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A STUDY INTO THE INTERPLAY BETWEEN FIRST AND SECOND LANGUAGE READING MOTIVATION, READING HABITS AND VOCABULARY SIZE

Summary. The present study aimed to investigate 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 foreign language education and research. The data was collected through vocabulary size tests, reading motivational scales, and reading habits questionnaires from 490 participants from four different state universities. The proposed model was analyzed with the PLS-SEM technique as the complex theoretical model suggested. 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 differed, only intrinsic reading motivation explained reading habits in L1 and L2. Moreover, L1 reading motivation and habits statistically significantly predicted L2 reading motivation and habits. In this respect, the study suggests that L1 vocabulary size and reading habits are essential in developing L2 vocabulary size and reading habits.

Keywords: L1 vocabulary; L2 vocabulary; L1 reading motivation; L2 reading motivation; L1 reading habits; L2 reading habits.

Introduction

Vocabulary, as an essential component of language skills, has gained a prominent position as an indicator of L2 proficiency (Laufer, Elder, Hill, & Congdon, 2004; Laufer & Nation, 1995; Nation & Waring, 1997) and language learning motivation (Oh, 2016; Oxford & Shearin, 1994; Raoofi, Tan, & Chan, 2012). In achieving a certain level of L2 vocabulary, reading serves as a rich source of vocabulary in context (Paribakht & Wesche, 1997; Teng, 2016). Reading exposes learners to "multiple aspects of vocabulary knowledge" (Webb, 2005, p.50). Good reading habits are required to benefit from reading. In this sense, motivation can be a successful agent in developing good reading

habits (Guthrie, Wigfield, & VonSecker, 2000; Wigfield & Guthrie, 1997). L2 reading motivation was found to be partially influenced by related L1 schemata (Cummins, 1976; Sparks, Patton, Ganschow, & Humbach, 2009b). Although there are exceptional cases, research indicates that a motivated reader in L1 is likelier to be a motivated reader in L2 (Day & Bamford, 1998; Kamhi-Stein, 2003; Kim, 2011; Yamashita, 2004, 2007). Besides, L2 vocabulary knowledge seems to be affected by L1 vocabulary skills (Sparks, Humbach, & Javorsky, 2008; Sparks, Patton, Ganschow, & Humbach, 2009a). L1 language skills and attitudes can explain several points in the L2 learning process (Day & Bamford, 1998).

Considering this, the current study attempted to explain the interrelationships between vocabulary size, reading motivation and habits in L1 and L2 through a structural model. This study aims to make a unique contribution to the field by handling the adult learners' L2 vocabulary size from a cross-linguistic perspective that involves the effect of L1 vocabulary size and L1 and L2 reading behaviour along with reading motivation. Furthermore, the study also seeks to contribute to the literature on the Turkish vocabulary knowledge of native speakers of Turkish.

Literature Review

L2 vocabulary development is naturally different from L1 vocabulary development, as are the factors affecting vocabulary growth in L1 and L2. Numerous factors affect vocabulary learning; sometimes 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). Considering this, the subsequent sections will handle the factors included in the focus of this study.

Relationship between L1 and L2 Vocabulary Knowledge

Besides linguistic factors, 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 the 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.

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 essential 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, pp. 2-3). Depending on the similarities between the L1 and L2, the L1 plays varying roles in the difficulty of learning a new lexicon besides a new alphabet, new sounds, new syntactic notions, phrasal verbs, and case endings (Schmitt & McCarthy, 1997).

However, even if there is a considerable distance between the L1 and L2, other non-linguistic skills support the L2 vocabulary learning process (Sparks et al., 2009a). Several studies on language learning aptitude have revealed that L1 skills are excellent predictors of L2 skills. In this respect, Sparks et al. (2006) demonstrated that L1 literacy skills, L1 vocabulary, and cognitive ability in the early school years explain 73% of the variance in L2 aptitude in upper grades. Likewise, a study conducted with 178 fourth-grade learners by Raudszus et al. (2018) revealed similar results. 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" (p. 420).

Overall, apart from the studies on bilingualism or multilingualism, which mainly focus on young participants, 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.

Relationship between Reading and Vocabulary

Much research has examined the reciprocal relationship between reading and

vocabulary (Grabe, 2009; Nation, 2001; Pfost et al., 2013; Pigada & Schmitt, 2006; Ponniah, 2011; Qian, 2002; Verhoeven & Perfetti, 2011; Yamashita, 2004). The existing research suggests that all of these components can be satisfied through reading by considering the aspects of knowing a word, e.g. spelling, word family relations, collocations, meaning associations, and register constraints. Several encounters in 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 as a supporting path to vocabulary learning (Grabe, 2009). As one develops his/her vocabulary by reading, rich vocabulary knowledge helps readers read more complex texts effectively (Ibrahim et al., 2016) and feel more motivated to read. Reading introduces a wide range of words to readers and provides opportunities for them to deepen their knowledge of already known words by introducing rich contexts where the different aspects of the words can show their presence. However, the strength of this relationship can be changed whether the reader reads a text below his/her level or whether he/she pays attention to unknown words or unknown aspects of known words. Reading is an indispensable way of widening and deepening vocabulary knowledge.

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 input source for L2 learners in the EFL context (Mori, 2002). Research indicates that provided it takes place over some time, reading extensively increases learners' vocabulary size and deepens their vocabulary knowledge to a great extent (Day & Bamford, 1998; Day & Bamford, 2002; Grabe & Stoller, 2002; Nation, 2001; Nation, 2015; Qian, 2002).

Reading Motivation in L1 and L2

The research on L1 and L2 reading motivation has revealed specific patterns.

For example, L1 reading motivation is likely to be driven by intrinsic reading motivation (Schutte & Malouff, 2007; Yildiz et al., 2013), whereas L2 reading motivation is dominated by instrumental reading motivation (Erten et al., 2010; Olmez, 2015; Ozonder, 2015) which reflects the objectives of reading in different languages. It is 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 complete command of the language.

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 only depicts part of the 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).

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

Reading Habits in L1 and L2

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 nurtured by repetition (Iftanti, 2015); habits are performed constantly and regularly. In this respect, good reading habits denote a large amount of regular reading practice; this contributes significantly to L2 readers' language development and vocabulary.

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 (Guthrie, Wigfield, & Vonsecker, 2000), access to print

materials (McQuillan & Au, 2001) and L1 reading behaviour (Sparks et al., 2012). In this respect, in Sparks et al.'s (2012) study, L1 reading amount was the significant predictor of L2 proficiency and several L2 skills. Similarly, Artieda (2017) and Uslu (2020) found that strong L1 reading habits significantly contribute to learners' L2 achievement. Regular reading motivation and strong reading habits in L1 can significantly affect L2 reading habits and motivation (Iftanti,2015).

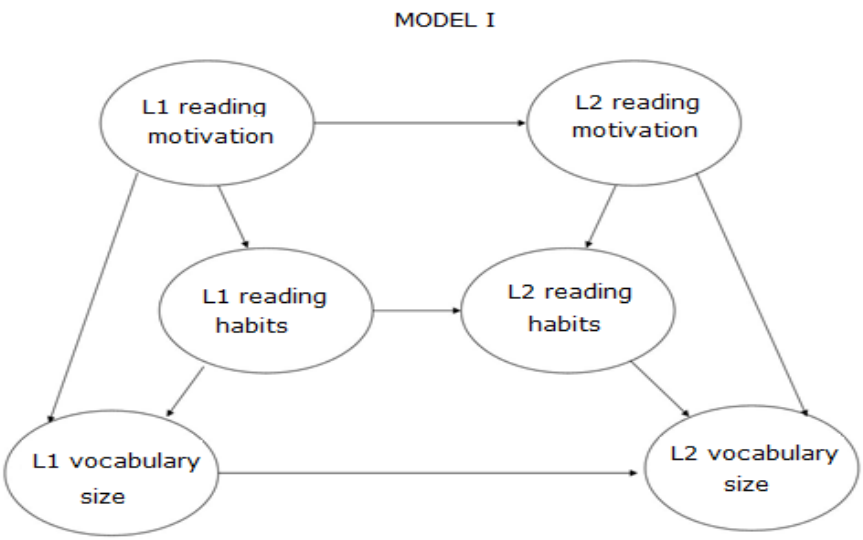
Aim of the Study

This study aimed to investigate the Turkish (L1) and English (L2) vocabulary levels, reading motivation and habits of Turkish EFL learners majoring in English at different state universities. Moreover, it attempted to determine the interrelationships between L1 and L2 vocabulary, L1 and L2 reading habits, and L1 and L2 reading motivation.

In light of previous studies, the current study proposes two models.

Figure 1

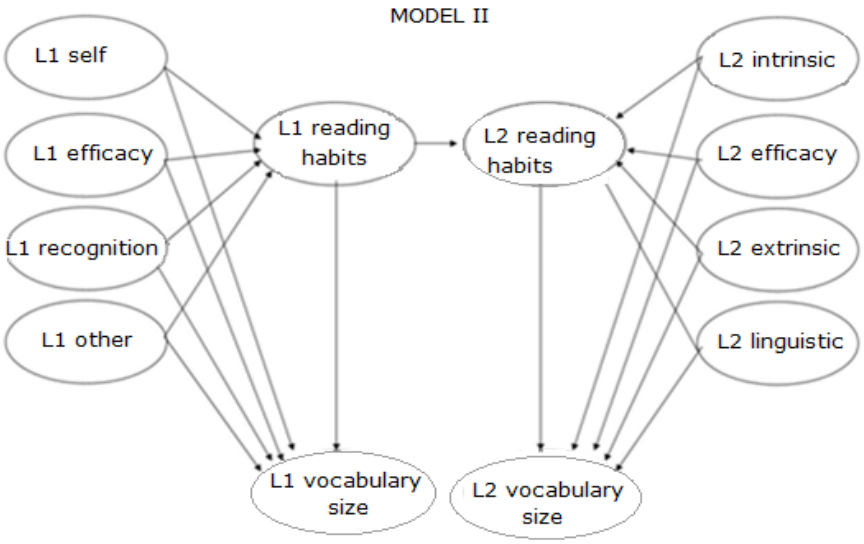
Conceptual framework: Model I



In order to explore which motivational constructs play the more significant part in the process, a second model, illustrated in Figure 2, was framed. In the second model, each of the four constructs forming L2 reading motivation has been hypothesized to directly affect L2 reading habits and L2 vocabulary knowledge.

Figure 2

Conceptual framework: Model II



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. Is the first model – which describes the interplay between L1 and L2 vocabulary size, L1 and L2 reading motivation, and L1 and L2 reading habits – consistent with the observed relationships?
2. Is the second model – which describes the interplay between subconstructs of L1 and L2 reading motivation, L1 and L2 reading habits, and L1 and L2 vocabulary size – consistent with the observed relationships among these variables?

Methodology

Setting and Participants

The study was conducted in the English Language Teaching Department and English Language and Literature Department at four state universities. A convenience sampling strategy was used to select the participants. A total of 490 undergraduate students (98 prep class students, 94 first-year students, 156 sophomores, 109 juniors and 33 seniors) participated in the study voluntarily. The mean age was 20.

Data Collection

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 1:

Table 1

Concepts and Instruments Used in the Study

	Concept	*Instrument*	*N of items*
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	Four items
6	L1 reading habits	Questionnaire	Four items

Instruments

The Vocabulary Levels Test: Version 2. 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 The Cronbach's alpha values for each band were above .922 (Schmitt et al., 2001). This study targeted four bands: 2000, 3000, 5000 and 10000 levels.

Turkish Vocabulary Levels Test. 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. The test format was based on Nation's (1999, 2001) vocabulary size test model. Different word frequency bands were used to test vocabulary sizes up to around 16000 words. The Cronbach's Alpha values for each band were above .90, indicating a high level of internal consistency.

The Foreign Language Reading Attitudes and Motivation Scale. In order to measure the participants' L2 reading motivation, the Turkish version of *The Foreign Language Reading Attitudes and Motivation Scale* (FLRAMS) (Erten, Topkaya & Karakas, 2010) was utilized As for internal consistency, Cronbach's alpha-coefficient of each subscale indicated a high level of reliability ranging from .73 to .94.

The Adult Motivation for Reading Scale. To assess the participants' L1 reading motivation, "The Adult Motivation for Reading Scale" (Schutte & Malouff, 2007) was used in the study This scale was adapted for Turkish (Yildiz et al., 2013). The Cronbach's alpha value for the total scale was .86.

L2 reading Habits Questionnaire. In order to determine the students' L2 reading habits, a three-item questionnaire was prepared based on a list of items from questionnaires used in the literature (Hedgecock & Atkinson, 1993; Iftanti, 2012; Ro & Chen, 2014)

L1 Reading Habits Questionnaire. A questionnaire was prepared to determine the students' L1 reading habits based on a list of items from questionnaires used in the literature. 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 three questions were selected for the questionnaire survey.

Data Analysis

The SPSS version 21 and SmartPLS version 3.2.7 were utilized to analyze the data. Analysis of the model proposed in the study required a structural equation modelling technique. Between 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 is an appropriate fit for the current study.

The two primary reasons for employing the PLS-SEM technique relate to the model of the study in the sense that it consists of several components. 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, & Sarstedt, 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.

Findings

Data Screening

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

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 2

Measurement (Outer) Model Results: Model I

Variables	Loadings	Cronbach's alpha	Composite reliability	AVE
L1 READING MOTIVATION		.883	.837	573
L1 reading for self	.934	.857	.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			
"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			
L1 reading efficacy	.818	.681	.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			
L1 reading for recognition	.529	.763	.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			

Variables	Loadings	Cronbach's alpha	Composite reliability	AVE
"It is important to me to have others remark on how much I read."	.801			
L1 reading to do well in other realms	.686	.687	.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		.914	.818	532
L2 intrinsic value of reading	.861	.921	.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			
L2 reading efficacy	.662	.873	.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	.780			

Variables	Loadings	Cronbach's alpha	Composite reliability	AVE
language text."				
"I am successful at reading in a foreign language"	.840			
L2 extrinsic utility value of reading	.693	.762	.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			
L2 foreign language linguistic utility value of reading	.683	.736	.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		.945	Single Item	
L1 VOCABULARY		.931	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			

As it is displayed in Table 2, all Cronbah's alpha values exceeded the threshold value .6. *Composite reliability,* which assesses internal consistency, should range from .60 to .95 (Nunally & Bernstein, 1994). Table 2 indicates that all the values fell within the higher end of this range, indicating high levels of internal consistency (Wong, 2016).

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.

Table 3

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

	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

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 (See Table 3); 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).

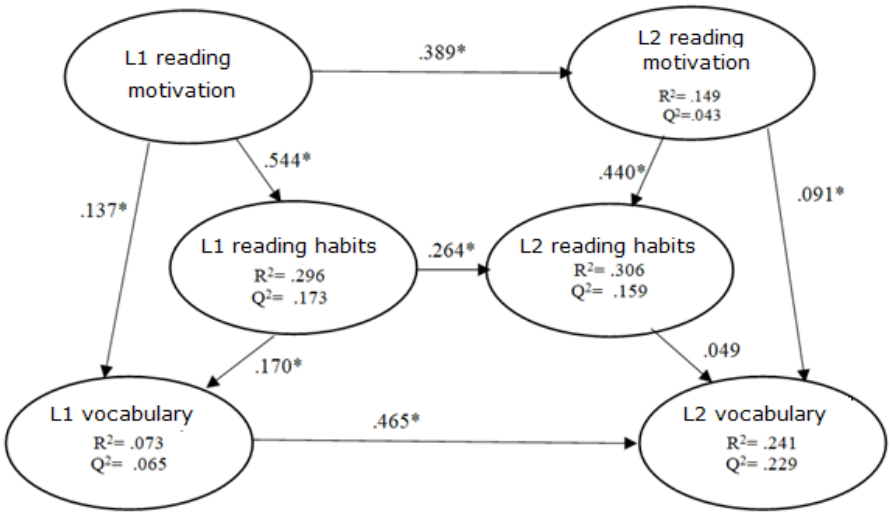
In order to secure *discriminant validity*, the Fornell-Larcker criterion was employed. This is measured by examining the square root of the AVE values and the correlations of the other variables in the model (Fornell & Larcker, 1981); in this regard "the AVE should exceed the squared correlation with any other construct" (Hair et al., 2014, p. 105), as was determined in the present study (See Table 3).

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 4, 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 4, 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 (β = .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 (β = .465 $p<.05$), and L2 reading motivation also significantly but weakly affectedL2 vocabulary (β = .091 $p<.05$). However, L1 reading habits (β = .170 $p<05$) were found to have a statistically significant moderate effect on L1 vocabulary with L1 reading motivation (β = .137 $p<05$). With respect to the other path relationships, L1 reading motivation had a moderately strong effect on L1 reading habits (β = .544 $p<05$), which represented the strongest relationship among all hypothesized path relationships. Moreover, L2 reading motivation was also moderately affected by L 1 reading motivation (β = .389 $p<05$). Lastly, in terms of L2 reading habits, L2 reading motivation (β = .440 $p<05$) was found to have a stronger effect than L1 reading habits (β = .264 $p<05$)

Figure 3

Structural (Inner) model results for Model I



Constituting the essential part of the structural model evaluation, the coefficient of determination refers to the assessment of R2 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 R2 values, which are displayed in Figure 3, 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* (β = .465 p<.05, f^2=.283) was far stronger than L2 reading motivation (β = .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, β = .000 p<05).

Effect sizes were handled within the hypothesis evaluation in

the subsequent section, and for *predictive accuracy*, Stone-Geissers' Q^2 was employed. A Q^2 above 0 is suggested, and it is clear from Figure 3 that predictive accuracy was ascertained and the model demonstrated good predictive relevance (Chin, 1998; Hair et al., 2014).

Research Question 1: Is the first model - which describes the interplay between L1 and L2 vocabulary size, L1 and L2 reading motivation, and L1 and L2 reading habits - consistent with the observed relationships?

As Table 4 indicates, aside from one path that describes the relationship between L2 reading motivation and L2 vocabulary knowledge, the relationship was found to be significant.

Table 4

Structural Model Results for Model I

Hypothesis	*Effect*	*β*	*t*	*Result*	*VIF*	f^2
H_1	L1 mot → L2 mot.	.389	7.703	Accepted	1.000	.270
H_2	L2 mot → L2 voc.	.091	2.131	Accepted	1.316	.008
H_3	L1 mot → L1 hab.	.544	17.103	Accepted	1.000	.421
H_4	L1 hab → L2 hab.	.264	6.872	Accepted	1.035	.097
H_5	L2 hab → L2 voc.	.049	.995	*Not Supported*	1.317	.002
H_6	L2 mot → L2 hab.	.440	11.444	Accepted	1.035	.270
H_7	L1 mot → L1 voc.	.137	2.603	Accepted	1.421	.022
H_8	L1 hab → L1 voc.	.170	3.279	Accepted	1.421	.014
H_9	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. Only one hypothesis was not supported: L2 reading habits has a statistically significant effect on L2 vocabulary. 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_3 was also accepted, considering that L1 reading motion had a statistically significant positive large effect on L1 reading habits ($\beta = .544$ $p<.05$, $f^2=.421$). Similarly, L2 reading motivation had a statistically

significant and positive effect on L2 reading habits (β = .440 p<.05, f^2=.270) with a medium effect size, which supported acceptance of H_6. L1 vocabulary had a statistically significant and positive effect on L2 vocabulary with a medium effect size (β = .465 p<.05, f^2=.283), which supported accepting H_9.

Table 5 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 (β = .389 p<.05).

Table 5

Direct, Indirect and Total Effects for the Model I

Predicted variable	*Predictor variable*	*Direct effect*	*Indirect effect*	*Total effect*
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*

Among the predictors of L2 vocabulary, despite the low β value, L2 reading motivation had a statistically significant and direct effect on L2 vocabulary (β = .091, p<.05). However, as L2 reading habits did not mediate the relationship between L2 reading motivation and L2 vocabulary (=.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 (β = .465, p<.05). Finally, the indirect and small effect of L1

reading habits via L1 vocabulary on L2 vocabulary was statistically significant (β = .092 p<.05).

With regard to L2 reading habits, L2 reading motivation (β = .440 p<.05) had a large direct effect, and L1 reading habits had a medium direct effect (β = .264 p<.05); and finally, L1 reading motivation influenced L2 reading habits indirectly but nearly to a large extent (β = .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 (β = .544, p<.05).

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

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.

All Cronbah's alpha values exceeded the threshold value .6. With respect to *Composite reliability,* all the values fell within the higher end of this range, indicating high levels of internal consistency (Wong, 2016).

For *indicator reliability*, a total of 2 items from the L1 reading motivation construct, five 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 6

Measurement (Outer) Model Results for Model II

Variables	*Loadings*	*Cronbach's alpha*	*Composite reliability*	*AVE*
L1 READING MOTIVATION		.883		
L1 reading for self		.857	.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			

Variables	*Loadings*	*Cronbach's alpha*	*Composite reliability*	*AVE*
"I set a good model for others through reading."	.644			
"Reading helps make my life meaningful."	.735			
L1 reading efficacy		.681	.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			
L1 reading for recognition		.763		
"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			
L1 reading to do well in other realms		.687	.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			
L2 READING MOTIVATION		.914		
L2 intrinsic value of reading		.921	.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			
L2 reading efficacy		.873	.906	.615

Variables	*Loadings*	*Cronbach's alpha*	*Composite reliability*	*AVE*
"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			
L2 extrinsic utility value of reading		.762	.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			
L2 foreign language linguistic utility value		.736	.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	.945		
L1 VOCABULARY	Single Item	.931		
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			

Regarding *convergent validity*, as all the outer loadings exceeded .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 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 6).

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 by ensuring VIF values below .5. Table 52 illustrates that all VIF values were below this level in this study (Hair et al., 2017).

Table 7

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

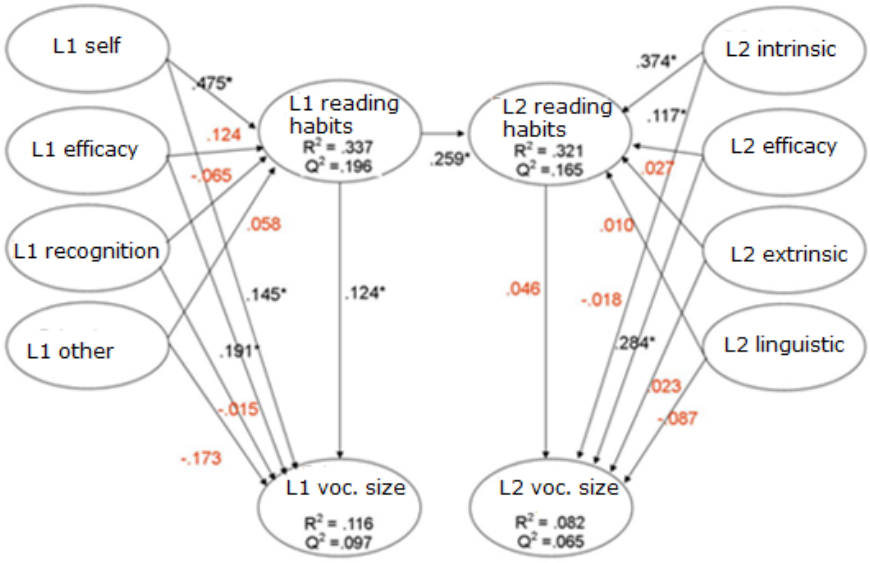
Note:
1-AVE values cannot be calculated for single-item constructs; therefore, the related cells are blank. Discriminant validity between second-order constructs and the sub-constructs of the second-order constructs was not analyzed (Hair et al., 2017).
2- The values in bold are the square roots of the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

The *path coefficients* displayed in Table 7 demonstrate that several paths were insignificant. The insignificant paths indicate that the L2 extrinsic utility value of reading (β = .027 p>.05) and L2 linguistic utility (β = .010 p>.05) did not predict L2 reading habits. On the other hand, L2 intrinsic reading motivation (β = .374 p<.05) was found to be the best predictor of L2 reading habits when compared to L2 reading efficacy (β = .117 p<.05) and L1 reading habits (β = .259 p<.05). In considering the predictors of L2 vocabulary knowledge,

L2 reading efficacy was a unique predictor (β = .284 p<.05), and the other paths were all insignificant. Similarly, L1 reading habits were predicted only by L1 reading for self (β = .475 p<.05).

Figure 4

Structural (Inner) model results for Model II



Concerning the R^2 values displayed in Figure 4, 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 (β = .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 (β = .374 p<.05, f^2=.115) with the highest variance, followed by L1 reading habits (β = .259 p<.05,f^2=.095) and L2 reading efficacy respectively (β = .117 p<.05, f^2=.015). Reading efficacy variables with the highest values predicted vocabulary size in both languages and L2 reading efficacy (β = .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 (β = .191 p<.05, f^2=.020), followed by L1 reading for self (β = .145 p<.05,

f^2=.009) and L1 reading habits (β = .124 p<.05, f^2=.012) respectively.

Effect sizes were explained regarding each of the hypotheses in the subsequent section. 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).

Research Question 2. Is the second model – which describes the interplay between sub-constructs of L1 and L2 reading motivation, L1 and L2 reading habits, and L1 and L2 vocabulary size- consistent with the observed relationships among these variables?

As Table 8 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. All effect sizes fall within the range of small effect size values. Because there were many variables in the analysis, the effect sizes decreased in the second analysis.

Table 8

Structural Model Results for Model II

Hypothesis	*Effect*	*β*	*t*	*Result*	*VIF*	f^2
H_{15}	L1 self → L1 voc	.145	2.209	Accepted	2.575	.009
H_{16}	L1 effic → L1 voc	.191	3.142	Accepted	2.098	.020
H_{17}	L1 rec → L1 voc	-.015	.319	*Not Supported*	1.181	.000
H_{18}	L1 other → L1 voc	-.173	3.292	*Not Supported*	1.371	.025
H_{19}	L1 hab → L1 voc	.124	2.373	Accepted	1.508	.012
H_{20}	L1 self → L1 hab	.475	8.338	Accepted	2.234	.152
H_{21}	L1 effic → L1 hab	.124	1.956	*Not Supported*	2.075	.011
H_{22}	L1 recog → L1 hab	-.065	1.700	*Not Supported*	1.181	.005
H_{23}	L1 other → L1 hab	.058	1.409	*Not Supported*	1.371	.004
H_{24}	L1 hab → L2 hab	.259	6.787	Accepted	1.035	.095
H_{25}	L2 intrin → L2 hab	.374	7.377	Accepted	1.784	.115
H_{26}	L2 eff → L2 hab	.117	2.320	Accepted	1.394	.015
H_{27}	L2 extrin → L2 hab	.027	.564	*Not Supported*	1.496	.001
H_{28}	L2 ling → L2 hab	.010	.209	*Not Supported*	1.399	.000
H_{29}	L2 intr → L2 voc	-.018	.288	*Not Supported*	1.986	.000
H_{30}	L2 effic → L2 voc	.284	5.820	Accepted	1.410	.062

Hypothesis	*Effect*	*β*	*t*	*Result*	*VIF*	f^2
H_{31}	L2 extrin → L2 voc	.023	.405	*Not Supported*	1.496	.000
H_{32}	L2 ling → L2 voc	-.087	1.630	*Not Supported*	1.399	.006
H_{33}	L2 hab → L2 voc	.046	.821	*Not Supported*	1.345	.002

Discussion and Conclusion

The main findings of the study are as follows:

a- The results showed that L1 vocabulary size was the best predictor of L2 vocabulary size.

b- L1 reading habits explained L1 vocabulary size, however, L2 reading habits did not explain L2 vocabulary size.

c- Intrinsic reading motivation explained reading habits in L1 and L2.

d- L1 reading motivation significantly predicted L2 reading motivation.

e- L1 reading habits significantly predicted L2 reading habits.

a- The results showed that L1 vocabulary size was the best predictor of L2 vocabulary size:

Concerning the role of expanded L1 vocabulary in L2 vocabulary development, the current study revealed a strong relationship between L1 and L2 vocabulary size. Moreover, L1 vocabulary size was found to be 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, and 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. Poor L1 vocabulary, which could result from limited reading and poor decoding skills, is considered one of the indicators of risk for L2 learning (Kahn-Horwitz 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).

Similarly, several studies by Sparks and his colleagues (Sparks et al., 2008, 2009a, 2009b; Sparks et al., 2006; Sparks & Ganschow, 1991; Sparks,

Patton, Ganschow, & Humbach, 2012) 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 concerning L2 vocabulary development. Naturally, several other factors 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.

Moreover, the significant relationship between L1 and L2 vocabulary in this study indicates that the development of the L2 mental lexicon may be affected by the maturity of the L1 mental lexicon. In other words, the ability to perform complex cognitive activities in L1 affects the performance of the 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 plays a 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 the 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 L1 vocabulary development.

b- L1 reading habits explained L1 vocabulary size, however, L2 reading habits did not explain L2 vocabulary size:

The relationship between habits and vocabulary size in L2 differs 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. This insignificant relationship between L2 reading and L2 vocabulary size could be

the result of the fact that the contributions of reading to vocabulary size may not be the ones that can be represented through a receptive vocabulary size test (Grabe & Stoller, 2002). As suggested in the literature, 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 concepts, 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.

c- Intrinsic reading motivation explained 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 with higher reading efficacy and intrinsic motivation 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 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 did not affect reading habits. On the other hand, those with 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 the 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 these studies, intrinsic motivation was found to significantly contribute to reading amount and frequency (De Naeghel et al., 2012; Guthrie et al., 1999; Stutz et al., 2017). In Stutz et al.'s study (2017), extrinsic reading motivation was negatively correlated with the reading amount and reading comprehension.

d- L1 reading motivation significantly predicted L2 reading motivation:

Interestingly, despite each language's distinctive reading motivational dispositions, 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 significantly influence L2 reading motivation (Kim, 2011; Lee & Schallert, 2014; Yamashita, 2004, 2007). In this study, L1 reading motivation 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 be considered the most advantageous route to achievement in the target language.

e- L1 reading habits significantly predicted L2 reading habits:

Regarding the effect of L1 reading habits, the current study contributes to the literature supporting the existing findings that learners with better reading habits in L1 are likely to develop better reading habits in L2 (Camiciottoli, 2001; Ro&Chen, 2014). 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 meaningful 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 also refrain from reading in L2. On the other hand, L1 readers with strong reading habits can avoid reading in L2 due to unpleasant L2 reading experiences, difficult or tedious texts or seeing no benefits in L2 reading. However, L1 and L2 reading habits may not be considered 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 developing good L2 reading motivation and habits later on.

Conclusion

This cross-linguistic study investigated the interplay between L1 and L2 vocabulary size, reading motivation and habits. This investigation showed that L1 vocabulary size should be considered among the predictors of L2 vocabulary size. In this respect, the current study suggests that the role of L1 vocabulary size deserves more attention concerning L2 vocabulary studies. L1 vocabulary size, which reflects the ability to build strong lexical and conceptual connections in L1, can be the agent that plays a significant role in L2 mental lexicon development (Turgeon & Macoir, 2008).

Furthermore, both L1 reading motivation and L1 reading habits were found to be significant predictors of L2 reading motivation and L2 reading habits. The results suggest that as it is the case in language skills (Sparks et al., 2008, 2009; Sparks et al., 2006; Sparks & Ganschow, 1991; Sparks, Patton, Ganschow, & Humbach, 2012), L1 motivational dispositions and habits seem to serve an effective foundation for similar L2 processes.

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

The second limitation is the number and the profile of the students included in the study, which resulted from the difficulties in finding volunteers to participate in a study carried out over several sessions. A great many of the instruments were not returned or were left incomplete. A larger sample would allow researchers to categorize students into different vocabulary size groups. It would 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. In order to gain a greater understanding of the underlying reasons for the relationships presented in the proposed model, the results can be supported by qualitative data.

Since 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 and 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 detailed picture of the behaviour, which is not usually possible in large scale studies with multiple data collection tools.

Another crucial methodological implication of the study was the reliability analyses of the 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 relatively 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 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 many 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 several 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 can 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 were 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. It is highly possible that L1 vocabulary size, like the cross-linguistic transfer of other L1 skills, affects the development of L2 vocabulary. This effect may result from phonological-orthographic ability, 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 satisfy it through L1, it is suggested that L2 reading may be used for a good purpose, particularly for an intrinsically motivated reader: not only to learn another language but also for pleasure.

Pedagogical Implications. 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 can 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 used during reading, writing, listening or speaking, both languages are activated considering their phonological, conceptual, and 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 occurs 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. In this respect, L2 language teachers' working in cooperation with L1 language teachers to encourage L1 vocabulary development can promote learners' L2 vocabulary development.

Considering reading motivation, it 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 be considered in developing L2 reading motivation. In this sense, although any 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 vocabulary; 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 influential factor among the other motivational dispositions, should be encouraged in L2 reading. If readers enjoy reading as a personal interest and an instrumental activity, they may engage in reading more effectively and for more extended periods. In previous studies, intrinsic reading motivation exhibited a stable influence on the 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, Schaffner et al., 2017)

and was negatively linked to the reading amount and literacy (Becker, McElvany & Kortenbruck, 2010).

Intrinsic reading motivation can be promoted directly or indirectly by encouraging L1 intrinsic reading. Because learners face less difficulty dealing with complex texts and unknown vocabulary in their L1, they develop more robust reading efficacy. Therefore, it would be beneficial to trigger L2 intrinsic reading motivation by developing intrinsic reading motivation in L1. When teachers themselves believe in the importance of reading extensively and for intrinsic reasons and acknowledge the value of reading as a self-rewarding activity and a 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.

The study revealed that the amount and frequency of L1 reading predicted the amount of reading in L2, a circumstance supported by the relevant literature (Camiciottoli, 2001; Ro & Chen, 2014a). In this respect, aside from making students aware of the benefits of reading in L2, ensuring a high level of L1 intrinsic reading motivation and positive reading habits can significantly contribute to developing good L2 reading habits. In this sense, it will be difficult for learners who have yet to develop 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, reading will only yield its potential outcome if it occurs regularly and at an adequate level. Stronger motivation is needed to maintain the process and to provide deeper and longer reading engagement.

Suggestions for Further Research

As the participants' being English majors who study specific 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. A larger sample from a diverse group of learners would allow researchers to categorize students into different vocabulary size groups. It 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. Moreover, a few predictors of L2 vocabulary were addressed in the current study. Including other variables as predictors of L2 vocabulary size would allow researchers to see a more comprehensive picture of the case, which is appropriate for PLS-SEM analyses. In order to obtain higher R2 values, other variables that could influence L2 vocabulary should be included in the model. Furthermore, doing so would bring about a 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 proven with different samples in different contexts.

Considering the significant relationship between L1 and L2 vocabulary, which was found in this study, another important factor in the development of the 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 plays a significant role in L2 mental lexicon development (Turgeon & Macoir, 2008). In this respect, further studies can significantly contribute to understanding its role in L2 mental lexical development.

Most of the studies about reading motivation were conducted with young learners and most 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 of adult learners.

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PIRMOSIOS IR ANTROSIOS KALBOS SKAITYMO MOTYVACIJOS, SKAITYMO ĮPROČIŲ IR ŽODYNO APIMTIES SĄVEIKOS TYRIMAS

Santrauka. Šiuo tyrimu siekta ištirti pirmosios kalbos (L1) žodyno, skaitymo motyvacijos ir skaitymo įpročių tarpusavio poveikį antrosios kalbos (2) žodynui, skaitymo motyvacijai ir įpročiams. Tyrime sukurtu modeliu siekiama prisidėti prie užsienio kalbų mokymo ir mokslinių tyrimų. Tyrimo duomenys buvo surinkti naudojant žodyno dydžio nustatymo testus, skaitymo motyvacijos skales ir skaitymo įpročių klausimynus, apklausus 490 dalyvių iš keturių skirtingų valstybinių universitetų. Pasiūlytas modelis analizuotas PLS-SEM metodu kaip siūlomas kompleksinis teorinis modelis. Rezultatai atskleidė, kad L1 žodyno dydis ir skaitymo veiksmingumas buvo du L2 žodyno dydžio prediktoriai; tačiau L1 žodyno dydis buvo geresnis prediktorius. L1 žodyno dydį paaiškino L1 skaitymo įpročiai, o L2 žodyno dydžio L2 skaitymo įpročiai neprognozavo. Nors dalyvių labiausiai patvirtintos skaitymo motyvacijos nuostatos L1 ir L2 skyrėsi, tik vidinė skaitymo motyvacija paaiškino L1 ir L2 skaitymo įpročius. Be to, L1 skaitymo motyvacija ir įpročiai statistiškai reikšmingai prognozavo L2 skaitymo motyvaciją ir įpročius. Atsižvelgiant į tai, tyrimas rodo, kad L1 žodyno dydis ir skaitymo įpročiai yra labai svarbūs ugdant L2 žodyno dydį ir skaitymo įpročius.

Pagrindinės sąvokos: L1 žodynas; L2 žodynas; L1 skaitymo motyvacija; L2 skaitymo motyvacija; L1 skaitymo įpročiai; L2 skaitymo įpročiai; L2 skaitymo įpročiai.