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Raising Awareness of Lexical Semantic Relations in Undergraduate EFL Context

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Abstract: Associating a content word to its rational semantic relations is regarded as a language learning strategy which explicitly contributes to mental lexicon. Semantic mapping herein seems to constitute an efficacious pattern for its practice in language instruction. Conversely, it appears to be among the least frequently used vocabulary learning strategies in language classrooms. This study points at semantic mapping as a practice for EFL learners by suggesting its pros and cons, and thus aims to raise awareness with this respect. The samples for the treatment of the study involve 20 EFL students studying at a state university in Turkey. A second group of the same size was randomly chosen as the control group from the same accessible population. All the participants were subject to a pre-test and a post-test measuring the size of the vocabulary known. The findings indicate a significant increase in the vocabulary size of the treatment group, surpassing the average size of undergraduate non-native speakers of English from non-European background.

Anahtar sözcükler
Anlambilimsel ilişki, sözcüksel farkındalık, sözcük dağarcığı, anlamsal eşleme, bireysel öğrenci, sözlük.

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Öz: İçerikli bir sözcüğü mantıklı anlamsal ilişkileriyle bağdaştırmak zihinsel sözlükçeye belirgin katkıda bulunan bir dil öğrenme yordamı olarak kabul edilmektedir. Bu bağlamda anlamsal eşlemenin, dil öğretiminde uygulanışı itibariyle etkili bir şablon niteliğinde olduğu görülmektedir. Bunun aksi şekilde, dil sınıflarında en düşük sıklıkta kullanılagelen öğrenim yordamlarından birisi konumunda olduğu gözlemlenmektedir. Bu çalışma, anlamsal eşlemenin yabancı dil olarak İngilizce öğrenenlerce kullanımının artılarını ve eksilerini ele almakta ve dolayısıyla bu meyanda bir farkındalık oluşturmayı hedeflemektedir. Çalışmada yer alan katılımcılar, bir devlet üniversitesinde yabancı dil olarak İngilizce öğrenmekte olan 20 öğrenciden oluşmaktadır. Aynı erişilebilir ana kitleden yine aynı oranda ikinci bir grup da kontrol grubu olarak rastgele seçilmiştir. Tüm katılımcılar, kelime dağarcıklarının boyutunu ölçmek maksatlı birer ön sınav ve ardıl sınava tabi tutulmuşlardır. Bulgular, Avrupa kökenli bir temelden gelmeyen ve anadili İngilizce olmayan lisans öğrencilerinin ortalama dağarcığına kıyasla uygulama grubunun kelime dağarcığında kayda değer bir artışa işaret etmektedir.

1. Introduction

Vocabulary competence has long been one of the highly disputed issues in cognitive psychology. Several theories have been suggested on how human brain accesses, stores and manipulates lexical data. In fact, these three processes seem not to be independent but interactive since one may trigger the others. When the issue is learning the lexicon of a foreign language, awareness towards the nature of the steps in this triangular process comes into prominence. This type of competence is often assumed to be independent of grammatical competence. Pinker's (1999) approach reveals very basic but logical facets of human cognitive system as he benefits from the difference between the way how irregular verbs are restored in adult human mind contrary to the rule-based nature of regular verbs. In English, there are 180 irregular verbs that form their past tense in idiosyncratic ways. The only common grounds of these verbs are their being either mono-syllable or two-syllable verbs in which the first syllable functions as a prefix. Knowing these facts, an adult human brain first recalls the knowledge in mental dictionary which is related to the irregular verbs and then heads for the rules of the regular verbs, which human babies often fail to do since they have not been exposed to these forms.

Now that the existence of a mental lexicon is evident, the question on how this structure categorises input is another issue to be handled, for which the schema theory provides a reasonable perspective. That is to say, to interpret a particular situation in terms of a schema is to match the elements in the situation with the generic characterizations in the schematic knowledge structure (Anderson et al., 1978, p. 434). As our mental cognitive system is exposed to new information, it aims to relate this new information to an already existing knowledge by placing it into the relevant slots of the schemata. Anderson et al. (1978) claimed that this very same schemata provides 'ideational scaffolding' for text information on reading activities (p. 12). In a further study (Anderson et al., 1987, p. 266), a correlation between having a large-scale, long-term vocabulary growth and the acquisition of new schemata or restructuring existing ones was indicated. Furthermore, providing opportunities to enhance students' repertoire through new schemas is attributed to be of high importance. From this point of view, the constituents of such schemata in terms of vocabulary growth are of vital importance while considering that a word should not be regarded as an isolated and autonomous means of language (Altay & Dikilitaş, 2016, p. 111). In other words, there should be some sort of relations between a certain vocabulary item as a new knowledge and other items to share the same schema in different slots so that they can interact through lexical semantic relations.

Lexical semantic relations have a variety of types and can be categorized under 'has-a' relations and 'is-a' relations, though there is not only one specific taxonomy in the literature. The former (has-a relations) category serves for the relation of part and whole. Meronymy is the one which is based on part to whole. Meronyms can be either 'necessary' or 'optional' parts (Lyons, 1977). Holonymy is the converse relation of meronymy (Murphy, 2006) as holonym is a holistic unit which consists of meronyms. The latter category (is-a relations) bears a rich number of relation types when compared to the 'has-a' relation. Two of these are 'hyperonymy' and 'hyponymy' which stand for the super-subordinate relation (Fellbaum, 2005). In other words, if X is a hyponym of Y, then the extension of X is a subset of the extension of Y. Thus, we can say that hyponymy is a relation of inclusion whose converse is hyperonymy (Murphy, 2006). The third one, 'troponymy' is similar to hyponymy in that it relates only verb synset pairs in a way to expresses a particular manner of the other (Fellbaum, 2002).

Some words carry multiple meanings in a way to cause lexical ambiguity due to such relations as ‘polysemy’ and ‘homonymy’, which are often mistaken for each other. According to Murphy (2006), meanings of words extend or shift so that a single lexical item has several distinct senses in polysemy. While the lexical items have systematic polysemy relation if they are of a particular semantic class such as ‘glass’ and ‘cup’ as a container to drink, it is called non-systematic when their relation is limited with having two related senses but not part of a larger pattern as in ‘a person’s leg’ or ‘the leg of trousers’. There are usually some sensible semantic or pragmatic relations of polysemes. Conversely, homonyms are coincidental forms sharing the same phonological or written forms. That is, homophones are two distinct words pronounced in the same way, whereas homographs are written without any difference.

A further example of is-a relation can be regarded as ‘metonymy’. Metonyms are usually compared with metaphors due to their being figures of language; however, they are evidently different forms. Metaphors are based on analogy, whereas metonyms can stand alone in lexicon with certain sense relations (Nerlich, 2006). For that reason, metonyms have potential to have its place among the lexical semantic relations. Inevitably, metonyms trigger the formation and use of homonyms as well.

Among all the other relations, ‘synonymy’ and ‘antonymy’ are probably the most distinguished two on which not only lexicographers, but also learners and teachers focus intensively. A synonym can be defined as ‘a word which has the same, or nearly the same, meaning as another word’ and an antonym ‘a word which is opposite in meaning to another word’ (Richards & Schmidt, 2002). Still, another controversy rises regarding these relations, basically towards how inclusive they are in their formation. Fellbaum (2002) regards synonyms as ‘words that denote the same concept and are interchangeable in many contexts’. From this point of view, certain hyponyms may also function as synonyms. There has been some opposition to this approach claiming that synonyms are only ‘identical semantic representations’, yet Murphy (2006) believes that synonyms are derived via a pragmatic principle ‘relation by contrast’. Consequently, there are several subtitles under this umbrella term as direct synonymy and full synonymy (Fellbaum, 2002) and close synonymy Kayaoğlu (2013). Such an ambiguity is true for antonymy as well because whether the terminology should be limited to direct antonyms or indirect antonyms is a matter of concern. In brief, some researchers emphasize contrasting gradable predicates as antonyms, while any lexical pairs that constitute semantic opposites are regarded so by many others (Murphy, 2006).

Based on the cognitive findings stated previously, lexical semantic relations are of high importance for learners’ schemata in terms of being basic lexical constituents necessary for a large-scale and long-term vocabulary growth. However, the taxonomy to name and group these relations seems to be conflicting in many occasions which may cause lexicographers some obstacles. The flexible nature of the context make these relations continue to offer only vague descriptions (Storjohann, 2010, p. 9). Considering a great deal of dictionary users are foreign language learners, all these linguistic ambiguities and conflicts underlie further problems in language education by making things even more difficult rather than facilitating the learning process.

After all, semantic mapping may offer panacea despite the rare usage of it in language classes (Schmitt, 1997). Thus, the fundamental point to be concentrated should be on how to use it. From a pedagogical view point, many EFL teachers in Turkey believe that as the first step, making learners focus on new vocabulary by internalizing it is required for successful language learning (Arikan, 2011, p. 5). Hence, the aim of this current study is to raise

language learners' awareness to the lexical semantic relations through mapping them by using their dictionaries in a way to internalize these items by using their own conceptualizations of the wor(l)d.

2. Methodology

2.1. Sampling

The accessible population in this study were L2 learners of English studying at a state university in Turkey. The medium language of instruction in the Faculty of Engineering of the university is English and the students who cannot pass the English proficiency exam at the beginning of the first semester should attend a mandatory preparatory language course for two semesters before taking their departmental courses. Students are placed into three levels in accordance with their exam results as A1, A2 and B1 constructed by considering the Common European Framework of Reference. As the courses continue, those who pass module exams continue with the next level. For this reason, an A1 group at the beginning of the academic year starts the second semester in A2 level. The sample group of 20 L2 learners of English was selected from this level for the treatment which was due to be conducted throughout the second semester. A second group from the same level and of the same population was randomly chosen as the control group.

2.2. Data Collection Tool

Nation's (2012) Vocabulary Size Test was used to measure the vocabulary known by the two participant groups. This test includes questions each with four options, and a short but practical stem sentence including a lexical item. Test-takers are expected to relate this item to the correct option. The test has a number of variations but 20,000 words level was determined to be used as it has two versions. Therefore, it would be better to use two different tests with a tested similarity in terms of its style. Version A was used as the pre-test and Version B as the post-test. Rasch reliability measures were around .96 for this test (Nation, 2012). The test includes 100 questions and each correct choice provides 200 points. The total score in the end indicates an approximate number of the vocabulary size of a test-taker.

2.3. Experimental Design

The process followed in this research consists of three stages. The pre-test was answered by both groups at the very beginning of the second semester. Since the learners were newcomers to the school and were not familiar with the system, they only followed the institutional curriculum in the first semester. Meanwhile, they were being exposed to certain vocabulary learning strategies.

Once the pre-test results revealed that both groups shared similar vocabulary sizes, the pilot study started with the treatment group. The students were introduced with the lexical semantic relations. While doing this, they were not only provided verbal and written definition of the terms, but also examples from their everyday environment. However, that would not be enough as this study seeks a feasible alternative to use these theoretical concepts in practice; they were also provided a semantic mapping template in which the lexical semantic items could be stratified. Therefore, a hybrid vocabulary learning strategy was available to enhance the practicality of lexical semantic relations in their learning. A copy of this template was handed out to each student in the treatment group and each template was to be used as a schema for only one new lexical item. The schema was also suitable for the analysis of different sense relations.

The students were requested to carry out this paper-based study outside the classroom using the word list of the new vocabulary of their course book and this list was preloaded to the website of the school. They were urged not to use any external resources for the classification of the relations as it was going to be done in the classroom at the end of each coursebook unit. When a unit was over, the students were requested to contribute with their individual study data. That is to say, the data in their personal templates were collected. The next step was searching other possible relations using web-based resources such as WordNet®. As it is widely known, it is a project of semantic synsets which is used not only for the studies of human languages but also for artificial language. All these data were collected in WebspirationPro®, online software to map ideas and concepts using visual graphics. The logic behind using such software was to make their collaborative database eligible for the learners whenever and wherever they want. Moreover, each learner had an individual learner dictionary of these templates at the end of the semester.

After applying this practice for 15 units, the students took the post-test. As the lexical items in the tests did not include the items studied during the treatment procedure, any positive difference of the treatment group from the control group would be regarded as the indication of their significant awareness towards lexical semantic relations.

3. Findings

3.1. The Vocabulary Size Pre-test

The treatment group and the control group belonged to the same level in their departments and their pre-test results should normally show similarities. If this hypothesis was true, then it could be said that the vocabulary known by the members of both groups had to be parallel and the results would be suitable for further comparisons after the treatment. The Shapiro-Wilk Test of Normality results of pre-test are given in Table 1 below.

Table 1
Test of Normality of different test-taker groups for the vocabulary size pre-test

		Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Group	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test Scores	Target L2	,160	20	,193	,946	20	,311
	Other L2	,105	20	,200(*)	,975	20	,849

As seen in Table 1, the students who were expected to compose the treatment group and the students of the control group were normally distributed ($p \geq ,05$). Additionally, to see if they were precisely distributed, measures of Skewness and Kurtosis were investigated. Table 2 shows these distributions.

Table 2
Skewness and Kurtosis results of different test-taker groups for the vocabulary size pre-test

	Group	Measures	Statistics
Pre-test Scores	Target L2	Skewness	,520
		Kurtosis	-,252
	Other L2	Skewness	-,341
		Kurtosis	-,262

It is indicated in Table 2 that the distribution in each group was reasonable. The data seems to be appropriate to conduct Independent Samples t-Test. Levene's Test shows the results of the variance analysis in Table 3.

Table 3
Levene's Test results for the equality of the student grades in the vocabulary size pre-test

		Levene's Test for Equality Variences	
		F	Sig.
Pre-test Scores	Equal variences assumed	,125	,725

Levene's Test result depicts a normal distribution among students' grades ($p \geq ,05$). Since all three types of statistics above indicated an accurate distribution between the variables, it was possible to apply Independent Samples t-Test to see whether there was a significant difference between the correct responds of the students from both test-taker groups to the Vocabulary Size Pre-test. Table 4 shows the results of the Independent Samples t-Test.

Table 4
Independent Samples t-Test results related to the correct responds from the vocabulary size pre-test

Group	N	Mean	Sd	t	df	P
Target L2	20	5380,000	797,100	-,514	38	,610
Other L2	20	5510,000	801,249			

It is evident in Table 4 that there was no significant difference between the pre-test scores of the test-taker groups ($t_{38} = -,514$, $p \geq ,05$). A minimal difference between the mean scores did not seem to cause inconvenience, hence, the vocabulary sizes of the treatment group and the control group were accepted to be close.

3.2. The Vocabulary Size Post-test

Whether the treatment had any positive influence over the vocabulary size, which consists of the words known rather than the words learned, could be measured through the comparison of the pre-test results given above and the post-test results given hereafter. Again, Table 5 includes the Shapiro-Wilk Test of Normality results of the post-test.

Table 5
Test of Normality of different test-taker groups for the vocabulary size post-test

		Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Group	Statistic	df	Sig.	Statistic	df	Sig.
Post-test Scores	Target L2	,129	20	,200(*)	,960	20	,553
	Other L2	,161	20	,188	,957	20	,480

The Shapiro-Wilk results presented in Table 5 highlights the normality of the participant groups of the post-test ($p \geq ,05$). As in the pre-test analysis, Skewness and Kurtosis descriptive results are intended to visualize the normality of the distribution in each participant group. The results are as in Table 6.

Table 6
Skewness and Kurtosis results of different test-taker groups for the vocabulary size post-test

	Group	Measures	Statistics
Post-test Scores	Target L2	Skewness	,494
		Kurtosis	-,217
	Other L2	Skewness	,637
		Kurtosis	,613

It is seen in Table 6 that the distribution was quite average for each group in the post-test as well. It can be said that the post-test scores of the control group stood for the greatest variation of the Vocabulary Size Tests. Nonetheless, Levene's Test in Table 7 indicated whether this variation threatened the equality of the variances.

Table 7
Levene's Test results for the equality of the student grades in the vocabulary size post-test

		Levene's Test for Equality Variences	
		F	Sig.
Post-test Scores	Equal variences assumed	1,597	,214

The Levene's Test result revealed the equality of the student scores obtained from the post-test ($p \geq ,05$). Therefore, the groups were suitable to be compared using Independent Samples t-Test again. Table 8 includes the data of this comparison.

Table 8
Independent Samples t-Test results related to the correct responds from the vocabulary size post-test

Group	N	Mean	Sd	t	df	P
Target L2	20	8910,000	1166,596	9,067	38	,000
Other L2	20	5910,000	910,118			

A significant difference between the vocabulary sizes of the treatment group and the control group can be inferred from Table 8 (t_{38} = 9,607, p ≤, 05). The mean scores also indicate a huge gap between the two groups, which stands for an average of 15 more correct responds out of 100 questions in the post-test. Such a gap should mean a considerable outcome of the treatment.

3.3. A Comparison of the Vocabulary Size Pre-test and Post-test

A final statistical remark worth mentioning is the comparison of the Vocabulary Size Test conducted as the pre-test and its post-test counterpart. Such a comparison may indicate a compact approach for the influence of the treatment within the treatment group as well as it may imply further about the vocabulary education in EFL context through the results of the control group.

The first comparison in this sense is to see if the control group had any significant difference between the pre-test and the post-test. Therefore, the data will be obtained through Paired Samples t-Test. Table 9 shows the Shapiro-Wilk results related to this participant group before this comparison.

Table 9
Test of Normality for the comparison of vocabulary size pre-test and post-test from the control group

	Kolmogorov-Smirnov			Shapiro-Wilk		
Difference	Statistics	df	Sig.	Statistics	df	Sig.
	,138	20	,200*	,978	20	,899

It is seen in Table 9 that the pre-test and post-test results of the control group are normally distributed (p ≥ ,05). However, Skewness and Kurtosis results will depict the shape of this distribution better. Table 10 is towards these analyses.

Table 10
Skewness and Kurtosis results for the comparison of vocabulary size pre-test and post-test from the control group

	Measures	Statistics
Test Scores	Skewness	,051
	Kurtosis	-,548

It is indicated in Table 10 that the distribution is reasonable. The data seems to be appropriate to conduct further analysis. As both of the primary analyses seem to be relevant for the

comparison, the next step is to see if there is a significant difference between the vocabulary sizes of this control group at the time of pre-test and post-test. The results of the comparison are stated in Table 11.

Table 11
Paired Samples t-Test results related to the comparison of the vocabulary size pre-test and post-test from the control group

Test	N	Mean	Sd	t	df	P
Pre-test	20	5525,000	782,623	-1,430	19	,169
Post-test	20	5910,000	910,118			

Based on the data given in Table 11, it can be said that there is not a significant difference between the vocabulary sizes of the control group at the time of the pre-test and post-test ($t_{19} = -1{,}430$, $p \geq ,05$). On the other hand, the direction of the minor change in the mean scores is towards positive; that is to say, there is an increase in the correct responds to the post-test. However, this direction is limited with only 2 correct answers than in the pre-test as the difference is approximately 400 points.

On the other hand, it was previously pointed out that the treatment group had a relatively higher mean score in the post-test session. However, another Paired Samples t-Test is fundamental to assure the significance, if it is, of the case in the treatment group. The regular process in the other analyses is true in this very last analysis, too; therefore, Table 12 is towards the Shapiro-Wilk Test of Normality.

Table 12
Test of Normality for the comparison of vocabulary size pre-test and post-test from the treatment group

	Kolmogorov-Smirnov			Shapiro-Wilk		
Difference	Statistics	df	Sig.	Statistics	df	Sig.
	,127	20	,200*	,967	20	,688

As given in Table 12, pre-test and the post-test scores of the treatment group are normally distributed ($p \geq ,05$). To see how precisely this distribution has taken place, Skewness and Kurtosis descriptive analyses should be checked. The results of these analyses are given in Table 13 below.

Table 13
Skewness and Kurtosis results for the comparison of vocabulary size pre-test and post-test from the treatment group

	Measures	Statistics
Test Scores	Skewness	,192
	Kurtosis	-,411

Table 13 reveals that the distribution of the pre-test and post-test scores is undoubtedly accurate. Therefore, there is no obstacle for the comparison of the test scores using Paired Samples t-Test. Table 14 represents the data attained through it.

Table 14
Paired Samples t-Test Results related to the comparison of the vocabulary size pre-test and post-test from the treatment group

Test	N	Mean	Sd	t	df	P
Pre-test	20	5380,000	797,100	-10,573	19	,000
Post-test	20	8910,000	1166,596			

In accordance with the statistics provided in Table 14, it is clear that there is a significant difference between the pre-test scores and the post-test scores of the treatment group ($t19 = -10{,}5730$, $p \leq ,05$). Moreover, it is understood that the degree of this difference is around 17 correct answers provided by the treatment group in the post-test as each correct question means 200 points in Nation's 20,000 level Vocabulary Size Test, which is 100 questions in total.

4. Discussion and Conclusions

Lexical semantic relations seem to be undervalued in the field of foreign language education. The underlying factors for their being so may be their rather theoretical nature as well ambiguous in many cases. On the other hand, they represent a significant means of acquiring new words necessary for a broader conceptual repertoire in mental dictionary.

Lexicographers usually limit their focus on synonymy and antonymy, whereas there are further relations not less vital then these two for L2 learners. How to implement them into foreign language education should be the focal question before speculating its impact. Therefore, tools to activate them are as important as using them. Semantic maps may be the panacea to stand up for the practical side of the relations. Those maps are among the rarest frequently used vocabulary learning strategies in language classrooms (Schmitt, 1997) and are usually regarded as third party strategies to enrich previous strategies just like polish after paint. On the other hand, mapping of lexical semantic relations can provide learner awareness to the nature, say 'habitat', of words as living beings.

It is clear in this study that a well-designed mapping of lexical semantic relations may provide more than other means of lexicography for the learners. The reason of this is not only because it is learners' own product, but also they view this very habitat in a broader perspective. However, learners should not be left alone at all. The strategy had better be facilitated by teacher's monitoring as well as extensive supplementary materials. Most of the available resources in this sense are frequently used databases by lexicographers indeed. For this reason, guiding learners to these databases is another supportive idea for the welfare of such implementations. A last but not least point to be mentioned is that learners see a concrete harvest of their studies in addition to numeric exam grades, which may stir their motivation.

References

Altay, M., & Dikilitaş, K. (2016). Teaching vocabulary. In E. Solak (Ed.), *Teaching Language Skills for Prospective English Teachers*, pp. 107-136. Ankara: Pelikan.

Anderson, R. C., Spiro, R. J., & Anderson, M. C. (1978). Schemata as scaffolding for the representation of information in connected discourse. *American Educational Research Journal, 15*(3), 433-440.

Arikan, A. (2011). A small-scale study of primary school English language teachers' classroom activities and problems. *International Conference on New Trends in Education and their Implications,* Antalya, Turkey.

Arikan, A. (2011). *A small-scale study of primary school English language teachers' classroom activities and problems*. 2nd International Conference on New Trends in Education and Their Implications (ICONTE 2011), Antalya, Turkey.

Fellbaum, C. (2002). On the semantics of troponymy. In R. Green, S. Myang, & C. Bean (Eds.), *Relations,* pp. 23-34. Dordrecht: Kluwer.

Fellbaum, C. (2005). WordNet: A lexical database for English. Retrieved 2014, from Princeton University: http://wordnet.princeton.edu/

Gouin, F. (1892). *The art of teaching and studying languages*. New York: George Philip & Son.

Kayaoğlu, N. M. (2013). The use of corpus for close synonyms. *The Journal of Language and Linguistic Studies, 9*(1), 128-144.

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

Lyons, J. (1977). *Semantics*. New York: Cambridge University Press.

Murphy, M. L. (2006). Antonymy and incompatibility. In *Encyclopaedia of Language and Linguistics* (p. 314). Sussex: Elsevier.

Murphy, M. L. (2006). Hyponymy and hyperonymy. In *Encyclopaedia of Language and Linguistics* (p. 446). Sussex: Elsevier.

Murphy, M. L. (2006). Meronymy. In *Encyclopaedia of Language and Linguistics* (p. 15). Sussex: Elsevier Ltd.

Murphy, M. L. (2006). Synonymy. In *Encyclopaedia of Language and Linguistics* (p. 376). Sussex: Elsevier.

Murphy, M. L., & Koskela, A. (2006). Polysemy and homonymy. In *Encyclopaedia of Language and Linguist*ics (p. 742). Sussex: Elsevier.

Nation, P. (2012). The vocabulary size test. Retrieved from http://www.victoria.ac.nz/lals/about/staff/paul-nation#vocab-tests

Nerlich, B. (2006). Metonymy. In *Encyclopaedia of Language and Linguistics* (p. 108). Nottingham: Elsevier.

Pinker, S. (1999). *Words and rules*. New York: Harper Collins.

Nagy, W. E., Anderson, R. C., & Herman, P. A. (1987). Learning word meanings from context during normal reading. *American Educational Research Journal, 24*(2), 237-270.

Richards, J. C., & Schmidt, R. (2002). *Longman dictionary of language teaching and applied linguistics*. Norfolk: Pearson.

Schmitt N. (1997). Vocabulary learning strategies. In Schmitt, N., & McCarthy, M. (Eds.), *Vocabulary: Description, Acquisition and Pedagogy*, pp. 197-227. Cambridge: Cambridge University Press.

Storjohann, P. (2010). *Lexical-semantic relations: Theoretical and practical perspectives*. Amsterdam: John Benjamins Publishing Company.