & Humbach, 2009b, p. 205). Furthermore, they found that L2 learners with stronger L1 skills attain higher levels of L2 proficiency. Likewise, Durgunoglu (2002) proposes that strong aspects of L1 skills transfer across languages, and that those particular proficiencies develop in L2 as their L2 proficiency develops.

Similarly, several studies by Sparks and his colleagues (Sparks et al., 2008, 2009; Sparks et al., 2006; Sparks & Ganschow, 1991; Sparks, Patton, Ganschow, & Humbach, 2012a) concluded that learners’ “L1 skills serve as the foundation for their L2 learning aptitude and achievement” and “L1 and L2 learning depend on basic language learning components that are common to both languages,” (Sparks, 2012, p. 5). In this respect, the current study suggests that the role of L1 vocabulary size deserves more attention with respect to L2 vocabulary development. Naturally, there are several other factors that affect vocabulary learning, but resting on the evidence from cross-linguistic studies suggesting that similar language learning mechanisms are responsible for L1 and L2 learning (Cummins, 1979; Kahn-horwitz et al., 2006; Sparks et al., 2009b), the results of the current study emphasize that L1 vocabulary size should be considered among these factors.

The the significant relationship that have been found between L1 and L2 vocabulary in this study indicates that the development of L2 mental lexicon may be affected by the maturity of L1 mental lexicon, in other words, the ability to perform complex cognitive activities in L1 affects the performance of L2 lexicon. This ability to build strong lexical and conceptual connections in L1, which is partially represented in vocabulary size, can be the agent that play significant role in L2 mental lexicon development (Turgeon & Macoir, 2008).

Although much remains to be understood about what underlying factors affect the relationship between L1 and L2 vocabulary size, based on the evidence from the studies on bilingual mental lexicon, language aptitude and cross-linguistic effect of L1 on L2, which suggest that similar language learning mechanisms are responsible for L1 and L2 learning (Cummins, 1979; Kahn-horwitz et al., 2006; Sparks et al., 2009b), it is safe to infer that L2 vocabulary development needs to be considered with regard to L1 vocabulary development.

## **The changing effect of reading habits on vocabulary development in L1 and L2.**

Another point that stood out was that the relationship between habits and vocabulary size in L2 is different from that in L1, as the results revealed that L2 reading habits were not a significant predictor of L2 vocabulary size. However, the study did not focus on the reading habits of the participants in detail, such as how they manage texts and unknown vocabulary, or the type and level of the texts they encountered. Therefore, it cannot be concluded that extensive reading is not a significant predictor of L2 vocabulary, because it is difficult to track the full impact of extensive reading on vocabulary knowledge, considering that it functions as a tool to strengthen already-known vocabulary and the related aspects of knowing a word such as grammatical context, discursal context, inflectional and derivational forms. In this regard, some studies have indicated that extensive reading recorded a measurable and significant effect on vocabulary knowledge even within short periods of time (1-3 months) (Al-Homoud & Schmitt, 2009; Chun et al., 2012; Kweon & Kim, 2008; Suk, 2016). Nevertheless, a particular group of studies has asserted that extensive reading practice should be supported and strengthened through explicit vocabulary learning activities (Min, 2008; Teng, 2015; Yamamoto, 2011).

This insignificant relationship between L2 reading and L2 vocabulary size could be the result of the fact that because the contributions of extensive reading to vocabulary size may not be the ones that can be represented through a receptive vocabulary size test (Grabe & Stoller, 1997). As suggested in the literature, extensive reading plays a significant role in strengthening the already known aspects of vocabulary and developing the depth of vocabulary contributing to the word parts, underlying concept, associations, grammatical functions, collocations and constraints on use. These aspects are not measured in receptive vocabulary size tests. Another reason for this could be the participants' being English-majors who study certain subjects that cover particular vocabulary therefore those years contribute to the depth of vocabulary rather than breadth.

Another possible explanation for the insignificant relationship between L2 reading habits and vocabulary may be that EFL students have only limited

language exposure and do not enjoy the rich language environment necessary to recycle and strengthen their L2 vocabulary through multiple exposures in different discourse contexts. On the contrary, in L1 contexts, readers can benefit from greater opportunities to read, as they are exposed to numerous situations in which they are obliged to communicate with those words that have been acquired through reading. Moreover, because the participants may not have the ability to manage the unknown or partially-known vocabulary while reading, they are less able to communicate with L2 texts effectively (Dubin & Olshtain, 1993). Research suggests little evidence for the process of incidental vocabulary acquisition through reading. For this reason, inferring word meaning from the context is the current assumption regarding this process (Fraser, 1999). However, research suggests that in most instances, readers avoid dealing with unknown vocabulary (Fraser, 1999). Even if they do employ inferring strategies, they may misuse the clues; or correct inferencing may not lead to the acquisition in the event that the later processes required for retention are not accomplished (Wesche, 2000).

Furthermore, these results also raise the issue of whether readers know how to read effectively in L2, or even in their L1. According to some research, “reading alone is unlikely to be the best source of vocabulary acquisition” (Laufer, 2003, p. 581) unless it is supported by reading and lexical inferencing strategies and word-focused tasks (Fraser, 1999; Nation, 1998a), because some words or some aspects of vocabulary knowledge require more than simply being exposed to those words on one or more instance during reading (Wesche, 2000). In this respect research indicates that a reader can guess an unknown word using the rich clues in the reading text but this does not mean that the same reader have learnt that word as long as the aim of reading is to comprehend the text (Paribakht & Wesche, 1997). On the other hand, research also provides evidence for that extensive reading engages readers with “deeper processing” which results in “more acquisition” and stronger “retention” (Paribakht & Wesche, 1997, p. 176). However, this gain in knowledge is yet to be understood and therefore be measured.

## **The nature of the relationship between reading motivation and reading habits in L1 and L2**

Another point emerging from the results is that, although the reading motivational dispositions were different in the two languages; the relationship between reading motivation and habits in L2 was similar to that of L1. Participants who had higher reading efficacy and were highly intrinsically motivated to read in L1 reported higher reading amount and frequency. Similarly, higher L2 intrinsic reading motivation and reading efficacy significantly explained the higher reading amount and frequency in L2, and reading efficacy and intrinsic reading motivation were found to be two significant factors affecting the development of reading habits in L1 and L2. Although linguistic reading motivation was the dominant disposition in L2 reading, it exhibited no effect on reading habits. On the other hand, those who had higher reading efficacy and intrinsic motivation towards L2 reading and who read more in L1 engaged in L2 reading more. Several other studies support this finding, in that reading motivation significantly contributes to reading amount, which promotes reading comprehension as a result of developing background knowledge, vocabulary knowledge and fluent use of cognitive skills (Guthrie et al., 2000; Guthrie et al., 1999; Wigfield & Guthrie, 1997a). In these studies, whereas intrinsic motivation was found to provide the major contribution to reading amount and frequency (De Naeghel et al., 2012; Guthrie et al., 1999; Stutz et al., 2016a), in Stutz et al.'s study (2016a), extrinsic reading motivation was negatively correlated with reading amount and reading comprehension.

In this respect, Becker et al.'s longitudinal study (2010) with grade 4 students provides further evidence that intrinsic reading motivation is a predictor of later reading literacy when mediated through reading amount. Moreover, students with high extrinsic reading motivation revealed lower amounts of reading, and they also demonstrated lower reading literacy in later grades. Intrinsic reading motivation exhibited a stable influence on reading amount and reading literacy from early to later grades. Overall, the results emphasize that extrinsic motivation was negatively associated with reading amount and reading literacy. Besides being the best predictor of reading amount and frequency, intrinsic reading motivation facilitates readers using cognitive and reading-related skills effectively. These learners also possess higher reading efficacy which enables them to

manage difficult texts and unknown vocabulary effectively and for longer periods of time.

Overall, in L1 and L2 languages, intrinsic reading motivation exhibited as the critical motivational disposition that engages learners in reading. The results also highlight the association of intrinsic reading motivation with reading efficacy. In this respect, in order to create and sustain reading behaviour and maintain a strong and long-lasting effect, the study suggests that intrinsic reading motivation and reading efficacy should be promoted in L1 and L2 reading development.

### **The effect of L1 reading habits and reading motivation on L2 reading habits and reading motivation**

A number of studies (Camiciottoli, 2001; Ro & Chen, 2014b) investigated the effects of L1 reading habits on L2 reading behaviour. The current study contributes to the literature in support of the existing findings that learners who have better reading habits in L1 are likely to develop better reading habits in L2. The results also revealed that the amount and frequency of L1 reading predicted the amount and frequency of reading in L2. As such, L1 reading habits may be treated as a tool to develop good L2 reading habits and may present noteworthy solutions to certain problematic L2 reading habits. In this respect, Camiciottoli (2001) found that even when L2 learners have a positive attitude towards L2 reading, if they do not have strong L1 reading habits, they refrain from reading in L2, as well. On the other hand, it is possible for L1 readers with strong reading habits to avoid reading in L2 due to unpleasant L2 reading experiences, difficult or boring texts or seeing no benefits in L2 reading. However, it appears that L1 and L2 reading habits may not be considered as totally different and mutually exclusive. In this respect, aside from making students aware of the benefits of reading in L2 and eliminating the adverse factors preventing learners from engaging in reading, the study proposes that ensuring strong L1 reading habits can significantly contribute to the development of good L2 reading motivation and habits later on.

With respect to reading motivation, more variation occurred between the languages. As in previous studies that were conducted in different contexts, this study also found that students possessed different motivational orientations in L1

versus L2. In this sense, intrinsic and instrumental reasons were found to be two main motivational orientations that drive L1 reading, whereas linguistic and extrinsic motivations were the two most dominant motivational orientations in L2 reading. The previous studies that employed the same scales revealed quite similar results to this study (Erten et al., 2010; Ölmez, 2015; Özönder, 2015; Schutte & Malouff, 2007b; Şentürk, 2015; Yıldız et al., 2013), which is not surprising, as L1 and L2 are used for different purposes in an EFL context. Thus, it is reasonable to be more intrinsically motivated to read in L1 than L2 or to be more motivated linguistically for L2 reading.

Interestingly, despite the distinctive reading motivational dispositions in each language, L1 reading motivation significantly affects L2 reading motivation. However, as with the relationship between L1 and L2 reading habits, the relationship between L1 and L2 reading motivation has drawn little attention in the literature. The existing studies have revealed that, although reading motivation in L2 and L1 are affected by different factors, L1 reading attitudes and motivation remains a significant influence on L2 reading motivation (Kim, 2011; Lee & Schallert, 2014; Yamashita, 2004, 2007). In this study, L1 reading motivation significantly predicted L2 reading motivation in that the learners who were highly motivated to read in L1 tended to show high motivation to read in L2, as well. Although the most highly reported motivations were somewhat different in both languages, the results revealed that each sub-construct of the L1 reading motivation scale significantly correlated with the sub-constructs of the L2 reading motivation scale. Overall, the significant correlations between the sub-constructs of the same motivational construct suggest that reading motivation as a driving force may come to be considered as the most advantageous route to achievement in the target language.

### **The role of reading efficacy in relation to L2 vocabulary development and reading habits**

In this study, L2 reading efficacy played a significant role in predicting L2 reading habits and L2 vocabulary. On the other hand, L1 reading efficacy, which was relatively high in consideration of the other dimensions of the same construct, appeared not to have any effect on L1 reading habits and contributed only to L1



vocabulary. However, the insignificant relationship between reading efficacy and reading habits did not affect the participants' engagement in reading in L1. Instead, the only predictor of L1 reading habits was L1 intrinsic reading motivation. Considering the age of the participants, reading efficacy may not be a critical factor in determining the success and habits in L1 reading, because as L1 adult readers have already reached a certain proficiency level in L1, efficacy related problems do not pose problems that deter reading. On the other hand, reading efficacy is more influential at the initial stages of L1 reading and may have played a role in developing reading motivation and habits in L1 at the outset, with its effect become less visible later on.

However, regarding L2 reading, the effect of reading efficacy has a wider range of influence, as it takes more time to build the necessary vocabulary size to meet the required text coverage. Therefore, learners with low reading efficacy are likely to avoid the tasks or texts that they think they are not able to manage well (Templin, 1999). Furthermore, they employ less "attention, effort, persistence and strategies for achieving, and they avoid challenging goals" (Templin, 1999, p. 119). In this sense, self-efficacy, as a component of motivational constructs, acts as a significant mediator between attitudes and motivation (Tremblay & Gardner, 1995). Aside from motivation, reading efficacy was also found to be significantly correlated with reading comprehension (Ghonsooly & Elahi, 2010; Naseri & Ghabanchi, 2014). The significant relationship between self-efficacy and vocabulary in both languages support the fact that reading efficacy, which correlates to reading comprehension, may lead to vocabulary gains through stimulating reading. On the other hand, the insignificant relationship between L2 reading habits and L2 vocabulary may result from the fact that the participants in the current study may have underestimated or overestimated their reading behaviour, or the instrument may have not reflected their actual reading practice. Moreover, the instrument did not describe the details of reading behaviour: for instance, whether readers keep a vocabulary notebook or use a dictionary during reading, what actions are taken during reading or how the texts are managed.

## Conclusion

Based on the results, some conclusions have emerged regarding vocabulary, reading motivation and habits, as well as the cross-linguistic effect of L1. The most outstanding relationship was seen between L1 and L2 vocabulary; L1 vocabulary size was found to be the best predictor of L2 vocabulary size among L2 reading motivation and habits. As this relationship has not been studied before in this respect (L1 vocabulary size as the predictor of L2 vocabulary size), tentative explanations can be drawn from the literature based on the relevant studies. One possible explanation can be found in aptitude studies claiming that learners who have strong L1 skills are highly likely to have strong L2 skills; mental lexicon studies also support this relationship. The parallel activity of several aspects across two languages and the activation of both languages during comprehension and production in only one language suggest that it is very likely for learners who exhibit stronger L1 skills (listening, speaking, reading, writing) to be more successful in L2 (Kroll & Hermans, 2011). Similarly, in a study that reviewed neurobiological research on mental lexicon, Franceschini et al. (2003, p. 160) assert that several studies “revealed overlapping regions for the processing of single words in various languages”. Regarding these findings, L1 language skills may reflect the effectiveness of these specific language areas in the brain, which are employed for L2, as well. Moreover, “the dynamic interplay between the L2 and the L1 lexicons” (Singleton, 2006, p. 130) is likely to lead the more developed lexicon to support the less developed one. Hence, despite the lack of previous research in this regard, the findings of the current study suggest that L1 vocabulary size should be considered as one of the predictors of L2 vocabulary size.

Vocabulary is the key that allows readers to perform effectively in the reading process; conversely, reading is an important and exceptional source of vocabulary in L1 and L2, which acts as an indicator of general language learning aptitude (Sparks et al., 2009b). Rich vocabulary knowledge makes reading more enjoyable and informative activity whereas reading supports vocabulary development through strengthening what is already exists in the mind and building new ones. However the effect of reading on vocabulary needs to be strengthened through several activities and strategies accompanying reading in L2. In this

sense, L1 readers have opportunities to reinforce the input gained through reading. Therefore L2 contexts require reading-plus conditions to compensate the poor opportunities of EFL settings. In this respect, as it is concluded in this study, the cross-linguistic effect of L1 reading motivation and habits can be considered as an option to develop good reading motivation and habits in L2 regarding reading-plus condition.

**Methodological implications of the study.** The quantitative nature of this study allows for collecting a large amount of data from a sizeable population in order to develop a theoretical model of previously-identified variables. Theoretical models seek for *generalization*, which requires collecting data from large samples. In this respect, a survey research design, which provides researchers with economy of time and feasibility of data collection from large samples, was adopted in the current study (Creswell, 2009). A survey research design facilitates exploration of the “patterns of relationship between the variables” (Bryman, 1989, p. 22). Accordingly, the data for this study were collected by means of questionnaires, scales and achievement tests. However, in order to gain greater understanding of the underlying reasons for the relationships presented in the proposed model, the results can be supported by qualitative data.

One further methodological implication was the employment of PLS-SEM analysis. Although the PLS-SEM has been widely used in behavioural studies, due to its numerous advantages, it has rarely been employed in ELT research (Hair et al., 2014). However, because it presents unique advantages in proposing theories with complex models, the current study provides awareness of the methodological choice of PLS-SEM in ELT research.

Moreover, previous studies on the relationship between reading and vocabulary made use of non-standard materials and tests. The employment of standard vocabulary size tests, along with motivational scales, allows the current study, as well as future studies, to compare the results and reach a general conclusion for specific issues. As for the questionnaires, which were chosen as the best option for collecting a wide array of data from a large sample, the results suggest that when investigating reading habits, more detailed and multiple data collection tools should be employed to obtain a more elaborate picture of the

behavior, which is not usually possible in large scale studies with multiple data collection tools.

Another important methodological implication of the study was that the reliability analyses of L1 vocabulary levels test; these indicated that the first three parts of the test obtained the highest scores and nearly reached the maximum scores; therefore, the variance was found to be quite small. This result suggests that the first three parts should be employed cautiously with adult Turkish native speakers. The other parts of the test, which measured the 10.000 plus vocabulary size, appeared to be more appropriate for measuring adult Turkish native speakers' vocabulary size. Likewise, considering the L2 vocabulary levels test, the first two parts appeared to be impaired by a small variance, because a large number of participants reached the maximum score, narrowing the variance and posing difficulties in some aspects of the analysis. In this respect, the inclusion of each part of the test in future studies should be determined in consideration of the level of the participants in order to avoid narrow variance and participant fatigue.

**Theoretical Implications.** There are a number of factors that affect L2 vocabulary size. However, the current study proposes a new factor: L1 vocabulary size as a significant predictor of L2 vocabulary size, based on the fact that L1 vocabulary development appears to play an important role in developing L2 vocabulary. In this sense, L1 skills are considered among the factors that affect individual differences in L2, because L1 skills have been found to be closely related to L2 aptitude (Sparks et al., 2009a). From the very early years of education, L1 literacy skills hold critical importance for L2 learning, and it is highly possible that L1 vocabulary size, just like the cross-linguistic transfer of other L1 skills, affects the development of L2 vocabulary. This effect may be the result of phonological-orthographic ability or other cognitive skills or working memory capacity (Durgunoglu, Navy, & Hancin-Bhatt, 1993; Meschyan & Hernandez, 2002).

Another theoretical implication of the current study is that L2 reading motivation and habits cannot be considered separately from L1 reading. Naturally, due to the contexts in which the languages are used and the users' aims, aside from their reading experiences in both languages, the reasons for reading motivation in L1 and L2 differ. Most L2 readers tend to read for instrumental

reasons, whereas they read for intrinsic reasons in their L1. Despite this divergence, the results indicate that L2 reading motivation is influenced by L1 reading motivation, and L1 reading motivation appears to find a more comfortable and advantageous place for itself. With this in mind, because readers already enjoy reading as a self-development activity in L1 and satisfies it through L1, it is suggested that L2 reading may be used for a profitable purpose, particularly for an intrinsically motivated reader: not only to learn another language, but also for pleasure.

Another point highlighted in the results is that extensive reading in L2 should not be left on its own. Whereas extensive reading in L1 does not require intentional use of supporting activities, this is already known in the L1 context. As elaborated in the literature review, during L2 reading, it is possible that readers ignore unknown words or make incorrect guesses from the context when dealing with unknown vocabulary. Therefore, a few reading encounters may not guarantee the learning of vocabulary. Moreover, EFL learners have few opportunities to encounter such words outside the classroom without a deliberate attempt to do so. Intentional efforts are needed in order to compensate for the poor stimulus in EFL contexts. In doing so, deeper engagement with the words increases the retention of word meaning and the knowledge of related aspects of vocabulary (Erten, 1998; Hulstijn, Hollander, & Greidanus, 1996).

**Pedagogical Implications.** The major implications of the current study can be outlined as follows:

- 1- Despite the linguistic distance between L1 and L2, L1 vocabulary development should be considered in the development of L2 vocabulary.
- 2- L1 reading motivation as a significant predictor of L2 reading motivation should be promoted.
- 3- Despite different motivational dispositions endorsed in L1 and L2, intrinsic reading motivation as the most effective factor in developing good reading habits in L1 and L2, should be encouraged.
- 4- Good L1 reading habits play a significant role in developing good L2 reading habits, therefore, they should be considered as a part of fostering good L2 reading habits.

5- For higher gains in vocabulary, extensive reading in L2 should be supported by vocabulary exercises.

6- Reading self-efficacy, as a critical psychological factor in developing good reading habits and broadening L2 vocabulary, should be encouraged.

***L1 vocabulary should not be disregarded in L2 vocabulary development.*** In the early stages of L2 learning, as L1 has “stronger word-to-concept connections” (Kroll & Hermans, 2011, p. 17), L1 mediates the relationship between L2 vocabulary and concepts. To access the meaning of L2 words, less-proficient learners rely on L1 equivalents of the relevant L2 words. However, as they become more proficient -- namely, when the links between L2 words and concepts become stronger, learners are able to access concepts directly when dealing with L2 words without applying their L1 equivalents. Nonetheless, even during direct conceptual processing, L1 is active. Research on lexical processing suggests that no matter what language is in use during reading, writing, listening or speaking, both languages are activated considering their phonological, conceptual, orthographical similarities (Kroll & Hermans, 2011).

Although less-proficient L2 users experience more L1 influence at the lexical level, more proficient L2 users likewise cannot detach themselves from L1 lexical sources and skills, because lexical processing takes place in the same areas in the brain in both languages (Franceschini et al., 2003). As the foundation of these areas has been laid in L1, and the advantage of having conceptual richness in L1 (which can provide more comprehensive mediation between L2 words and concepts) has already been established through/in L1, developing lexical skills requires a well-developed L1 vocabulary. This should continue to be nurtured while developing L2 vocabulary at the same time during the L2 learning process. In this respect, L2 language teachers' working in cooperation with L1 language teachers to encourage L1 vocabulary development can promote learners' L2 vocabulary development.

***L1 reading motivation can serve L2 reading motivation.*** Although reading motivation appears to share a common domain, and a highly motivated L1 reader is likely to be motivated to read in L2, as well, there can be exceptional cases when other factors affecting L2 reading motivation are considered.

However, promoting L1 reading motivation should not be disregarded in developing L2 reading motivation. In this sense, although any kind of motivation can trigger action, intrinsic reading motivation is recognized as the most influential disposition, as its effect lasts longer and has stronger links to action. Although instrumental motivation was the most highly reported disposition, it had no effect on promoting reading habits or on vocabulary; and intrinsic reading motivation, which is essentially associated with L1 reading motivation, is indispensable in fostering L2 reading motivation. As such, intrinsic reading motivation, as the most effective factor among the other motivational dispositions, should be encouraged in L2 reading. If readers enjoy reading as a personal interest, as well as an instrumental activity, they may engage in reading more effectively and for longer periods. In previous studies, intrinsic reading motivation exhibited a stable influence on reading amount, whereas other motivational dispositions were found to be ineffective or to have unstable outcomes (De Naeghel et al., 2012; Guthrie et al., 1999; Schiefele et al., 2016). In this sense, studies have shown that extrinsic reading motivation was negatively linked to reading comprehension (Stutz et al., 2016) and was negatively linked to reading amount and literacy (Becker, McElvany & Kortenbruck, 2010).

Intrinsic reading motivation can be promoted directly or indirectly through the encouragement of L1 intrinsic reading. Because learners face less difficulty in dealing with difficult texts and unknown vocabulary in their L1, they develop stronger reading efficacy. Therefore, it would be beneficial to trigger L2 intrinsic reading motivation by developing intrinsic reading motivation in L1. In this sense, although family and reading experiences are other important factors in developing positive reading motivation in L2, the teachers' role is believed to compensate for the deficiencies or inefficiencies of other factors to a great extent (Cambria & Guthrie, 2010; McKool & Gaspas, 2009). Research suggests that one way of developing intrinsic reading motivation in learners is to develop teachers' intrinsic reading motivation (McKool & Gaspas, 2009). When teachers themselves do believe the importance of reading extensively and for intrinsic reasons, and acknowledge the value of reading as a self-rewarding activity and rich way of learning and developing oneself both in L1 and L2, it will be easier to make students develop similar attitudes and motivation towards reading.

***L2 reading habits should be supported through L1 reading habits.*** The study revealed that the amount and frequency of L1 reading predicted the amount of reading in L2, a circumstance which was supported by the relevant literature (Camiciottoli, 2001; Ro & Chen, 2014). In this respect, aside from making students aware of the benefits of reading in L2, it can be asserted that ensuring a high level of L1 intrinsic reading motivation and positive reading habits can significantly contribute to the development of good L2 reading habits. In this sense, it will be difficult for learners who have not developed strong reading habits in L1 to develop good reading habits in L2. When this occurs, such learners may complete academic reading tasks as long as they are compulsory; however, unless it occurs regularly and at an adequate level, reading will not yield its potential outcome. Stronger motivation is needed to maintain the process and to provide deeper and longer reading engagement.

Moreover, valuing reading as a self-development activity is another way that teachers influence students' attitudes and motivation towards reading. In this respect, a number of studies have highlighted the importance of teachers' reading habits in developing students' reading habits. For instance, Mckool and Gespass (2009) found that teachers who had strong reading habits used effective reading activities that were effective for engaging students in reading, such as literature circles, discussions, silent reading and sharing insights, all of which promote intrinsic reading motivation. By sharing their own reading experiences and practices with the students and making pleasure reading as a classroom activity that continues outside the classroom, teachers can affect students' engagement with reading.

***Extensive reading as a tool to develop L2 vocabulary in EFL contexts.*** Knowing a word refers to the relevant components of forms, meaning and use, such as spoken and written forms, word parts, collocations, constraints on use. Almost all of these components of three aspects of word knowledge can easily be represented in written texts. Written texts allow learners to stop and pay deliberate attention to particular words or aspects when needed without imposing any constraint on time, which is not possible in speaking.

After learners' achieving form and meaning link of the first 2000 words immediately through decontextualized learning tasks, this vocabulary should be



supported with reading practices. As suggested in the literature reading is an effective way of transferring information to the long term memory (Chun, Choi & Kim, 2012). Furthermore, reading also encourages implicit learning which is required in strengthening and even learning some aspects of word knowledge and is a most salient learning for more proficient learners. Particularly until learners reach 8000-9000 vocabulary size, which is required for 98% text coverage, vocabulary development should not be left to learners themselves.

In strengthening the lexical and conceptual links between L1 and L2 mental lexica, reading plays an important role (Pavlenko, 2009). Whereas some aspects can be learned implicitly, some other aspects require learners' conscious attention, in other words, lexical links can be achieved through explicit learning of words, establishing conceptual links can be achieved through implicit learning (Pavlenko, 2009). With respect to vocabulary learning, reading can be promoted through practices that prompt readers to engage in deeper semantic and cognitive processing (Erten, 1998), such as dictionary use, strategy training, marking unknown words, regular review of vocabulary items, holding discussions, making summaries and explicit vocabulary tests (Paribackht & Wesche, 1997; Wesche & Paribakht, 1994). Although some researchers advise against consulting a dictionary during extensive reading, as it disrupts reading flow and may discourage the reader, others encourage using a dictionary during reading if it does not interrupt the reader very often, as it enables deliberate attention, and thereby increases vocabulary gain (Hulstijn et al., 1996; Nation, 2013). Moreover, when combined with interactive vocabulary instruction, which can be realized through writing and speaking activities, extensive reading significantly contributes to greater amounts of vocabulary gains (Zimmerman, 1994).

Even if English-majors have good reading habits in terms of frequency and amount of reading, good reading habits involves extensive reading which refers to reading diverse texts rather than doing substantial amount of reading on certain type of subjects or texts. Therefore, learners should be aware of the fact that unless extending breadth of vocabulary, the depth of vocabulary cannot be achieved (Webb, 2005), and in addition to intensive reading they need to do extensive reading. In extensive reading, the focus is on meaning rather than vocabulary. Therefore, to extend its effect with regard to vocabulary learning, it

should be supported with some activities so that several aspects of vocabulary knowledge can be strengthened through reading: grouping words according to their functions in discourse, giving derivatives and inflections of words, using dictionary, marking unknown words, regular review of vocabulary items, holding discussions, making summaries and doing explicit vocabulary tests. This explicit approach which is suggested before and after incidental learning tasks as a source of reinforcement (Schmitt, 2010) once practiced in the classroom; learners may gain a similar awareness that reading can be an important and advantageous way of learning vocabulary. Even if learners do not consult to this type of activities which requires more effort to prepare, instead having awareness of the fact that reading can extend their vocabulary knowledge and processing skills as well as provide more control over their vocabulary learning, they can benefit more from reading and develop learning strategies.

***The role of reading efficacy in relation to L2 vocabulary size and reading habits.*** Self-efficacy as “personal beliefs in one’s capabilities” (Mills, Pajares, & Herron, 2006, p. 277) affects one’s behaviors, efforts, persistence and achievements and is likewise affected by them; as learners engage with a task and realize their improvement in doing that task, their self-efficacy will increase (Schunk, 2003). For the second time, learners feel more willing to do the task and find the impetus to persist through difficulties in doing the task. On the other hand, learners with low efficacy tend to avoid the task so they do not need to deal with difficulties that they feel unable to overcome.

The influence of reading efficacy appears to have a significant effect on English major students who need to develop strong L2 reading habits and rich vocabulary. Those students with weak L2 reading habits and a narrow L2 vocabulary size may have developed negative reading efficacy, which may in turn lead to reading avoidance. In addition, some students may also avoid L2 reading as a less rewarding activity, a perception which could result from poorly employed strategies or other factors such as teachers’ practices and curriculum objectives.

In this respect, the current study suggests that developing reading efficacy in students will promote better reading habits and L2 vocabulary knowledge. Furthermore, considering that self-efficacy is a significant predictor of reading achievement (Baker & Wigfield, 1999a; Henk & Melnick, 1995; Mills et al., 2006)

and a significant factor in developing and sustaining motivation (Margolis & McCabe, 2003), reading efficacy, which is self-motivating and self-sustaining, should be developed by teaching effective reading effective strategies. By learning effective strategies, students may be better able to manage reading tasks effective, so that they can experience achievement. In this process, teachers can help learners to develop efficacy through employing constant feedback on learners' reading performance (Mizumoto, 2013; Schunk, 2003).

### **Suggestions for Further Research**

As the participants' being English-majors who study certain subjects that cover particular vocabulary does not reflect the general L2 learners population, the model should be tested with the participants from diverse groups of learners, which could help to better evaluate the results of the current study. A larger sample from diverse group of learners would allow researchers to categorize students into different vocabulary size groups and would more likely yield a clearer picture of the relationships between vocabulary size, reading habits and motivation. The reading habits and motivation of the students in the current study were assessed through standardized tests and a limited number of questions. Open-ended questions or interviews would help researchers to get a better understanding of the relationships between these constructs. Through the present study some implications for future research have emerged. First, a few predictors of L2 vocabulary have been addressed in the current study. Including other variables as predictors of L2 vocabulary size would allow researchers to see a wider picture of the case, which is quite appropriate for PLS-SEM analyses. In order to obtain higher  $R^2$  values, other variables that might possibly influence L2 vocabulary should be included in the model. Furthermore, doing so would bring about more detailed assessment and identification of the roles of reading habits and L1 vocabulary in developing L2 vocabulary. Moreover, as the current study tested a new model, the model should be proofed with different samples in different contexts.

Considering the significant relationship between L1 and L2 vocabulary, which has been found in this study, another important factor in the development of L2 mental lexicon seems to be the mature L1 mental lexicon, which indicates the

ability of the brain to perform complex cognitive activities. This ability to build strong lexical and conceptual connections in L1, which is partially represented in vocabulary size, can be the agent that play significant role in L2 mental lexicon development (Turgeon & Macoir, 2008). In this respect, further studies can make significant contributions to the understanding of its role in L2 mental lexical development.

This study dealt with only receptive vocabulary for two reasons. First, because the previous studies revealed a very strong relationship between receptive and productive vocabulary size, which affects the significance of the relationship between vocabulary size and other variables, this presents an unsuitable condition for testing a complex model. Secondly, a total of 6 instruments used in the study and two of them were vocabulary tests, which took long time to complete. Adding another vocabulary test can increase the rate of retention. However, the strong relationship between receptive and productive vocabulary knowledge suggests that the model can also represent productive vocabulary size. As both types of vocabulary knowledge, receptive and productive, are highly correlated, therefore, this strong relationship prevents using them as separate agents in the same model. The current study preferred receptive vocabulary size test because there is no productive vocabulary size test for L1. Future studies can test the model with productive vocabulary size. Also, this study suggests that there is a need for Turkish productive vocabulary size test.

Moreover, few studies have investigated the effect of L1 reading habits on L2 reading habits. However, more research is required in order to ascertain the relationship between L1 and L2 reading habits and to understand in what aspects and in what manner reading habits influence L2 reading habits. In this sense, a standardized instrument to measure reading habits in L1 and L2 needs to be developed. The present study deals only with reading habits in terms of reading amount; other features relating to reading habits might also reveal useful insights relevant to the present topic. Additionally, a reading task before or after the scales and questionnaires may help participants to make realistic evaluations about themselves in terms of their reading habits and motivational dispositions, such as reading task could also provide information about the reading skills of the

participants with respect to their motivational dispositions, vocabulary size and reading habits.

Most of the studies with regard to reading motivation have been conducted with young learners and most of these studies have been focused on L1 reading motivation. In this sense, more research is needed to understand the effect of the dimensions of L2 reading motivation on reading habits and vocabulary development. Moreover, not all types of reading motivation lead readers to read. In this respect, studies have shown that extrinsic reading motivation was negatively associated with reading comprehension (Stutz et al., 2016) and was negatively associated with reading amount and literacy (Becker, McElvany & Kortenbruck, 2010). Additionally, although it is not the most highly reported motivational orientation in L2 reading, intrinsic reading motivation, as the best predictor of reading habits in the L1 and L2, needs more attention by researchers and practitioners.

Although it is not included as a factor in the current study, research suggests that one way of developing intrinsic reading motivation in learners is to develop teachers' intrinsic reading motivation (McKool & Gaspas, 2009). When teachers themselves do believe the importance of reading extensively and for intrinsic reasons, and acknowledge the value of reading as a self-rewarding activity and rich way of learning and developing oneself, it will be easier to make students develop similar attitudes and motivation towards reading. On the other hand, although the importance of reading is acknowledged and emphasized in L1 in theory, practices are poorly in line with it. In this respect, Turkish language studies should pay more attention to the reading motivation and behavior of young and adult learners from all educational levels. A study into the reading profile of Turkish readers will be insightful for many research areas.

With some appropriate adjustments, a replication of the current study would allow us to understand the role of L1 vocabulary and the cross-linguistic effect of L1 reading motivation and habits on L2 vocabulary, reading motivation and habits; in particular, the relationships between L1 and L2 vocabulary, L1 and L2 reading habits, L1 and L2 reading motivation. An examination of whether increasing intrinsic reading motivation results in an increase in L2 intrinsic reading motivation, or similarly, whether improvement in L1 reading habits leads to improvement of L2

reading habits, would contribute to significant gaps in the field. Furthermore, because vocabulary development is a complex process, adding more predictive variables may yield more comprehensive results.

Finally, the current study adopted a quantitative approach using the multiple data collection tools required by a complex proposed model. Future studies may elaborate on the issue from a qualitative approach, such as tracking learners' L1 and L2 reading behaviours along with their vocabulary development.

## References

- Abdelsamie Mohamed, A. A. (2015). *The roles of context and repetition in incidental vocabulary acquisition from L2 reading: An eye movement study*, (Doctoral dissertation). Michigan State University, Michigan.
- Abou-Elsaad, T., Ali, R. & Abd El-Hamid, H. (2015). Assessment of Arabic phonological awareness and its relation to word reading ability. *Logopedics Phoniatrics Vocology*, 41(4), 175–183.
- Aitchinson, J. (1987). *Words in the mind: An introduction to the mental lexicon*. Basil Blackwell.
- Akbari, H., Ghonsooly, B., Ghazanfari, M., & Shahriari, H. (2017). Attitude toward reading: L1 or L2 or both. *SAGE Open*, 7(3), 1–10.
- Akbarian, I. (2010). The relationship between vocabulary size and depth for ESP/EAP learners. *System*, 38(3), 391–401.
- Alderson, J. C. (1984). Reading in a foreign language: A reading problem or a language problem? In Anderson, J. C. & Urquhart, A. H. (Eds.), *Reading in a foreign language* (pp. 1–27). London & New York: Longman.
- Al-Hejin, B. (2005). Attention and awareness : Evidence from cognitive and second language acquisition research. *Teachers College, Columbia University Working Papers in TESOL & Applied Linguistics*, 4(1), 1–22.
- Al-Homoud, F., & Schmitt, N. (2009). Extensive reading in a challenging environment: A comparison of extensive and intensive reading approaches in Saudi Arabia. *Language Teaching Research*, 13(4), 383–401.
- Asfaha, Y. M., Beckman, D., Kurvers, J., & Kroon, S. (2009). L2 reading in multilingual Eritrea: The influences of L1 reading and English proficiency. *Journal of Research in Reading*, 32(4), 351–365.
- Avkiran, N. K. (2018). Rise of the partial least squares structural equation modeling: An application in banking. In Avkiran, N. K. & Ringle, C. M. (Eds.), *Partial least squares structural equation modeling: Recent advances in banking and finance* (pp. 1–30). Springer International Publishing.

- Baddeley, A. D. (1999). *Essentials of human memory*. Psychology Press Taylor & Francis Group.
- Baddeley, A., Eysenck, M. W., & Anderson, M. (2015). *Memory* (2nd ed.). Psychology Press Taylor & Francis Group.
- Badecker, W., & Caramazza, A. (1989). A lexical distinction between inflection and derivation. *Linguistic Inquiry*, 20(1), 108–116. Retrieved from <https://doi.org/10.2307/4178616>
- Baker, L., & Wigfield, A. (1999). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly*, 34(4), 452–477.
- Başöz, T. (2018). *Willingness to communicate: a path-analytic model for tertiary level learners of English in Turkey* (Doctoral Dissertation). Hacettepe University, Ankara.
- Becker, M., McElvany, N., & Kortenbruck, M. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology*, 102(4), 773–785.
- Bernhardt, E. B. (1991). *Reading development in a second language: theoretical, empirical and classroom perspectives*. Norwood, NJ: Ablex.
- Bernhardt, E. & Kamil, M. J. (1995). Interpreting relationships between L1 and L2 reading: Consolidating the Linguistic Threshold and the Linguistic Interdependence hypotheses. *Applied Linguistics*, 16(1), 15-34.
- Bock, K., & Levelt, W. (1994). Language production: Grammatical encoding. In Gernsbache, M. A. (Ed.), *Handbook of psycholinguistics*, (pp. 945-984). Elsevier, Academic Press.
- Briggs, J., Walter, C., & Briggs, J. G. (2016). Read on! Extensive reading and young second language learners' motivation and attitudes. A report sponsored by Oxford University Press, 44(March).
- Brisbois, J. E. (1995). Connections between first and second language reading. *Journal of Reading Behaviour*, 27(4), 565–584.



- Brown, R., Waring, R., & Donkaewbua, S. (2008). Incidental vocabulary acquisition from reading, reading-while-listening, and listening to stories. *Reading in a Foreign Language, 20*(2), 136–163.
- Burger A., Chong I. (2011) Receptive vocabulary. In: Goldstein S.& Naglieri J.A. (Eds). *Encyclopedia of Child Behavior and Development* (pp. 1231-1231). Springer, Boston, MA.
- Bryman, A. (1988). *Quantity and quality in social research*. Routledge.
- Bryman, A. (1989). *Research methods and organization studies*. Contemporary Social Research Series.
- Cambria, J., & Guthrie, J. T. (2010). Motivating and engaging students in reading. *The NERA, 46*(1), 16–29.
- Camiciottoli, B. C. (2001). Extensive reading in English : habits and attitudes of a group of Italian university EFL students. *Journal of Research in Reading, 24*(2), 135-153.
- Caramazza, A. (1997). How many levels of processing are there in lexical access? *Cognitive Neuropsychology, 14*(1), 177–208.
- Carlisle, J. F., Beeman, M., Davis, L. H., & Spharim, G. (1999). Relationship of metalinguistic capabilities and reading achievement for children who are becoming bilingual. *Applied Psycholinguistics, 20*(04), 459–478.
- Carrell, P. L. (1991). Second language reading : Reading ability or language proficiency ? *Applied Linguistics, 12*(2), 159–179.
- Chacón-Beltrán, Rubén, Abello-Contesse, C., & Torreblanca-López, M. M. (2010). Vocabulary teaching and learning: Introduction and overview. In Chacón-Beltrán, R., Abello-Contesse, C. & M. Torreblanca-López, M. (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 1–14). Multilingual Matters.
- Chin, W. W., & Dibbern, J. (2010). A permutation based procedure for multi-group PLS analysis: Results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA. In Vinzi, V. E., Chin, W. W., Henseler, J. & Wang, H.

- (Eds.), *Handbook of partial least squares* (pp. 171–193). Heidelberg: Springer.
- Chin, Wynne W. (1998). The partial least squares approach to structural equation modeling. In Marcoulides, G. A. (Ed.), *Modern methods for business research* (pp. 295–336). New Jersey: Lawrence Erlbaum Associates, Publishers.
- Chun, E., Choi, S., & Kim, J. (2012). The effect of extensive reading and paired-associate learning on long-term vocabulary retention: An event-related potential study. *Neuroscience Letters*, *521*(2), 125–129.
- Clark, C. & Foster, A. (2005). Children's and young people's reading habits and preferences: The who, what, why, where and when. *National Literacy Trust Report*.
- Clarke, M. A. (1980). The short circuit hypothesis of ESL reading - or when language competence interferes with reading performance. *The Modern Language Journal*, *64*(2), 203–209.
- Cobb, T. (2010). *Web VocabProfile*. Retrieved from <http://www.lex tutor.ca/vp>
- Cobb, T., & Horst, M. (2004). Is there room for an AWL in French? In Bogaards, P. & Laufer, B. (Eds.), *Vocabulary in a second language: Selection, acquisition, and testing* (pp. 15–38). Amsterdam: John Benjamins.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates, Publishers.
- Cohen J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155–159.
- Collins, M. F. (2010). ELL preschoolers' English vocabulary acquisition from storybook reading. *Early Childhood Research Quarterly*, *25*(1), 84–97.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mixed approaches (3rd Edition)*. SAGE Publications.
- Cummins, J. (1976). The influence of bilingualism on cognitive growth: A synthesis of research findings and explanatory hypotheses. *Ontario Institute for Studies in Education*, 121–129.

- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49(2), 222–251.
- Daskalovska, N. (2016). Acquisition of three word knowledge aspects through reading. *Journal of Educational Research*, 109(1), 68–80.
- Datta, S. and McDonald-Ross, M. (2002), Reading skills and reading habits: a study of new OU undergraduate reserves. *Open Learning*, 17(1), 69-88.
- Davis, J. N., & Bistodeau, L. (1993). How do L1 and L2 reading differ? Evidence from think aloud protocols. *The Modern Language Journal*, 77(4), 459–472.
- Day, R., R. & Bamford, J. (2002). Top ten principles for teaching extensive reading. *Reading in a Foreign Language*, 14(2), 136–141.
- Day, R. R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. Cambridge: Cambridge University Press.
- De Burgh-Hirabe, R., & Feryok, A. (2013). A model of motivation for extensive reading in Japanese as a foreign language. *Reading in a Foreign Language*, 25(1), 72–93.
- De Naeghel, J., Van Keer, H., Vansteenkiste, M., & Rosseel, Y. (2012). The relation between elementary students' recreational and academic reading motivation, reading frequency, engagement, and comprehension: A self-determination theory perspective. *Journal of Educational Psychology*, 104(4), 1006–1021.
- De Vaus, D. (2002). *Surveys in social research* (5<sup>th</sup> edn.). Routledge.
- Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management*, 17, 263–282.
- Dörnyei, Z., & Ushioda, E. (2011). *Teaching and Researching Motivation* (Second Edi). Pearson Education Limited.
- Dubin, F., & Olshtain, E. (1993). Predicting word meanings from contextual clues: Evidence from L1 readers. In Huckin, T., Haynes, M. & Coady; J. (Eds.), *Second language reading and vocabulary learning* (pp. 181–202). Norwood, NJ: Ablex.

- Durgunoglu, A.Y. (2002). Cross-linguistic transfer in literacy development and implications for language learners. *Annals of Dyslexia*, 52, 189–204.
- Durgunoglu, A Y, Navy, W. W., & Hancin-Bhatt, B. J. (1993). Cross-language transfer of phonemic awareness. *Journal of Educational Psychology*, 85(3). <https://doi.org/10.1037/0022-0663.85.3.453>
- Ecke, P., & Hall, C. J. (2014). The parasitic model of L2 and L3 vocabulary acquisition: evidence from naturalistic and experimental studies. *Fórum Linguístico*, 11(3), 360.
- Ehri, L. C. (2014). Orthographic mapping in the acquisition of sight word reading, Spelling memory, and vocabulary learning. *Scientific Studies of Reading*, 18(1), 5–21.
- Ellis, N. C. (1995). The psychology of foreign language vocabulary acquisition: Implications for call. *Computer Assisted Language Learning*, 8(2–3), 103–128.
- Ellis, N. C. (1996). Sequencing in SLA: Phonological memory, chunking, and points of order. *Studies in Second Language Acquisition*, 18(1), 91–126.
- Ellis, N.C. (2001). Memory for language. In Robinson, P. (Ed.), *Cognition and second language instruction* (pp. 33–68). Cambridge University Press.
- Ellis, N. C. & Beaton. (1993). Psycholinguistic determinants of foreign language vocabulary learning. *Language Learning*, 43, 559-617.
- Ellis, N. C., & Sinclair, S. G. (1996). Working memory in the acquisition of vocabulary and syntax: Putting language in good order. *Quarterly Journal of Experimental Psychology Section A: Human Experimental Psychology*, 49(1), 234–250.
- Erten, İ. H. (1998). *Vocabulary learning strategies: An investigation into the effect of perceptual learning styles and modality of word presentation on the use of vocabulary learning strategies* (Doctoral Dissertation). University of Exeter, Exeter.
- Erten, I.H. (2009). Türkçe’de sözcük bilgisi seviye belirleme testi geliştirmeye yönelik bir deneme. *Uluslararası Türkçe’nin Eğitimi-Öğretimi Kurultayı II Bildiri Özetleri*.

- Erten, I. H., Zehir Topkaya, E., & Karakas, M. (2010). Exploring motivational constructs in foreign language. *Hacettepe University Journal of Education*, 39, 185–196.
- Farvardin, M. T., & Koosha, M. (2011). The role of vocabulary knowledge in Iranian EFL students' reading comprehension performance: Breadth or depth? *Theory and Practice in Language Studies*, 1(11), 1575–1580.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39.
- Franceschini, R., Zappatore, D., & Nitsch, C. (2003). Lexicon in the brain: What neurobiology has to say about languages. In Cenoz, J., Hufeisen, B. & Jessner, U. (Eds.), *The Multilingual lexicon* (pp. 153–166). Kluwer Academic Publishers.
- Fraser, C. a. (1999). Lexical processing strategy use and vocabulary learning through reading. *Studies in Second Language Acquisition*, 21, 225–241.
- Gallego, M., & Llach, M. (2009). Exploring the increase of receptive vocabulary knowledge in the foreign language: A longitudinal study. *International Journal of English Studies*, 9(1), 113–133.
- Gambrell, L. B., & Marinak, B. . (1997). Incentives and intrinsic motivation to read. In Guthrie, J.T. & Wigfield, A. (Eds.), *Reading engagement: Motivating readers through integrated instruction* (pp. 205–217). Newark, DE: International Reading Association.
- Gardner, R. C., & Lambert, W. E. (1959). Motivational variables in second language acquisition. *Canadian Journal of Psychology*, 13, 266-272.
- Garson, G. D. (2016). *Partial least squares: Regression & structural equation modeling*. Statistical Associates Publishing.
- Gathercole, S. E., & Baddeley, A. D. (1989). Evaluation of the role of phonological STM in the development of vocabulary in children: A longitudinal study. *Journal of Memory and Language*, 28(2), 200–213.

- Gathercole, S. E., & Baddeley, A. D. (1990). The role of phonological memory in vocabulary acquisition: A study of young children learning new names. *British Journal of Psychology*, 81(4), 439–454.
- Gathercole, S. E., Hitch, G. J., Service, E., & Martin, A. J. (1997). Phonological short-term memory and new word learning in children. *Developmental Psychology*, 33(6), 966–979.
- Gathercole, S. E., Willis, C. S., Emslie, H., & Baddeley, A. D. (1992). Phonological memory and vocabulary development during the early school years: A longitudinal study. *Developmental Psychology*, 28(5), 887–898.
- Gathercole, S. E., Willis, C. S., Baddeley, A. D., & Emslie, H. (1994). The children's test of nonword repetition: A test of phonological working memory. *Memory*, 2, 103–127.
- Gebauer, S. K., Zaunbauer, A. C. M., & Möller, J. (2013). Cross-language transfer in English immersion programs in Germany: Reading comprehension and reading fluency. *Contemporary Educational Psychology*, 38(1), 64–74.
- Geva, E. (2006). Learning to read in a second language: Research, implications, and recommendations for services. *Journal of Educational Psychology*, 91(1), 29-43.
- Ghonsooly, B., & Elahi, M. (2010). Learners' self-efficacy in reading and its relation to foreign language reading anxiety and reading achievement. *Journal of English Language Teaching and Learning*, 53(217), 45–67.
- Golkar, M., & Yamini, M. (2007). Vocabulary, proficiency and reading comprehension. *The Reading Matrix*, 7(3), 88–112.
- Gonzalez, J. E., Pollard-Durodola, S., Simmons, D. C., Taylor, A. B., Davis, M. J., Fogarty, M., & Simmons, L. (2014). Enhancing preschool children's vocabulary: Effects of teacher talk before, during and after shared reading. *Early Childhood Research Quarterly*, 29(2), 214–226. Retrieved from <https://doi.org/10.1016/j.ecresq.2013.11.001>
- Göz, İ. (2003). *Yazılı Türkçe'nin kelime sıklığı sözlüğü*. Ankara: Türk Dil Kurumu.
- Grabe, W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics*, 24(2004), 44–69.

- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. New York: Cambridge University Press.
- Grabe, W. (2014). Key issues in L2 reading development. *4th CELC Symposium Proceedings*.
- Grainger, J., Midgley, K., & Holcomb, P. J. (2010). Re-thinking the bilingual interactive-activation model from a developmental perspective (BIA-d). In Kail, M. & Hickmann, M. (Eds.), *Language acquisition across linguistic and cognitive systems* (pp. 267–283). John Benjamins Publishing Company.
- Grabe, W., & Stoller, F. L. (2002). Comparing L1 and L2 reading. In Grabe, W., & Stoller, F. L. (Eds.), *Teaching and researching Reading* (2nd ed., pp. 34–57). Harlow: Longman.
- Guthrie, J. T. & Alvermann, D.E. (1999). *Engaged reading: Processes, practices and policy implications*. New York: Teachers College Press.
- Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., Tonks, S. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology*, 96(3), 403–423.
- Guthrie, J. T., Wigfield, A., Metsala, J. L., Cox, K. E., (1999). Motivational and cognitive predictors of text comprehension and reading amount. *Scientific Studies of Reading*, 3(3), 231–256.
- Guthrie, J. T., Wigfield, A., & VonSecker, C. (2000). Effects of integrated instruction on motivation and strategy use in reading. *Journal of Educational Psychology*, 92(2), 331–341.
- Hague, S. A. (1987). Vocabulary instruction: What L2 can learn from L1. *Foreign Language Annals*, 20(3), 217–225.
- Hair J. F., Black W.C., Babin B.J. & Anderson R. E. (2010). *Multivariate data analysis*. Pearson.
- Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on partial least squares structural equation modeling (PLS-SEM)*. Los Angeles: SAGE Publications.

- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: A comparative evaluation of composite-based structural equation modeling methods. *Journal of the Academy of Marketing Science, 45*, 616–632.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*. Los Angeles: SAGE Publications.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *The Journal of Marketing Theory and Practice, 19*(2), 139–152.
- Hamedani, H. (2013). The relationship between self-efficacy and self-regulation in vocabulary acquisition of Iranian EFL learners. *Journal of Academic and Applied Studies, 3*(1), 20–31.
- Hedgcock, J., & Atkinson, D. (1993). Differing reading writing relationships in L1 and L2 literacy development?" *TESOL Quarterly, 27* (2): 329-33.
- Hegner-Kakar, A.-K., Richter, N. F., & Ringle, C. M. (2018). The customer loyalty cascade and its impact on profitability in financial services. In Avkiran, N. K. & Ringle, C. M. (Eds.), *Partial least squares structural equation modeling: Recent advances in banking and finance* (pp. 53–76). Springer International Publishing.
- Henk, W. A., & Melnick, S. A. (1995). The reader self-perception scale (RSPS): A new tool for measuring how children feel about themselves as readers. *The Reading Teacher, 48*(6), 470–482.
- Henriksen, B. (1999). Three dimensions of vocabulary development. *SSLA, 21*, 303–317.
- Henseler, J., Hubona, G., & Ray, P. A. (2017). Partial least squares path modeling: Updated guidelines. In Latan, H. & Noonan, R. (Eds.), *Partial least squares path modeling basic concepts, methodological issues and applications* (pp. 19–40). Springer International Publishing.
- Horst, M., & Cobb, T. (1998). Beyond a clockwork orange: Acquiring second language vocabulary through reading. *Reading in a Foreign Language, 11*, 207-223.



- Hu, H., Chao M., & Nassaji, H. (2016). Effective vocabulary learning tasks: Involvement load hypothesis versus technique feature analysis. *System, 56*, 28–39.
- Hulstijn, J. H., Hollander, M., & Greidanus, T. (1996). Incidental vocabulary learning by advanced foreign language students : The influence of marginal glosses, dictionary use and reoccurrence of unknown words. *The Modern Language Journal, 80*(3).
- Hulstijn, Jan H., & Bossers, B. (1992). Individual differences in L2 proficiency as a function of L1 proficiency. *European Journal of Cognitive Psychology, 4*(4), 341–353.
- Iftanti, E. (2015). What makes EFL students establish good reading habits in English. *International Journal of Education and Research, 3*(5), 365-374.
- Jescheniak, J. D., & Levelt, W. J. M. (1994). Word frequency effects in speech production: Retrieval of syntactic information and of phonological form. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 20*, 824–843.
- Jiang, X. (2011). The role of first language literacy and second language proficiency in second language reading comprehension. *Reading Matrix: An International Online Journal, 11*(2), 177–190.
- Jöreskog, K. G., & Wold, H. O. A. (1982). The ML and PLS techniques for modeling with latent variables: Historical and comparative aspects. In Wold, H. O. A. & Jöreskog, K. G. (Eds.), *Systems under indirect observation: causality, structure, prediction* (pp. 263–270). Amsterdam: North-Holland.
- Jung, J. (2009). Second language reading and the role of grammar. *Working Papers in TESOL & Applied Linguistics, 9*(2), 29–48.
- Kahn-horwitz, J., Shimron, J., & Sparks, R. L. (2006). Weak and strong novice readers of English as a foreign language: Effects of first language and socioeconomic status. *Annals of Dyslexia, 56*(1), 161–185.
- Kamhi-Stein, L. D. (2003). Reading in two languages: How attitudes toward home language and beliefs about reading affect the behaviors of “underprepared” l2 college readers. *TESOL Quarterly, 37*(1), 35–71.

- Kang, E. Y. (2015). Promoting L2 vocabulary learning through narrow reading. *RELC Journal*, 46(2), 165–179.
- Kayış, A. (2010). Güvenilirlik analizi. In Kalaycı, Ş. (Ed.). *SPSS uygulamalı çok değişkenli istatistik teknikleri*. (pp. 404-409). Ankara, Asil Yayın Dağıtım.
- Kim, K. J. (2011). Reading motivation in two languages: An examination of EFL college students in Korea. *Reading and Writing*, 24(8), 861–881.
- Koda, K. (1996). L2 word recognition research: A critical review. *The Modern Language Journal*, 80, 450-460.
- Komiyama, R. (2013). Factors underlying second language reading motivation of adult EAP students. *Reading in a foreign language*, 25, 149-169.
- Kormos, J., & Sáfár, A. (2008). Phonological short-term memory, working memory and foreign language performance in intensive language learning. *Bilingualism*, 11(2), 261–271.
- Kroll, J., & Hermans, D. (2011). Psycholinguistic perspectives on language processing in bilinguals. In Schmidt, M. S. & Lowie, W. (Eds.), *Modeling bilingualism from structure to chaos: In honor of Kees de Bot* (pp. 15–36). John Benjamins B.V.
- Kuş, Z. ve Türkyılmaz, M. (2010). Sosyal bilgiler ve Türkçe öğretmeni adaylarının okuma durumları: İlgi, alışkanlık ve okuma stratejilerini kullanım düzeyleri. *Türk Kütüphaneciliği*, 24(1), 11–32.
- Kweon, S., & Kim, H. (2008). Beyond raw frequency: Incidental vocabulary acquisition in extensive reading. *Reading in a Foreign Language*, 20(2), 191–215.
- Lau, K. (2004). Construction and initial validation of the Chinese reading motivation questionnaire. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 24(6), 37–41.
- Laufer, B. (1997). The lexical plight in second language reading: words you don't know, words you think you know, and words you can't guess. In Huckin, T. & Coady, J. (Eds.), *Second Language Vocabulary Acquisition: a Rationale for Pedagogy* (pp. 20–34). Cambridge University Press.

- Laufer, B. (2003). Vocabulary acquisition in a second language: Do learners really acquire most vocabulary by reading? Some empirical evidence. *Canadian Modern Language Review*, 59(4), 567–587.
- Laufer, B. (2006). Comparing focus on form and focus on forms in second-language vocabulary learning. *Canadian Modern Language Review*, 63(1), 149–166.
- Laufer, B. (2010). Form-focused instruction in second language vocabulary learning. In Chacón-Beltrán, R., Abello-Contesse, C. & Torreblanca-López, M. (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 15–27). Multilingual Matters.
- Laufer, B., Elder, C., Hill, K., & Congdon, P. (2004). Size and strength: do we need both to measure vocabulary knowledge? *Language Testing*, 21(2), 202–226.
- Laufer, B. & Nation, P. (1995). Vocabulary Size and Use: Lexical Richness in L2 Written Production. *Applied Linguistics*, 16(3), 307–322.
- Laufer, B. & Nation, P. (1999). A vocabulary size test of controlled productive ability. *Language Testing*, 16(1), 33–51.
- Laufer, B. & Ravenhorst-Kalovski, G. C. (2010). Lexical threshold revisited: Lexical text coverage, learners' vocabulary size and reading comprehension. *Reading in a Foreign Language*, 22(1), 15–30.
- Lee, J. & Schallert, D. L. (1997). The relative contribution of L2 language proficiency and L1 reading ability to L2 reading performance: A test of the threshold hypothesis in an EFL context. *TESOL Quarterly*, 31(4), 713–739.
- Lee, J. & Schallert, D. L. (2014). Literate actions, reading attitudes, and reading achievement: Interconnections across languages for adolescent learners of English in Korea. *Modern Language Journal*, 98(2), 553–573.
- Lervag, A. & Aukrust, V.G. (2010). Vocabulary knowledge is a critical determinant of the difference in reading comprehension growth between first and second language learners. *The Journal of Child Psychology and Psychiatry*, 51(5), 612–620.

- Li, M., & Kirby, J. R. (2015). The effects of vocabulary breadth and depth on English reading. *Applied Linguistics*, 36(5), 611–634.
- Li, P., Farkas, I., & MacWhinney, B. (2004). Early lexical development in a self-organizing neural network. *Neural Networks*, 17(8–9), 1345–1362.
- Libben, G. (2008). Disorders of lexis. In Stemmer, B. & Whitaker, H. A. (Eds.), *Handbook of the neuroscience of language* (pp. 147–154). Academic Press.
- Lin, D., Wong, K. K., & McBride-Chang, C. (2012). Reading motivation and reading comprehension in Chinese and English among bilingual students. *Reading and Writing*, 25, 717–737.
- Margolis, H., & McCabe, P. P. (2003). Self-Efficacy: A key to improving the motivation of struggling learners. *Preventing School Failure: Alternative Education for Children and Youth*, 47(4), 162–169.
- Marzban, A., & Hadipour, R. (2012). Depth versus breadth of vocabulary knowledge: assessing their roles in Iranian intermediate EFL students' lexical inferencing success through reading. *Procedia Social and Behavioral Sciences*, 46, 5296–5300.
- Mase, T. F. (2011). *Self-efficacy, word reading, and vocabulary knowledge in English language learners*, (Doctoral Dissertation). Fordham University, New York.
- Masoura, E. V, & Gathercole, S. E. (1999). Phonological short-term memory and foreign language learning. *International Journal of Psychology*, 34((5/6)), 383–388.
- Matsuoka, W., & Hirsh, D. (2010). Vocabulary learning through reading : Does an ELT course book provide good opportunities ?, 22(1), 56–70.
- McCarthy, M. (1990). *Vocabulary*. Oxford University Press.
- Mckool, S. S., & Gespass, S. (2009). Does Johnny's reading teacher love to read? How teachers' personal reading habits affect instructional practices. *Literacy Research and Instruction*, 48(3), 264–276.

- McQuillan, J. & Au, J. (2001). The effect of print access on reading frequency. *Reading Psychology, 22*:225–248
- Meara, P. (1984). The study of lexis in interlanguage. In A. Davies, A. Howart, & C. Cripser (Eds.), *Interlanguage* (pp. 225–235). Edinburgh: Edinburgh University Press.
- Mehrpour, S., & Rahimi, M. (2010). The impact of general and specific vocabulary knowledge on reading and listening comprehension: A case of Iranian EFL learners. *System, 38*(2), 292–300.
- Meschyan, G., & Hernandez, A. (2002). Is native-language decoding skill related to second-language learning? *Journal of Educational Psychology, 94*(1),
- Mills, N., Pajares, F., & Herron, C. (2006). A reevaluation of the role of anxiety: Self-efficacy, anxiety, and their relation to reading and listening proficiency. *Foreign Language Annals, 39*(2), 276–295.
- Milton, J. (2009). *Measuring second language vocabulary acquisition*. Multilingual Matters.
- Min, H. T. (2008). EFL vocabulary acquisition and retention: Reading plus vocabulary enhancement activities and narrow reading. *Language Learning, 58*(1), 73–115.
- Miyamoto, A., Pfof, M., & Artelt, C. (2018). Reciprocal relations between intrinsic reading motivation and reading competence: A comparison between native and immigrant students in Germany. *Journal of Research in Reading, 41*(1), 176–196.
- Mizumoto, A. (2013). Effects of self-regulated vocabulary learning process on self-efficacy. *Innovation in Language Learning and Teaching, 7*(3), 253–265.
- Mondria, J., & Wiersma, B. (2004). Active, passive, and active + productive L2 vocabulary learning: What difference does it make? In Bogaards, P., & Laufer, B. (Eds.), *Vocabulary in a second language* (Vol. 5, pp. 79-100). Philadelphia, PA: John Benjamins B.V.
- Mori, S. (2002). Redefining motivation to read in a foreign language. *Reading in a Foreign Language, 14*(2), 91-110.

- Mumtaz, S., & Humphreys, G. W. (2016). The effect of Urdu vocabulary size on the acquisition of single word reading in English. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 22(2), 165-190.
- Naseri, F., & Ghabanchi, Z. (2014). The relationship between self-efficacy beliefs, locus of control and reading comprehension. *International Journal of Language Learning and Applied Linguistics World*, 5(1), 156–174.
- Nassaji, H. (2004). The relationship between depth of vocabulary knowledge and L2 learners' lexical inferencing strategy use and success. *Canadian Modern Language Review*, 61(1), 107–135.
- Nation, I. S. P. (1998). Helping learners take control of their vocabulary learning. *GRETA*, 6(1), 9–18.
- Nation, I. S. P. (1999). Review of the visualization of foreign vocabulary in CALL by A. Heidemann. *Studies in Second Language Acquisition* 21(1), 152-153.
- Nation, I. S. P. (2001). *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.
- Nation, I. S. P. (2006). How large a vocabulary is needed for reading and listening? *The Canadian Modern Language Review / La Revue Canadienne Des Langues Vivantes*, 63(1), 59–81.
- Nation, I. S. P. (2013). Designing reading tasks to maximize vocabulary learning. *Applied Research on English Language*, 3(1), 1–8.
- Nation, I. S. P. (2015). Principles guiding vocabulary learning through extensive reading. *Reading in a Foreign Language*, 27(1), 136–145.
- Nation, I. S. P. & Chung, M. (2009) Teaching and testing vocabulary. In Long, M. and Doughty, C. (Eds), *Handbook of language teaching* (pp. 543-559). Malden, Ma: Wiley-Blackwell.
- Nation, I. S. P., & Waring, R. (1997). Vocabulary size, text coverage, and word lists. In Schmitt, N. and McCarthy, M. (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 6–19). Cambridge: Cambridge University Press.

- Noels, K. A. (2001). Learning Spanish as a second language: Learners' orientations and perceptions of their teachers' communication style. *Language Learning, 51*: 107-144.
- Nunally, J. C., & Bernstein, I. (1994). *Psychometric theory*. New York: McGraw-Hill.
- Oh, E. J. (2016). Relationships among perceived self-efficacy, vocabulary and grammar knowledge, and L2 reading proficiency. *English Teaching, 71*(2), 3–29.
- Oldfield, R. C. (1966). Things, words and the brain. *The Quarterly Journal of Experimental Psychology, 18*(4), 340–353.
- Oxford, R., & Shearin, J. (1994). Language learning motivation: Expanding the theoretical framework. *Modern Language Journal, 78*(1), 12.
- Ölmez, F. (2015). An investigation into the relationship between L2 reading motivation and reading achievement. *Procedia Social and Behavioral Sciences, 199*, 597–603.
- Özdamar, K. (1999) *Paket programlar ile istatistiksel veri analizi 1*. Kaan Kitabevi, Eskişehir.
- Özönder, Ö. (2015). Prospective ELT students' foreign language reading attitudes and motivation. *Procedia - Social and Behavioral Sciences, 199*, 722–729.
- Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4th ed.). Maidenhead, UK: Open University Press/McGraw Hill.
- Paribakht, T. S., & Wesche, M. (1997). Vocabulary enhancement activities and reading for meaning in second language vocabulary acquisition. In Coady, J. & Huckin, T. (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 174–200). Cambridge: Cambridge University Press.
- Paribakht, T. S. & Wesche, M. (1999). Reading and “incidental” L2 vocabulary acquisition: An introspective study of lexical inferencing. *Second Language Acquisition, 21*(2), 195–224.

- Pavlenko, A. (2009). Conceptual representation in the bilingual lexicon and second language vocabulary learning. In Pavlenko, A. (Ed.), *The bilingual mental lexicon* (pp. 125–160). Multilingual Matters.
- Pellicer-Sánchez, A. (2014). Incidental L2 vocabulary acquisition from and while reading: An eye-tracking study. *Studies in Second Language Acquisition*, 38(1), 97–130.
- Petermann, F., & Petermann, U. (2011). *Wechsler intelligence scale for children* (4th edn). Frankfurt: Pearson Assessment.
- Pfost, M., Dörfler, T., & Artelt, C. (2013). Students' extracurricular reading behavior and the development of vocabulary and reading comprehension. *Learning and Individual Differences*, 26, 89–102.
- Pichette, F., De Serres, L., & Lafontaine, M. (2012). Sentence reading and writing for second language vocabulary acquisition. *Applied Linguistics*, 33(1), 66–82.
- Pigada, M., & Schmitt, N. (2006a). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign Language*, 18(1), 1–28.
- Pigada, M., & Schmitt, N. (2006b). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign language*, 18(1), 1-28.
- Ponniah, R. J. (2011). Incidental acquisition of vocabulary by reading. *The Reading Matrix*, 11(2), 135–139.
- Qian, D. D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language Learning*, 52, 513–536.
- Rahmani, F., & Nasri, N. (2013). The effects of instruction type on vocabulary learning: A psycholinguistics study. *Procedia Social and Behavioral Sciences*, 70, 787–794.
- Raofi, S., Tan, B. H., & Chan, S. H. (2012). Self-efficacy in second/foreign language learning contexts. *English Language Teaching*, 5(11), 60–73.



- Raudszus, H., Segers, E., & Verhoeven, L. (2018). Lexical quality and executive control predict children's first and second language reading comprehension. *Reading and Writing, 31*(2), 1–20.
- Read, J. (2000). *Assessing vocabulary*. Cambridge: Cambridge University Press.
- Read, J., & Chapelle, C. A. (2001). A framework for second language vocabulary assessment. *Language Testing, 18*(1), 1–32.
- Reynolds, B. L. (2015). A mixed-methods approach to investigating first- and second-language incidental vocabulary acquisition through the reading of fiction. *Reading Research Quarterly, 50*(1), 111–127.
- Richards, J. C., & Schmidt, R. (2002). *Longman Dictionary of Language Teaching and Applied Linguistics* (3rd ed.). London: Pearson Education.
- Rigdon, E. E. (2016). Choosing PLS path modelling as analytical method in European management research: A realistic perspective. *European Management Journal, 34*, 598–605.
- Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2018). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management, 51*92(January), 1–27.
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3. [www.smartpls.com](http://www.smartpls.com). Retrieved from [www.smartpls.com](http://www.smartpls.com).
- Ro, E., & Chen, C. A. (2014). Pleasure reading behavior and attitude of non-academic ESL students: A replication study. *Reading in a Foreign Language, 26*(1), 49–72.
- Robinson, P. (1995). Attention, memory, and the “noticing” hypothesis. *Language Learning, 45*, 283–331.
- San Francisco, A. R., Carlo, M., August, D., & Snow, C. E. (2006). The role of language of instruction and vocabulary in the English phonological awareness of Spanish-English bilingual children. *Applied Psycholinguistics, 27*(2), 229–246.

- Sanches, C., Routier, A., Colliot, O., & Teichmann, M. (2018). The structure of the mental lexicon: What primary progressive aphasia reveals. *Neuropsychologia*, *109*, 107–115.
- Sarstedt, M., Becker, J.-M., Ringle, C. M., & Schwaiger, M. (2011). Uncovering and treating unobserved heterogeneity with FIMIX-PLS: Which model selection criterion provides an appropriate number of segments? *Schmalenbach Business Review*, *63*, 34–62.
- Scales, A. M., & Rhee, O. (2001). Adult reading habits and patterns. *Reading Psychology*, *22*(3), 175-203.
- Schaffner, E., & Schiefele, U. (2016). The contributions of intrinsic and extrinsic reading motivation to the development of reading competence over summer vacation. *Reading Psychology*, *37*(6), 917–941.
- Schiefele, U., Schaffner, E., Möller, J., Wigfield, A., Nolen, S., & Baker, L. (2012). Dimensions of reading motivation and their relation to reading behavior and competence. *Reading Research Quarterly*, *47*(4), 427–463.
- Schaffner, E., Schiefele, U., & Ulferts, H. (2013). Reading amount as a mediator of the effects of intrinsic and extrinsic reading motivation on reading comprehension. *Reading Research Quarterly*, *48*(4), 369–385.
- Schiefele, U., Stutz, F., & Schaffner, E. (2016). Longitudinal relations between reading motivation and reading comprehension in the early elementary grades. *Learning and Individual Differences*, *51*, 49–58.
- Schmidt, R. W. (1990). The role of consciousness in second language learning. *Language Learning*, *11*(2), 129–158.
- Schmitt, N. (1995). The word on words: An interview with Paul Nation. *The Language Teacher*, *19*(2), 5–7.
- Schmitt, N. (1999). The relationship between TOEFL vocabulary items and meaning, association, collocation and word-class knowledge. *Language Testing*, *16*(2), 189–216.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge University Press.

- Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329-363.
- Schmitt, N. (2010). *Researching Vocabulary: A Vocabulary Research Manual*. London: Palgrave Macmillan.
- Schmitt, N., Cobb, T., Horst, M., & Schmitt, D. (2017). How much vocabulary is needed to use English? Replication of van Zeeland & Schmitt (2012), Nation (2006) and Cobb (2007). *Language Teaching*, 50(2), 212–226.
- Schmitt, N. & McCarthy, M. (1997). *Vocabulary: Description, acquisition and pedagogy*. Cambridge: Cambridge University Press.
- Schmitt, N, Schmitt, D., & Clapham, C. (2001). Developing and exploring the behavior of two new versions of the Vocabulary Level Test. *Language Testing*, 18(1), 55–88.
- Schunk, D. H. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading & Writing Quarterly*, 19(2), 159–172.
- Schutte, N. S., & Malouff, J. M. (2007). Dimensions of reading motivation: Development of an adult reading motivation scale. *Reading Psychology*, 28(5), 469–489.
- Sénéchal, M., & Lefevre, J. A. (2014). Continuity and change in the home literacy environment as predictors of growth in vocabulary and reading. *Child Development*, 85(4), 1552–1568.
- Shen, Z. (2008). The roles of depth and breadth of vocabulary knowledge in EFL reading performance. *Asian Social Science*, 12, 135–137. <https://doi.org/issn 1911-2017>
- Singleton, D. (2006). Lexical transfer: Interlexical or intralexical? In J. Arabski (Ed.), *Cross-linguistic influences in the second language lexicon*. (pp. 130–143). Multilingual Matters Ltd.
- Soemer, A., & Schiefele, U. (2018). Reading amount as a mediator between intrinsic reading motivation and reading comprehension in the early elementary grades. *Learning and Individual Differences*, 67, 1–11.

- Sokmen, A.J. (1997). Current Trends in Teaching Second Language Vocabulary. In Schmitt, N. & McCarthy, M. (Eds.) *Vocabulary: Description, acquisition and pedagogy* (pp 237-257). Cambridge: Cambridge University Press
- Sparks, R. L. (1995). Examining the linguistic coding differences hypothesis to explain individual differences in foreign language learning. *Annals of Dyslexia*, 45(1), 187–214.
- Sparks, R. L. (2012). Individual differences in L2 learning and long-term L1 – L2 relationships. *Language Learning*, 62, 5–27.
- Sparks, R., & Ganschow, L. (1991). Foreign language learning difficulties: affective or native language aptitude differences? *Modern Language Journal*, 75(1), 3–16.
- Sparks, R. L., & Ganschow, L. (1993). The impact of native language learning problems on foreign language learning: Case study illustrations of the linguistic coding deficit hypothesis. *The Modern Language Journal*, 77(1), 58–74.
- Sparks, R. L., Patton, J. O. N., Ganschow, L., & Humbach, N. (2009a). Long-term relationships among early first language skills, second language aptitude, second language affect and later second language proficiency. *Applied Psycholinguistics*, 30, 725–755.
- Sparks, R.L., Patton, J., Ganschow, L., & Humbach, N. (2009b). Long-term cross-linguistic transfer of skills from L1 to L2. *Language Learning*, 59(1), 203–243.
- Sparks, R. L., Humbach, N., & Javorsky, J. (2008). Individual and longitudinal differences among high and low-achieving, LD, and ADHD L2 learners. *Learning and Individual Differences*, 18(1), 29–43.
- Sparks, R. L., Patton, J., Ganschow, L., & Humbach, N. (2012). Relationships among L1 print exposure and early L1 literacy skills, L2 aptitude, and L2 proficiency. *Reading and Writing*, 25(7), 1599–1634.
- Sparks, R., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2006). Native language predictors of foreign language proficiency and foreign language aptitude. *Annals of Dyslexia*, 56, 129–160.

- Sparks, R. L., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2008). Early first-language reading and spelling skills predict later second-language reading and spelling skills. *Journal of Educational Psychology, 100*(1), 162–174.
- Stæhr, L. S. (2016). Vocabulary size and the skills of listening, reading and writing. *The Language Learning Journal, 36*(2), 139-152.
- Stewart, J., Batty, A. O., & Bovee, N. (2012). Comparing multidimensional and continuum models of vocabulary acquisition: An empirical examination of the vocabulary knowledge scale. *TESOL Quarterly, 46*(4), 695–721.
- Stutz, F., Schaffner, E., & Schiefele, U. (2016a). Measurement invariance and validity of a brief questionnaire on reading motivation in elementary students. *Journal of Research in Reading, 1*–23.
- Stutz, F., Schaffner, E., & Schiefele, U. (2016b). Relations among reading motivation, reading amount, and reading comprehension in the early elementary grades. *Learning and Individual Differences, 45*, 101–113.
- Suk, N. (2016). The effects of extensive reading on reading comprehension, reading rate, and vocabulary acquisition. *Reading Research Quarterly, 1*–17.
- Şentürk, B. (2015). EFL Turkish university students' attitudes and motivation towards reading in English. *Procedia Social and Behavioral Sciences, 199*, 704–712.
- Takac, V. P. (2008). *Vocabulary learning strategies and foreign language acquisition*. Multilingual Matters Ltd.
- Takase, A. (2007). Japanese high school students' motivation for extensive L2 reading. *Reading in a Foreign Language, 19*(1), 1–18
- Templin, S. A. (1999). The relationship between self-efficacy and language learners' grades. *JALT Journal, 21*(1), 112–124.
- Teng, F. (2014). Assessing the depth and breadth of vocabulary knowledge with listening comprehension. *PASAA, 48*(2), 29-56.

- Teng, F. (2015). The effectiveness of extensive reading on EFL learner vocabulary learning. *Brazilian English Language Teaching Journal*, 6(1), 66–80.
- Teng, F. (2016). An in-depth investigation into the relationship between vocabulary knowledge and academic listening comprehension. *TESL-EJ*, 20(2), 1-17.
- Tiryaki, Z. M. & Tütüniş, B. (2012). The role of extensive reading on vocabulary development. *International Association of Research in Foreign Language Education and Applied Linguistics ELT Research Journal*, 1(4), 209–215.
- Tobia, V., & Bonifacci, P. (2015). The simple view of reading in a transparent orthography: the stronger role of oral comprehension. *Reading and Writing*, 28(7).
- Tremblay, P. F. & Gardner, R. C. (1995). Expanding the motivation in learning language. *Modern Language Journal*, 79(4), 505–518.
- Tse, S.K. & Xiao, X. 2014. Differential influences of affective factors and contextual factors on high-proficiency readers and low-proficiency readers: A multilevel analysis of PIRLS data from Hong Kong. *Assessments in Education*, 2(6). Retrieved from <https://doi.org/10.1186/s40536-014-0006-3>.
- Tseng, W., & Schmitt, N. (2008). Toward a model of motivated vocabulary learning : A structural equation modeling approach. *Language Learning*, 58, 357–400.
- Turgeon, Y., & Macoir, J. (2008). Classical and contemporary assessment of aphasia and acquired disorders of language. In B. Stemmer & H. A. Whitaker (Eds.), *Handbook of the Neuroscience of Language* (pp. 3–12). Academic Press.
- Verhagen, J., & Leseman, P. (2016). How do verbal short-term memory and working memory relate to the acquisition of vocabulary and grammar? A comparison between first and second language learners. *Journal of Experimental Child Psychology*, 141, 65–82.
- Verhoeven, L., & Perfetti, C. A. (2011). Introduction to this special issue : Vocabulary growth and reading skill. *Scientific Studies of Reading*, 15(1), 1-7.

- Vermeer, A. (2001). Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input. *Applied Psycholinguistics*, 22(2), 217–234.
- Vidal, K. (2011). A Comparison of the effects of reading and listening on incidental vocabulary acquisition. *Language Learning*, 61(1), 219–258.
- Wang, C., & Qi, L. (1991). EFL reading revisited: a language problem or a reading problem. *Paper presented at the Annual Meeting of the Teachers of English to Speakers of Foreign Languages*.
- Wang, J. H., & Guthrie, J. T. (2004). Modeling the effects of intrinsic motivation, extrinsic motivation, amount of reading, and past reading achievement on text comprehension between U.S. and Chinese students. *Reading Research Quarterly*, 39(2), 162–186.
- Webb, S. (2005). Receptive and productive vocabulary learning: The effects of reading and writing on word knowledge. *Studies in Second Language Acquisition*, 27, 33–52.
- Webb, S., & Chang, A. C. S. (2015). Second language vocabulary learning through extensive reading with audio support: How do frequency and distribution of occurrence affect learning? *Language Teaching Research*, 19(6), 667–686.
- Wei, L. (2002). The bilingual mental lexicon and speech production process. *Brain and Language*, 81(1–3), 691–707.
- Wesche, M. B. & Paribakht, T. S. (2000). Reading-based exercises in second language vocabulary learning: An introspective study. *The Modern Language Journal*, 84(2), 196–213.
- Wigfield, A., & Guthrie, J. T. (1995). Dimensions of children's motivations for reading: An initial study. *Reading Research Report*, 34.
- Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology*, 89(3), 420–432.

- Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's motivation for reading: Domain specificity and instructional influences. *Journal of Educational Research, 97*(6), 299–310.
- Wolter, B. (2001). Comparing the L1 and L2 mental lexicon: A depth of individual word knowledge model. *Studies in Second Language Acquisition, 23*(1), 41–69.
- Wolter, B. (2006). Lexical network structures and L2 vocabulary acquisition: The role of L1 lexical/conceptual knowledge. *Applied Linguistics, 27*(4), 741–747.
- Wong, K. K. (2016). Mediation analysis, categorical moderation analysis, and higher-order constructs modeling in partial least squares structural equation modeling (PLS-SEM): A B2B example using SmartPLS. *The Marketing Bulletin, 26*, 1–22.
- Wurr, A. J. (2003). Reading in a second language: A reading problem or a language problem? *Journal of College Reading and Learning, 33*(2), 157–169.
- Yamamoto, Y. M. (2011). Bridging the gap between receptive and productive vocabulary size through extensive reading. *The Reading Matrix, 11*(3), 226–242.
- Yamashita, J. (2001). Transfer of L1 reading ability to L2 reading: An elaboration of the linguistic threshold. *Studies in Language and Culture, 23*, 189–200.
- Yamashita, J. (2002). Mutual compensation between L1 reading ability and L2 language proficiency in L2 reading comprehension. *Journal of Research in Reading, 25*(1), 81–95.
- Yamashita, J. (2004). Reading attitudes in L1 and L2, and their influence on L2 extensive reading. *Reading in a Foreign Language, 16*(1), 1–19.
- Yamashita, J. (2007). The relationship attitudes of reading L1 and L2: An investigation between of EFL learners adult in Japan. *TESOL Quarterly, 41*(1), 81–105.
- Yamashita, J. (2008). Extensive reading and development of different aspects of L2 proficiency. *System, 36*(4), 661–672.



- Yamashita, J. (2013). Effects of extensive reading on reading attitudes in a foreign language. *Reading in a Foreign Language*, 25(2), 248–263.
- Yang, S. (2010). The influence of schema and cultural difference on L1 and L2 reading. *Language Teaching*, 3(4), 175–180.
- Yıldız, M., Yıldırım, K., Ateş, S., & Çetinkaya, Ç. (2013). Yetişkin Okuma Motivasyonu Ölçeği'nin Türkçe uyarlaması. *Elektronik Sosyal Bilimler Dergisi*, 12(44), 348–359.
- Zareva, A. (2007). Structure of the second language mental lexicon: How does it compare to native speakers' lexical organization? *Second Language Research*, 23(2), 123–153.
- Zareva, A., Nikolova, Y., & Schwanenflugel, P. (2005). Relationship between lexical competence and language proficiency. *Studies in Second Language*, 27, 567–595.
- Zhang, D. (2016). Morphology in Malay–English biliteracy acquisition: An intervention study. *International Journal of Bilingual Education and Bilingualism*, 19, 546–562.
- Zhang, X., & Lu, X. (2014). A longitudinal study of receptive vocabulary breadth knowledge growth and vocabulary fluency development. *Applied Linguistics*, 35(3), 283–304.
- Zimmerman, C. B. (1994). *Self-selected reading and interactive vocabulary instruction: Knowledge and perceptions of word learning among L2 learners*, (Doctoral Dissertation). University of Southern California.

## APPENDIX-A: L2 Vocabulary Levels Test (Schmitt et al., 2001)

### V2 2000

1 copy		1 admire	
2 event	_____ uç, bir şeyin ucu	2 complain	_____ germek
3 motor	_____ arabayı çalıştıran şey, motor	3 fix	_____ tanıtmak
4 pity	_____ kopya	4 hire	_____ hayran olmak
5 profit		5 introduce	
6 tip		6 stretch	
<hr/>			
1 accident		1 arrange	
2 debt	_____ kükreme	2 develop	_____ büyümek, gelişmek
3 fortune	_____ borç	3 lean	_____ sıraya koymak,
4 pride	_____ gurur	4 owe	_____ düzenlemek
5 roar		5 prefer	_____ tercih etmek
6 thread		6 seize	
<hr/>			
1 coffee		1 blame	
2 disease	_____ maaş	2 elect	_____ yapmak, üretmek
3 justice	_____ etek	3 jump	_____ oylama yoluyla seçmek
4 skirt	_____ adalet	4 manufacture	_____ erimek
5 stage		5 melt	
6 wage		6 threaten	
<hr/>			
1 clerk		1 ancient	
2 frame	_____ şarap	2 curious	_____ zor
3 noise	_____ memur ya da sekreter	3 difficult	_____ çok eski
4 respect	_____ gürültü	4 entire	_____ kutsal, ilahi
5 theater		5 holy	
6 wine		6 social	
<hr/>			
1 dozen		1 bitter	
2 empire		2 independent	_____ güzel, hoş
3 gift	_____ şans, fırsat	3 lovely	_____ az
4 opportunity	_____ düzine, 12 adet	4 merry	_____ popüler
5 relief	_____ vergi	5 popular	
6 tax		6 slight	

### V2 3000

1 bull		1 abandon	
2 champion	_____ olgunluk, ağırbaşlılık	2 dwell	_____ bir yerde yaşamak,
3 dignity	_____ şampiyon	3 oblige	_____ ikamet etmek
4 hell	_____ müze	4 pursue	_____ takip etmek, kovalamak
5 museum		5 quote	_____ terketmek
6 solution		6 resolve	
<hr/>			
1 blanket		1 assemble	
2 contest	_____ tatil	2 attach	_____ dikkatle bakmak
3 generation	_____ erdem	3 peer	_____ bırakmak
4 merit	_____ battaniye	4 quit	_____ çılgılık atmak
5 plot		5 scream	
6 vacation		6 toss	
<hr/>			
1 comment		1 drift	
2 gown	_____ uzun elbise	2 endure	_____ dayanmak, sabretmek
3 import	_____ ithal ürün	3 grasp	_____ örgü örmek
4 nerve	_____ Sinir, asap	4 knit	_____ yakalamak, tutmak
5 pasture		5 register	
6 tradition		6 tumble	
<hr/>			
1 administration		1 brilliant	
2 angel	_____ sürü	2 distinct	_____ zayıf, incecik, narin
3 frost	_____ melek	3 magic	_____ sabit
4 herd	_____ idare, yönetim	4 naked	_____ çıplak
5 fort		5 slender	
6 pond		6 stable	
<hr/>			
1 atmosphere		1 aware	_____ olağan, tipik, her
2 counsel	_____ nasihat etmek, öğüt	2 blank	_____ zamanki
3 factor	_____ vermek	3 desperate	_____ en iyi, en önemli, en
4 hen	_____ çimenlik, çayır	4 normal	_____ üstün
5 lawn	_____ tavuk	5 striking	_____ farkında olmak
6 muscle		6 supreme	

V2 5000

1 analysis		1 contemplate	_____ derin düşünmek, kafa
2 curb	_____ heves, istek	2 extract	yormak
3 gravel	_____ ev kredisi	3 gamble	_____ hayata dönmek,
4 mortgage	_____ çakıl	4 launch	canlanmak
5 scar		5 provoke	_____ kıskırtmak, tahrik
6 zeal		6 revive	etmek
1 cavalry		1 demonstrate	
2 eve	_____ tepecik, küçük dağ	2 embarrass	_____ dinlenmek, rahatlamak
3 ham	_____ arefe günü	3 heave	_____ paramparça etmek
4 mound	_____ süvari, atlı	4 obscure	_____ utandırmak
5 steak		5 relax	
6 switch		6 shatter	
1 circus		1 correspond	
2 jungle	_____ borazan, üflemeli bir müzik	2 embroider	_____ mektuplaşmak
3 nomination	aleti	3 lurk	_____ pusuya yatmak
4 sermon	_____ tabure	4 penetrate	_____ kızmak, sinirlenmek
5 stool	_____ vaaz, hutbe	5 prescribe	
6 trumpet		6 resent	
1 artillery		1 decent	
2 creed	_____ bir tür ağaç, akçaağaç	2 frail	_____ çelimsiz, narin, kırılğan
3 hydrogen	_____ mezhep, öğreti	3 harsh	_____ kentse
4 maple	_____ topçu birliği, ağır silahlar	4 incredible	_____ inanılmaz, olağanüstü
5 pork		5 municipal	
6 streak		6 specific	
1 chart		1 adequate	
2 forge		2 internal	
3 mansion	_____ çizelge, tablo	3 mature	_____ yeterli
4 outfit	_____ konak	4 profound	_____ yetişkin
5 sample	_____ demirci ocağı	5 solitary	_____ tek başına, yalnız
6 volunteer		6 tragic	
V2 10.000			
1 alabaster		1 dissipate	
2 chandelier	_____ küçük fiç	2 flaunt	_____ yağmalamak, çalmak
3 dogma	_____ mermer	3 impede	_____ dağılmak ya da yok
4 keg	_____ törpü, ege	4 loot	olmak
5 rasp		5 squirm	_____ kıvrınmak
6 tentacle		6 vie	
1 benevolence		1 contaminate	
2 convoy	_____ yardımseverlik	2 cringe	_____ çiziktirmek, karalamak
3 lien	_____ sekizli nota aralığı, oktav	3 immerse	_____ korkudan sinmek, geri
4 octave	_____ (otomobilde) gazı kesme	4 peek	çekilmek
5 stint		5 relay	_____ suya batırmak, suya
6 throttle		6 scrawl	daldırmak
1 bourgeois		1 blurt	
2 brocade	_____ burjuva	2 dabble	_____ kasıla kasıla yürümek,
3 consonant	_____ sıra, katman	3 dent	çalım atmak
4 prelude	_____ sırmalı kumaş	4 pacify	_____ boğmak
5 stupor		5 strangle	_____ ağzından kaçırmak
6 tier		6 swagger	
1 alcove		1 illicit	
2 impetus	_____ papaz	2 lewd	
3 maggot	_____ şartlı tahliye etmek	3 mammoth	_____ devasa, kocaman
4 parole	_____ merhem	4 slick	_____ yasadışı
5 salve		5 temporal	_____ kindar, intikam güden
6 vicar		6 vindictive	
1 alkali		1 indolent	_____ tembel
2 banter	_____ şakalaşmak, takılmak	2 nocturnal	_____ köhne, kullanılmayan,
3 coop	_____ vikont (kont, dük benzeri	3 obsolete	modası geçmiş
4 mosaic	bir asalet ünvanı)	4 torrid	_____ kurnaz, oyunbaz
5 stealth	_____ mozaik	5 translucent	
6 viscount		6 wily	

## APPENDIX-B: L1 Vocabulary Levels Test (Erten, 2009)

### A

1. konu		1. ifade	
2. yüz		2. kaza	
3. olay	___ ortaya çıkan durum	3. adım	___ hamle
4. yakın	___ geometrik biçim	4. yasa	___ kural
5. aç	___ başın ön kısmı	5. faiz	___ söyleyiş
6. resim		6. geçmiş	
1. uyanmak		1. yanıt	
2. susmak		2. uçak	
3. kokmak	___ geçirmek	3. burun	___ çoğalma
4. yatmak	___ parçalamak	4. çıkar	___ hava taşıtı
5. takmak	___ uyumak	5. artış	___ bir organ
6. dağılmak		6. tuz	
1. köşe		1. rüzgâr	
2. balık		2. besin	
3. ölçü	___ evin bir bölümü	3. saygı	___ alet
4. pencere	___ çalışma arkadaşı	4. ücret	___ para
5. ortak	___ su canlısı	5. yetenek	___ yiyecek
6. üye		6. cihaz	
1. seyretmek		1. inşaat	
2. saklamak		2. şiddet	
3. yollamak	___ göndermek	3. deneyim	___ mutluluk
4. ödemek	___ bölmek, ayırmak	4. sevinç	___ tecrübe
5. unutmak	___ gizlemek	5. hafta	___ yapı
6. kesmek		6. doku	
1. ahşap		1. oğul	
2. maliyet		2. duman	
3. tekne	___ deniz taşıtı	3. teyze	___ ince ve yüksek ses
4. pahalı	___ ucuz olmayan	4. zihin	___ annemin kız kardeşi
5. kavga	___ tahta	5. çığlık	___ akıl
6. kaldırım		6. kalori	

### B

1. irade		1. mabet	
2. yuva		2. miras	
3. hapis	___ bağımsız	3. tabiat	___ doğa
4. şerit	___ kuş evi	4. ağa	___ tapınak
5. çukur	___ aşağı çökmüş yer	5. blok	___ ekmek yapımında kullanılan bitki
6. egemen		6. buğday	
1. sıkışmak		1. girişmek	
2. utanmak		2. bırakmak	
3. bayılmak	___ tebrik etmek	3. aramak	___ bir işe başlamak
4. engel olmak	___ yaklaşmak	4. denetlemek	___ usanmak
5. benimsemek	___ kabullenmek	5. dolanmak	___ bulmaya çalışmak
6. kutlamak		6. bıkmak	
1. evli		1. ciğer	
2. metot		2. ırmak	
3. netice	___ kişi	3. alev	___ bir organ
4. şahıs	___ yöntem	4. kaset	___ nehir
5. sıfat	___ özellik	5. sepet	___ kale duvarı
6. idare		6. burç	
1. çatı		1. plaka	
2. özgü		2. zar	
3. yanak	___ dam	3. sütun	___ kurul
4. akış	___ müdür	4. kavanoz	___ ince tabaka
5. yönetmen	___ ifade	5. çelişki	___ kap
6. söylem		6. komite	
1. haksız		1. tapu	
2. moral		2. raf	
3. konfor	___ bir bitki	3. zirve	___ görev
4. sarımsak	___ ruhsal durum	4. aykırı	___ doruk
5. yerel	___ karşı çıkma	5. kıvam	___ karşıt
6. itiraz		6. vazife	

**C**

1. sınamak 2. özenmek 3. aksamak 4. yummak 5. yitmek 6. kazımak	___ kaybolmak ___ kapatmak ___ denemek	1. tasvir 2. arı 3. uğraş 4. tema 5. çıta 6. bölük	___ bir eserde işlenen ana konu ___ betimleme ___ uzun ve ensiz tahta
1. hat 2. sevda 3. vaat 4. zulüm 5. rüşvet 6. yufka	___ yazı ___ parasal çıkar ___ bir işi yerine getirmek için verilen söz	1. ender 2. çeyrek 3. hane 4. tulum 5. imtihan 6. yağma	___ göğüs ve pantolon kısmı bitişik olan giysi ___ sor kullanarak mal elde etmek ___ dörtte bir
1. elemek 2. itaat etmek 3. atfetmek 4. sezmek 5. zedelemek 6. katletmek	___ seçmek ___ uymak ___ hafifçe zarar vermek	1. uygar 2. iblis 3. siva 4. denek 5. komut 6. parkur	___ ince harç tabakası ___ üzerine araştırma yapılan canlı ___ şeytan
1. sedir 2. gözde 3. iade 4. mağdur 5. ruhsat 6. servet	___ geri verme ___ haksızlığa uğramış ___ ev eşyası	1. ihbar 2. tüzük 3. karış 4. nasihat 5. sera 6. fukara	___ yoksul, fakir ___ gergin elin parmakları arasındaki açıklık ___ bir kurumun hükümlerini içeren maddeler bütünü
1. nabız 2. sadık 3. tesir 4. zabıta 5. eksen 6. itibar	___ bir cismi ikiye bölen çizgi ___ etki ___ içten bağlı, gerçek dost	1. torun 2. zirve 3. safha 4. kıvam 5. vazife 6. avlu	___ görev ___ üstü açık, duvarlarla çevrili alan ___ doruk

**D**

1. kota 2. ciro 3. baldır 4. deva 5. lata 6. nema	___ dar ve kalınca tahta ___ çoğalma, faiz ___ ilaç, çare	1. sancak 2. çapa 3. caba 4. iris 5. meal 6. servi	___ gözün renkli bölümü ___ para vermeden alınan şey ___ ince, uzun bir ağaç
1. sini 2. تنها 3. saçak 4. geniz 5. istif 6. mahmur	___ büyük tepsi ___ ağız ve burun boşluğunun arka kısmı ___ yığın	1. müzakere 2. edep 3. kulis 4. beniz 5. beka 6. hasım	___ yüz rengi ___ fikir alışverişinde bulunma ___ sahnenin gerisinde bulunan bölüm
1. alamet 2. ahali 3. zan 4. kâput 5. kefe 6. sefir	___ terazi gözlerinden her biri ___ sanı ___ elçi	1. terslemek 2. tescil etmek 3. anımsamak 4. cezp etmek 5. ıslah etmek 6. çakışmak	___ hoşuna gitmek ___ onaylamak ___ iyileştirmek
1. nutuk 2. tayfa 3. rehavet 4. envanter 5. celse 6. spatula	___ vücutta görülen gevşeklik ___ söz, konuşma ___ oturma	1. hile 2. haiz 3. inayet 4. tını 5. aidat 6. düven	___ iyilik, yardım ___ bir şeyi olan, elinde bulunduran ___ bir cismin titreşiminden çıkan ses
1. biat 2. enkaz 3. debi 4. istila 5. sütte 6. sümen	___ akarsu akımı ___ bir kimsenin egemenliğini tanıma ___ perde, örtü	1. istihdam etmek 2. perçinlemek 3. tedarik etmek 4. öykünmek 5. donanmak 6. tezahür etmek	___ sağlamaştırma ___ bir şeye benzemeye çalışmak, taklit etmek ___ elde etmek

## E

1. içselleştirmek		1. vatka	
2. ibra etmek		2. abiye	
3. hiddetlenmek	___ onaylamak	3. saba	___ öykü
4. güdülenmek	___ yeniden ortaya çıkmak	4. andız	___ gece kıyafeti
5. feshetmek	___ sonlandırmak	5. kıssa	___ sabah rüzgârı
6. depreşmek		6. ecdat	
1. asude		1. kement	
2. istim		2. hazan	
3. yonga	___ kıymık	3. anız	___ güz mevsimi
4. örs	___ rahat	4. kaftan	___ gereksiz
5. dirim	___ yaşam	5. verev	___ çapraz
6. kefalet		6. abes	
1. atlatmak		1. mücavir	
2. kanıksamak		2. gayda	
3. kotarmak	___ yayımlamak	3. arp	___ nefesli çalgı
4. tünemek	___ konmak	4. çırpı	___ ağır başlı
5. neşretmek	___ kamulaştırmak	5. vakur	___ yakın
6. istimlak etmek		6. levye	
1. vesvese		1. mahlas	
2. sapak		2. havza	
3. viran	___ dönüş	3. hakir	___ takma ad
4. pişekar	___ yoğun	4. fevri	___ aniden kızan
5. nadas	___ kuruntu	5. irtifa	___ tek
6. kesif		6. münferit	
1. mesnet		1. banmak	
2. hamasi		2. hışırdamak	
3. nefaset	___ şiir	3. hâsıl olmak	___ ortaya çıkmak
4. çekül	___ ölçü aracı	4. gereksemek	___ kaçmak
5. yayvan	___ önsezi	5. firar etmek	___ batırmak
6. basiret		6. belirtmek	

## F

1. susta		1. dikit	
2. mastika		2. yafta	
3. örek	___ taslak	3. zona	___ renkli toz
4. bröve	___ yay	4. çivit	___ gedik
5. eskiz	___ duvar	5. kertik	___ etiket
6. seren		6. virman	
1. mazgal		1. aparmak	
2. yakı		2. nemalanmak	
3. özdek	___ usta	3. savlamak	___ öne sürmek
4. cevval	___ eşya	4. nüksetmek	___ harekete geçmek
5. desise	___ hile	5. yekinmek	___ götürmek
6. hazık		6. köhnemek	
1. hicap		1. istiap	
2. ıtır		2. dalya	
3. işmar	___ utanma	3. aynı	___ yüz
4. iğdiş	___ hadım	4. kımıl	___ mal
5. çapraşık	___ koku	5. vatman	___ odun
6. taba		6. mertek	
1. kayra		1. kakalamak	
2. kalker		2. kavlamak	
3. kerhen	___ yapı	3. kösteklemek	___ dökülmek
4. çerçi	___ lütuf	4. tekerrür etmek	___ hayal etmek
5. karkas	___ küçük eşya satan kimse	5. yeğlemek	___ tercih etmek
6. itlaf		6. imgelemek	
1. zayi etmek		1. alnaç	
2. eğleşmek		2. düve	
3. recmetmek	___ kaybetmek	3. mavna	___ genç dişi sığır
4. sepelemek	___ eklemek	4. esef	___ üzüntü
5. ulamak	___ zaman geçirmek	5. hare	___ elbise süsü
6. kundaklamak		6. volan	

### APPENDIX-C: L2 Reading Motivation Scale (Erten et al., 2010)

- 1 İngilizce okumak, zevkli bir iştir.
- 2 İngilizce okumak, hoşuma gidiyor.
- 3 İngilizce okumayı sıkıcı buluyorum.
- 4 İngilizce okurken kendimi huzurlu hissediyorum.
- 5 İngilizce okumak için büyük bir istek duyuyorum.
- 6 Derslerimde İngilizce okumam zorunlu olmasa asla okumam.
- 7 Gereklemedikçe İngilizce okumam.
- 8 İngilizce okumaktan nefret ediyorum.
- 9 İngilizce okumak zorunda olmasam bile çok okurum.
- 10 İngilizce okumaktansa başka şeylerle uğraşmayı tercih ederim.
- 11 İngilizce okumaya zaman ayırırım.
- 12 İngilizce okumak, işkence gibi geliyor.
- 13 Yeterli zamanım olsa da İngilizce okumam.
- 14 İngilizce okumayı seviyorum.
- 15 İngilizce okumak, beni mutlu ediyor.
- 16 İngilizce okudukça daha çok okumak istiyorum.
- 17 Akıcı bir şekilde İngilizce okuyabilirim.
- 18 İngilizce okuduğumun büyük bir kısmını anlayabiliyorum.
- 19 İngilizce bir şeyler okurken okuduğumu ilk okumada anlıyorum.
- 20 İngilizce okuduğumu anlama ile ilgili sorunum yoktur.
- 21 İngilizce okuma becerim ileri seviyededir.
- 22 İngilizce okumada başarılıyım.
- 23 İngilizce okumak, kişilik gelişimi için yararlıdır.
- 24 İngilizce okumak, daha iyi bir iş bulabilmeye yardımcı olur.
- 25 İngilizce okumak, kendimize daha iyi bir gelecek hazırlamaya yardımcı olur.
- 26 İngilizce okumak, daha iyi bir birey olmamıza yardımcı olur.
- 27 İngilizce okumak, daha iyi bir eğitim almamızı sağlar.
- 28 İngilizce okumak, o dilde akıcı konuşabilmeyi sağlar.
- 29 İngilizce okumak, kelime bilgisini geliştirmek için temel araçtır.
- 30 İngilizce okumak, o dildeki yazma becerisinin gelişimine yardımcı olur.
- 31 İngilizce okumak, o dildeki dil bilgisi gelişimine yardımcı olur.

#### **APPENDIX-D: L1 Reading Motivation Scale (Yıldız et al., 2013)**

1. Bir kitap veya makale ilgi çekiciyse, ne kadar zor okunduğu umurumda olmaz.
2. Okuma olmasaydı hayatım aynı olmazdı.
3. Bazen arkadaşlarım ne kadar çok okuduğuma şaşırırlar.
4. Arkadaşlarım ve ben, özellikle hoşumuza giden kitap ve makaleleri deęiş tokuş etmekten zevk alırız.
5. Benim için okumaya vakit ayırmak önemlidir.
6. Dięer etkinliklerle kıyaslarsak, okuma benim için önemlidir.
7. Eęer okuduğum materyaldeki bilgiler bana daha sonra lazım olacaksa, bunların lazım olacağı zamandan çok önce okumayı bitiririm.
8. İş performansım veya üniversitede aldığım notlar, okuma etkililiğimin bir göstergesidir.
9. Okuyarak dięer insanlara iyi örnek olurum.
10. Hızlı okurum.
11. Okumak hayatımı daha anlamlı kılar.
12. Benim için okuduklarımdan edindiğim bilgiler hakkında övgü almak önemlidir.
13. Okuduklarım hakkında başkalarının bana soru sorması hoşuma gider çünkü bu sayede bilgimi gösterebilirim.
14. Benim için dięer insanların ne kadar çok okuduğum hakkında yorum yapması önemlidir.
15. Zor, düşündürücü kitap ve makaleleri severim.
16. İşim veya üniversitedeki derslerim için gerekli tüm okumaları tamamlarım.
17. Zor kitap ve makaleleri anlayabildiğimden eminim.
18. İyi bir okuyucuyumdur.
19. İş veya üniversite performansımı geliştirmek için okurum.



## APPENDIX-E: L1 Reading Habits Questionnaire

1. Ne sıklıkta kitap, dergi, gazete vb. okursunuz?

Hiçbir zaman

Nadiren

Ayda 1- 2 kez

Haftada en az 1 kez

Hemen hemen her gün

2. Haftada kaç saat kitap, dergi, gazete vb. okursunuz?

0 saat

1 saatten az

1-2 saat

2 saatten fazla

3. En son ne zaman kitap, dergi, gazete vb. okudunuz?

son 1 hafta içinde

son 1ay içinde

son 1 yıl içinde

daha fazla

4. Tatil zamanlarında da kitap, dergi, gazete vb. okur musunuz?

Evet

Hayır

5. Son bir ay içinde kaç kitap okudunuz?

0

1-2

3-4

4'ten fazla

## APPENDIX-F: L2 Reading Habits Questionnaire

1. Ne sıklıkta İNGİLİZCE kitap, dergi, gazete vb. okursunuz?

Hiçbir zaman

Nadiren

Ayda 1- 2 kez

Haftada en az 1 kez

Hemen hemen her gün

2. Haftada kaç saat İNGİLİZCE kitap, dergi, gazete vb. okursunuz?

0 saat

1 saatten az

1-2 saat

2 saatten fazla

3. En son ne zaman İNGİLİZCE kitap, dergi, gazete vb. okudunuz?

son 1 hafta içinde

son 1ay içinde

son 1 yıl içinde

daha fazla

4. Tatil zamanlarında da İNGİLİZCE kitap, dergi, gazete vb. okur musunuz?

Evet

Hayır

## APPENDIX-G: Ethics Committee Approval



T.C.  
HACETTEPE ÜNİVERSİTESİ  
Rektörlük

Sayı : 35853172/ 433 - 1203

3 0 Mart 2017

### EĞİTİM BİLİMLERİ ENSTİTÜ MÜDÜRLÜĞÜNE

İlgi: 01.03.2017 tarih ve 574 sayılı yazınız.

Enstitünüz Yabancı Diller Eğitimi Anabilim Dalı İngiliz Dili Eğitimi Bilim Dalı doktora programı öğrencilerinden **Nuray ÇAYLAK**'ın Prof. Dr. **İsmail Hakkı ERTEN** danışmanlığında yürüttüğü "**Bazı Ruhbilimsel Faktörler ve İkinci Dilde Kelime Gelişimi Arasındaki Etkileşim Üzerine Bir Çalışma**" başlıklı tez çalışması, Üniversitemiz Senatosu Etik Komisyonunun **14 Mart 2017** tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.

Bilgilerinizi ve gereğini rica ederim.

Prof. Dr. Rahime M. NOHUTCU  
Rektör a.  
Rektör Yardımcısı

#### APPENDIX-H: Declaration of Ethical Conduct

I hereby declare that...

- I have prepared this thesis in accordance with the thesis writing guidelines of the Graduate School of Educational Sciences of Hacettepe University;
- all information and documents in the thesis/dissertation have been obtained in accordance with academic regulations;
- all audio visual and written information and results have been presented in compliance with scientific and ethical standards;
- in case of using other people's work, related studies have been cited in accordance with scientific and ethical standards;
- all cited studies have been fully and decently referenced and included in the list of References;
- I did not do any distortion and/or manipulation on the data set,
- and **NO** part of this work was presented as a part of any other thesis study at this or any other university.

20 /06/2019

Signature

Nuray aylak

## APPENDIX-I: Dissertation Originality Report

18/07/2019

HACETTEPE UNIVERSITY  
Graduate School of Educational Sciences  
To The Department of Foreign Language Education

Thesis Title: A STUDY INTO THE INTERPLAY BETWEEN FIRST AND SECOND LANGUAGE READING MOTIVATION AND VOCABULARY DEVELOPMENT

The whole thesis that includes the *title page, introduction, main chapters, conclusions and bibliography section* is checked by using **Turnitin** plagiarism detection software take into the consideration requested filtering options. According to the originality report obtained data are as below.

Time Submitted	Page Count	Character Count	Date of Thesis Defence	Similarity Index	Submission ID
18/07/2019	262	386.556	20/06/2019.	%18	1152895382

Filtering options applied:

1. Bibliography excluded
2. Quotes excluded
3. Match size up to 5 words excluded

I declare that I have carefully read Hacettepe University Graduate School of Educational Sciences Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

Name Lastname: Nuray ÇAYLAK  
Student No.: N13240951  
Department: Foreign Language Education  
Program: English Language Teaching  
Status:  Masters  Ph.D.  Integrated Ph.D.

Signature



ADVISOR APPROVAL

  
APPROVED  
(Prof. Dr. İsmail Hakkı ERTEN)

## APPENDIX-J: Yayınlama ve Fikrî Mülkiyet Hakları Beyanı

Enstitü tarafından onaylanan lisansüstü tezimin/raporumun tamamını veya herhangi bir kısmını, basılı (kâğıt) ve elektronik formatta arşivleme ve aşağıda verilen koşullarla kullanıma açma iznini Hacettepe Üniversitesine verdiğimi bildiririm. Bu izinle Üniversiteye verilen kullanım hakları dışındaki tüm fikri mülkiyet haklarım bende kalacak, tezimin tamamının ya da bir bölümünün gelecekteki çalışmalarında (makale, kitap, lisans ve patent vb.) kullanım hakları bana ait olacaktır.

Tezin kendi orijinal çalışmam olduğunu, başkalarının haklarını ihlal etmediğimi ve tezimin tek yetkili sahibi olduğumu beyan ve taahhüt ederim. Tezimde yer alan telif hakkı bulunan ve sahiplerinden yazılı izin alınarak kullanılması zorunlu metinlerin yazılı izin alınarak kullandığımı ve istenildiğinde suretlerini Üniversiteye teslim etmeyi taahhüt ederim.

Yükseköğretim Kurulu tarafından yayınlanan "**Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge**" kapsamında tezim aşağıda belirtilen koşullar haricince YÖK Ulusal Tez Merkezi / H.Ü. Kütüphaneleri Açık Erişim Sisteminde erişime açılır.

- o Enstitü/Fakülte yönetim kurulu kararı ile tezimin erişime açılması mezuniyet tarihinden itibaren 2 yıl ertelenmiştir. <sup>(1)</sup>
- o Enstitü/Fakülte yönetim kurulunun gerekçeli kararı ile tezimin erişime açılması mezuniyet tarihimden itibaren ... ay ertelenmiştir. <sup>(2)</sup>
- o Tezimle ilgili gizlilik kararı verilmiştir. <sup>(3)</sup>

12/07/2019

(imza)

Nuray ÇAYLAK

"Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge"

- (1) Madde 6. 1. Lisansüstü teze ilgili patent başvurusu yapılması veya patent alma sürecinin devam etmesi durumunda, tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulu iki yıl süre ile tezin erişime açılmasının ertelenmesine karar verebilir.
- (2) Madde 6. 2. Yeni teknik, materyal ve metotların kullanıldığı, henüz makaleye dönüşmemiş veya patent gibi yöntemlerle korunmamış ve internetten paylaşılması durumunda 3 şahıslara veya kurumlara haksız kazanç; imkânı oluşturabilecek bilgi ve bulguları içeren tezler hakkında tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulunun gerekçeli kararı ile altı ayı aşmamak üzere tezin erişime açılması engellenebilir.
- (3) Madde 7. 1. Ulusal çıkarılan veya güvenliği ilgilendiren, emniyet, istihbarat, savunma ve güvenlik, sağlık vb. konulara ilişkin lisansüstü tezlerle ilgili gizlilik kararı, tezin yapıldığı kurum tarafından verilir. Kurum ve kuruluşlarla yapılan işbirliği protokolü çerçevesinde hazırlanan lisansüstü tezlerle ilişkin gizlilik kararı ise, ilgili kurum ve kuruluşların önerisi ile enstitü veya fakültenin uygun görüşü üzerine üniversite yönetim kurulu tarafından verilir. Gizlilik kararı verilen tezler Yükseköğretim Kuruluna bildirilir.  
Madde 7. 2. Gizlilik kararı verilen tezler gizlilik süresince enstitü veya fakülte tarafından gizlilik kuralları çerçevesinde muhafaza edilir, gizlilik kararının kaldırılması halinde Tez Otomasyon Sistemine yüklenir.

\* Tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulu tarafından karar verilir.

