

The Effect of Teaching Collocations on EFL Learners' Awareness of the Affective Dimensions of Deep Vocabulary Knowledge

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Abstract

This study focused on the effect of teaching collocations on the awareness of two affective dimensions, evaluation and potency dimensions, of deep vocabulary knowledge as well as the general vocabulary knowledge of EFL students. Sixty intermediate EFL female adult learners participated in this study; they were chosen among 90 students through the PET and a general vocabulary knowledge test. They were thus randomly divided into two groups, experimental and control, each consisting of 30 students. As for the treatment, modifiers describing people's characteristics were taught with their collocations to the experimental group, whereas these words without their collocations were taught to the control group. At the end, students took a vocabulary achievement test and a test of awareness of evaluation and potency dimensions of deep vocabulary knowledge. A t-test was run to analyze the data from the vocabulary achievement test. Results showed that teaching collocation has great influence on the students' general vocabulary knowledge. To see if the independent variable had significant effects on awareness of evaluation and potency dimensions of deep vocabulary knowledge, a MANOVA was run revealing that teaching collocations significantly improved learners' awareness of the two dimensions.

Keywords: deep vocabulary knowledge, collocations, evaluative dimension, potency dimension

Introduction

Vocabulary is an inseparable part of any language learning process. It would be impossible to learn a language without vocabulary. The important role this

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component plays has been emphasized in all the different methods of language teaching. Rivers (1981) states, "Vocabulary cannot be taught. It can be presented, explained, included in all kinds of activities, but it must be learned by individuals" (p. 28). She further states that, "As language teachers, we must arouse interest in words, a certain excitement in personal development in this area" (p. 29). She also suggests that language teachers must help their students by giving them ideas on how to learn vocabulary and some guidance on what to learn.

Vocabulary as a major component of language learning has been the object of numerous studies each of which has its own contribution to the field. Laufer (1997) states that vocabulary learning is at the heart of language learning and language use. In fact, it is this very vocabulary learning that makes the essence of any language. Without vocabularies, speakers cannot convey meaning and communicate with each other in any particular language.

Collocations

As there is little controversy over the importance of teaching vocabulary, the general debate focuses on the application of more efficient methods, techniques, and devices for the teaching of new lexical items to foreign language students. One way to add new vocabularies to one's existing vocabulary is learning collocation.

The concept of "chunking" in collocations illustrates the way in which we acquire the lexical component of our native language in prefabricated phrases (Nattinger & James, 1992) rather than through individual words. Learners of a second language need to 'rediscover' this facility if they are to cope with collocation and its effects. If learners are introduced to this feature of vocabulary early on, they will be gradually more readily able to accept and recognize it than if it is left to later stages of their development (Corrigan, 2001).

Moreover, knowing a word is not an all-or-none proposition; instead, people have only partial knowledge of many words. Advanced vocabulary knowledge involves understanding the effect or attitude which is conveyed by different word choices and their combinations, i.e. collocations (Corrigan, 2001).

Evaluative and Potency Dimensions

There is evidence from large scale corpora that the evaluative and, to a lesser extent, the potency dimensions, identified by Osgood, May, and Miron (1975), are important in the overall structure of semantic space for identifying the tone of a text. Native speakers use these dimensions in differentiating among words within the interpersonal domain when choosing vocabularies.

Cognitive linguists claim that semantic structure is encyclopedic, with lexical concepts accepting networks of knowledge that are related to them. Cognitive psychologists have attempted to model the organization of these networks. Although, their exact structure remains under investigation, all models agree that "features or properties of a concept are a critical part of that concept's semantic structure" (Hutchinson, 2003, p. 786).

Directly relevant to the issue of how modifiers are interrelated in vocabulary networks via evaluation and potency, Kamps and Marx (2002) examined the Word Net Lexical database (Fellbaum 1998; Miller 2005) and computed measures of semantic distance between all adjectives in the database and the word *good* and *bad* (evaluation) or *strong* and *weak* (potency). They found a cluster of about 5400 words (25% of the adjectives in the database) carrying affective meaning involving evaluation and potency, attempting to the importance of two of Osgood's meaning dimensions.

In sum, the literature suggests that when vocabulary items are read in context, features common to the words and their surrounding linguistic context are stored in memory. Words activate other words that have overlapping features, both within and across classes.

Deep Vocabulary Knowledge

Corrigan (2007) showed that native English speakers systematically use the evaluation and potency of words to constrain their vocabulary choices. Results suggested that deep vocabulary knowledge includes subtle, affective aspects of word meaning.

As teachers, the researchers have encountered many students who have considerable vocabulary knowledge. However, they fail to use them correctly in different domains. Learners, mainly the upper intermediate and advanced ones, are often able to produce grammatically correct sentences,

but they produce very plain utterances which are unable to convey different emotional loads or to express shades of intensity or connotation.

It seems that this problem is due to lack of the depth of vocabulary knowledge and that the students' criterion in choosing words in context is surface structure and they fail to address the depth of vocabulary knowledge. Iranian EFL learners' poor deep vocabulary knowledge is a matter of concern among those involved in education and their quest for finding suitable remedies is getting more and more intense. Thus, this study was conducted to see whether teaching collocation was an effective technique in increasing the affective dimensions of learners' deep vocabulary knowledge, especially evaluative and potency dimensions.

At the same time, there is no evidence to prove that Iranian learners of English pay attention to the affective dimensions of vocabulary knowledge in their vocabulary use as well. Therefore, the current study which is similar to Corrigan's (1997) study but in an EFL situation, examined the effect of teaching vocabularies in collocation on the affective dimensions of EFL learners' vocabulary knowledge. According to Osgood, May, and Miron (1975), deep vocabulary knowledge involves evaluation, potency, and activity of vocabularies. The effect of teaching collocation on increasing awareness of the evaluation and potency dimension of deep vocabulary knowledge was the focus of this study with the following three research questions formulated:

1. Does teaching vocabulary in collocations have any significant effect on Iranian EFL learners' overall vocabulary achievement?
2. Does teaching vocabulary in collocations have any significant effect on Iranian EFL learners' awareness of evaluative dimension of vocabulary?
3. Does teaching vocabulary in collocations have any significant effect on Iranian EFL learners' awareness of potency dimension of vocabulary?

Method

Participants

The participants of this study were 60 Iranian adult intermediate EFL learners selected from among 90 intermediate students based on their performance on the Preliminary English Test (PET) and a general vocabulary test to

assure their homogeneity. The 90 students were randomly chosen from all the students studying at the intermediate level of Kish Language School in Tehran. Then they were randomly divided into two groups of 30 students: one group as the control and the other as the experimental group. All the participants were female and had been studying English for about two years. The whole term took 20 sessions each one lasting 90 minutes.

Instrumentations

A sample PET was used to select 60 participants from 90 intermediate learners. The test had three sections including listening part (25 questions), reading part (35 questions) and five questions of fill-in-the-blanks for the writing part. Before the main administration, the test was piloted among 30 intermediate students who were not the main subjects of this study. Item facility and item discrimination indices were calculated.

Alongside the PET, a test of general vocabulary knowledge was constructed and used for homogenizing the participants. This test consisted of 40 multiple-choice items and the questions were made based on the vocabularies presented in the intermediate level books of 'New Interchange' and 'True to Life'. The vocabulary test was made based on the topics such as jobs, people, human characteristics and feelings, disasters, expressions, prepositions, and animals. The test was piloted among 30 intermediate students who were not the main subjects of this study. All the items were checked regarding their item facility and item discrimination. The average scores of students on the PET and the vocabulary test were used to homogenize the selected participants.

Moreover, a test of vocabulary achievement was used as the posttest for determining whether teaching vocabularies through collocation had any effect on the overall vocabulary achievement of students. This test had 40 multiple-choice items, and the vocabularies were chosen based on the topics similar to the topics of the test which had been used for homogenizing the participants. However, the items were totally different from the vocabulary test used for homogenization. This test was also piloted by administering it among another 30 intermediate students. All the items were checked regarding their item facility and item discrimination.

Finally, a test was designed to assess the participants' awareness of evaluative and potency dimensions of vocabulary knowledge. In this test, the students were given 20 sentences and for each they had to choose

adjectives from a list of 20 for names of people in the given sentences by paying attention to the verb. This test was used at the end of the term as another posttest. For preparing this test, 20 adjectives that describe human characteristics and 20 verbs that are used for the interpersonal domain were taken from the Corrigan tables of evaluation and potency (2002) which has the classification for positive/negative and potent/non-potent adjectives and verbs. Five verbs and adjectives were potent and positive such as *confident*, five were potent and negative such as *selfish*, five were non-potent and positive such as *polite*, and five were non-potent and negative such as *dishonest*. All the verbs and adjectives were the ones which are normally used in interpersonal interaction. The verbs were paired with two proper names to form the sentence such as 'John hit Ted'. Students had to choose one of the adjectives that they thought would be the best descriptor for each of the nouns in the sentence. The test was scored twice, once to measure the evaluation dimension of students' vocabulary knowledge and once to measure the potency dimension of their vocabulary knowledge.

Procedure

Prior to the experiment, the two vocabulary tests, the PET, and the test of awareness of affective dimensions of vocabulary knowledge were piloted on 30 intermediate students who were not the main subjects of this study.

For choosing and homogenizing 60 participants for this experiment, the PET and the test of general vocabulary knowledge were given to 90 intermediate Iranian EFL learners. Their average scores in these two tests were used for homogenizing them, and those who achieved scores between one standard deviation above and below the mean were chosen.

Subsequently, the 60 participants were randomly divided into two groups of 30 students. One group participated as the control group for whom the adjectives were taught without their collocations. In the experimental group, however, these adjectives were taught with their collocations. In each session, one adjective that described human characteristics was presented. The students had to guess the words that may come with this adjective. The teacher provided feedback on the correctness of their guesses and the students tried to practice the adjective with its collocations in different sentences. For instance, in teaching the adjective "courageous", the students were first exposed to the word. Then, they guessed the words that had a weak collocation (Hills, 1999) with this adjective such as "seem" or "incredibly". Next, they made different sentences with these collocations. The

students in the control group, however, were taught these vocabulary items through the teacher's explanation of their meanings and their using these items in sentences.

At the end of the term, the students took two tests as posttests: a test of vocabulary achievement to compare the control and experimental groups' performances on it, and a test for determining the students' awareness of evaluation and potency dimensions of vocabulary knowledge which was scored twice for the two dimensions. First, it was scored paying attention to whether students chose potent adjectives for nouns in the sentences in which verbs were potent, and whether students chose the non-potent adjective for the nouns in the sentences with non-potent verbs. In case there was congruence between the potency of the verb and the potency of the adjectives, students received one score and the total score out of 34 (the number of the sentences on the test) was calculated.

In the next stage, the same test was scored based on the evaluation of verbs and adjectives to see whether students had chosen positive adjectives for the nouns of the sentences in which verbs were positive and negative adjectives for the nouns in sentences in which the verbs were negative. Any congruence between adjectives and verbs regarding their evaluation received one mark and the total score was calculated out of 20.

Then, a Multivariate Analysis of Variance (MANOVA) was run to compare the control and experimental groups' awareness of the potency and evaluative dimensions of deep vocabulary knowledge, and to see if there were significant differences between them. The control and experimental groups' scores on the vocabulary achievement posttest was also compared statistically by means of a *t*-test to see whether there was a significant difference between their vocabulary knowledge after the treatment.

Results

Prior to discussing the results, it should be noted that the design of this research was experimental since the participants were selected from among 90 students by a pretest. Random sampling was carried out in choosing the 90 students. To initiate the experiment, 90 intermediate students took part in a PET and a general vocabulary test. Both were primarily piloted (as described earlier) with their reliability indices using the Cronbach alpha index being 0.98 and 0.9, respectively. Hence, both tests were used to homogenize

the participants required for this study and the average scores of students on the PET and the vocabulary test were used as the criterion for selection.

At the end of the instruction period, the students in both groups took part in a general vocabulary achievement test and a test for measuring awareness of evaluation and potency dimensions of deep vocabulary knowledge. First, both tests were piloted. The reliability of the vocabulary posttest was 0.97 again through the Cronbach alpha which is highly acceptable, thus reassuring the researchers that they could use this test for the final analysis. The results are shown in Table 1.

Table 1 – Descriptive statistics of the two groups on the vocabulary achievement posttest

	N	Mean	Std. Deviation	Std. Error Mean	Skewness	
					Statistic	Standard error
Exp	30	27.80	12.607	2.302	-1.247	.427
Cont	30	18.20	13.717	2.504	.025	.427

As table 1 indicates, while the scores of the control group represent normality of distribution ($0.025 / 0.427 = 0.05$ which falls within the acceptable range of ± 1.96), the experimental groups skewness ratio was 2.92, meaning that the distribution of the scores was skewed. Hence, a nonparametric test was used instead of the *t*-test. Tables 2 and 3 below show the results for this statistical procedure.

Table 2 – Ranks of the two groups on the vocabulary achievement posttest

Group	N	Mean	Sum of ranks
Experimental	30	37.03	1111.00
Control	30	23.97	719.00

Table 3 – Mann-Whitney test: test statistics

	Score
Mann-Whitney U	254.000
Wilcoxon W	719.000
Z	-2.906
Asymp. Sig. (2-tailed)	.004

According to Table 3, the results of the Mann-Whitney test indicated that at the 0.05 level of significance, there was a significant difference between the mean rank of the control group (23.97) and that of the experimental group (37.03) on the vocabulary posttest ($U = 254$, $N_1 = 30$, $N_2 = 30$, $p = 0.004 < 0.05$).

Accordingly, the research hypothesis stating that vocabulary teaching by collocations does not significantly affect vocabulary achievement was rejected. And since the experimental group outperformed the control group by obtaining a higher mean score, one may safely conclude that the treatment, i.e. teaching vocabulary by collocations, helped the learners' vocabulary achievement.

The next stage was to address the second and third research questions on the participants' dimensions of vocabulary knowledge through MANOVA. First, using the Cronbach alpha index, the researchers calculated the reliability of the test for investigating the evaluation dimension of vocabulary knowledge and that of the test for the potency dimension of vocabulary knowledge; these two indices were 0.91 and 0.94, respectively.

Next the normality of distributions of the scores was checked. Since the distributions were skewed, the researchers omitted the outliers and, as a result, the number of participants was reduced to 25 in the experimental group and 23 in the control group. Table 4 below depicts the descriptive statistics pertaining to the two groups' scores on the two dimensions of the vocabulary knowledge test after the omission of the outliers from the original distribution of scores.

Table 4 – Descriptive statistics of the two groups' scores on the dimensions of the vocabulary knowledge test

	N	Mean	Std. Deviation	Skewness	
				Statistic	Standard error
Evaluation					
Cont	23	10.13	3.09	-.234	.481
Exp	25	22.32	2.98	-.543	.464
Potency					
Cont	23	8.09	5.23	.33	.481
Exp	25	20.76	7.27	.452	.464

The distribution of scores came out to be normal (skewness ratios of 0.48 for the control group's evaluative dimension, 1.17 for the experimental group's evaluative dimension, 0.68 for the control group's potency dimension, and 0.97 for the experimental group's potency dimension which all fell within the acceptable range) after the omission of outliers.

The assumption of the homogeneity of variance was also met based on the p values of 0.892 and 0.05 reported in Table 5 below.

Table 5 – Test of Homogeneity of Variance

	Levene statistic	df1	df2	Sig.
CG. EVALU				
Based on mean	.019	1	46	.892
Based on median	.110	1	46	.742
Based on median & with adjusted df	.110	1	45.63	.742
Based on trimmed mean	.027	1	46	.869
CG. POTEN				
Based on mean	4.069	1	46	.050
Based on median	3.914	1	46	.054
Based on median & with adjusted df	3.914	1	43.83	.054
Based on trimmed mean	3.907	1	46	.054

The results of the MANOVA are reported in Table 6, which shows a significant effect of the independent variable (teaching collocation) on both dependent variables by virtue of the F value of 864.70, degree of freedom 2 and 45 and $p < 0.05$.

Table 6 – Multivariate Tests (MANOVA)

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Intercept								
Pillai's Trace	.975	864.70 ^b	2.00	45.00	.000	.975	1729.402	1.000
Wilks' Lambda	.025	864.70 ^b	2.00	45.00	.000	.975	1729.402	1.000
Hotelling's Trace	38.43	864.70 ^b	2.00	45.00	.000	.975	1729.402	1.000
Roy's Largest Root	38.43	864.70 ^b	2.00	45.00	.000	.975	1729.402	1.000
Group								
Pillai's Trace	.852	129.87 ^b	2.00	45.00	.000	.852	259.742	1.000
Wilks' Lambda	.148	129.87 ^b	2.00	45.00	.000	.852	259.742	1.000
Hotelling's Trace	5.772	129.87 ^b	2.00	45.00	.000	.852	259.742	1.000
Roy's Largest Root	5.772	129.87 ^b	2.00	45.00	.000	.852	259.742	1.000

a. computed using alpha = .05

b. exact statistic

c. design: intercept + group

Table 7 reports on the effect of the independent variable (collocation) on each of the dependent variables of the study (potency and evaluation).

Table 7 – Tests of between-subjects effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Corrected model	1923.93 ^b	1	1923.926	47.26	.000	.507	47.266	1.000
CG. POTEN	1779.93 ^c	1	1779.93	193.08	.000	.808	193.083	1.000
CG. EVALU								
Intercept	9968.43	1	9968.42	244.90	.000	.842	244.900	1.000
CG. POTEN	12614.43	1	12614.43	368.39	.000	.967	1368.390	1.000
CG. EVALU								
Group	1923.93	1	1923.92	47.26	.000	.507	47.266	1.000
CG. POTEN	1779.93	1	1779.93	193.08	.000	.808	193.083	1.000
CG. EVALU								
Error	1872.37	46	40.70					
CG. POTEN	424.05	46	9.218					
CG. EVALU								
Total	14151.00	48						
CG. POTEN	15239.00	48						
CG. EVALU								
Corrected Total	3796.31	47						
CG. POTEN	2203.98	47						
CG. EVALU								

a. computed using alpha = .05

b. R squared = .507 (adjusted R squared = .496)

c. R squared = .808 (adjusted R squared = .803)

As shown in Table 7 above, the independent variable of "group" had a significant effect on the dependent variable of "potency": $F_{(1,46)} = 47.266$, $p < 0.05$. It is also significant for the dependent variable of evaluation: $F_{(1,46)} = 193.083$, $p < 0.05$.

The following table shows the pair-wise comparison between the control and experimental groups' awareness of the potency and evaluative dimensions of deep vocabulary knowledge.

Table 8 – Pair-wise comparisons of control and experimental groups

Dependent variable	(I) group (J) group		Mean difference (I-J)	Std. error	sig ^a	95% confidence interval for difference	
						Lower bound	Upper bound
CG. POTEN	Control group	Experimental group	-12.673*	1.84	.000	-16.38	-8.96
	Experimental group	Control group	12.673*	1.84	.000	8.96	16.38
CG. EVALU	Control group	Experimental group	-12.190*	.87	.000	-13.95	-10.42
	Experimental group	Control group	12.190*	.87	.000	10.42	13.95

Based on estimated marginal means

*. The mean difference is significant at the .05 level

^a. Adjustment for multiple comparisons: Bonferroni

As illustrated in Table 8, there is a significant difference between the control and the experimental groups on the potency dimension of the dependent variable ($p < 0.05$) as well as on the evaluative dimension ($p < 0.05$).

The following profile plots show that the experimental group outperformed the control group on potency and evaluation dimensions.

Figure 1 – Estimated marginal means of potency

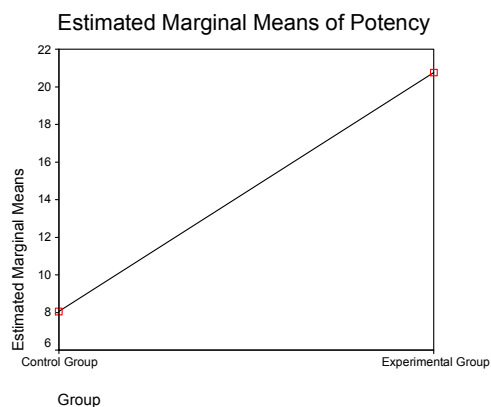
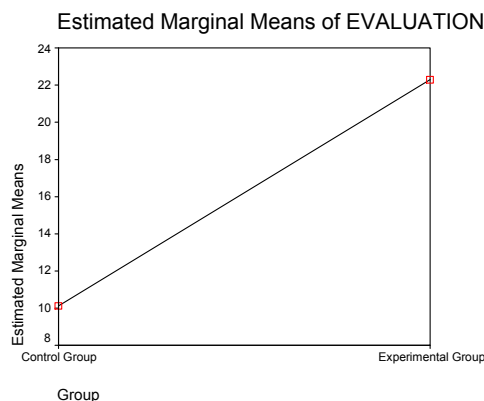


Figure 2 – Estimated marginal means of evaluation

Conclusion

The outcome of the posttest data analysis revealed that the subjects in the experimental group significantly outperformed the subjects in the control group. Therefore, the obvious conclusion is that the devised treatment, i.e. the application of teaching vocabularies in collocation has helped the participants to perform better than those being taught in the no-collocation manner in the vocabulary achievement test. Hence, we can conclude that if students are exposed to collocations, they can have better general vocabulary knowledge and an improved deep vocabulary awareness in terms of the evaluative and potency dimensions of the skill.

The findings of this study may be of benefit to EFL teachers and EFL teaching in general. Teachers can make use of teaching vocabularies in collocations as a teaching device in their classes. Using collocations may be beneficial in teaching vocabularies because they can create new contexts for the students and learning would be more interesting. When students receive vocabulary instruction in collocations, they can increase deeper knowledge of vocabulary which would help them to use the vocabularies in appropriate situations.

Teachers can utilize a proper type of input to improve the learners' deep vocabulary knowledge. Exposing the students to collocations will enhance learners' appropriate use of vocabularies. It can be pointed out that in this way, learning vocabularies can be more interesting and more authentic to

learners. Collocations can create a more preparatory pretext to achieve deeper knowledge of vocabularies. They can increase the amount of understanding and reduce the amount of difficulties in understanding abstract vocabularies.

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References

- Allen, V. (1983). *Techniques in teaching vocabulary*. Oxford: Oxford University Press.
- Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. In T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp. 77-117). Newark, DE: International Reading Association.
- Carter, R. (1988). *Vocabulary and language teaching*. London: Longman.
- Carter, R. (1987). *Vocabulary: Applied linguistic perspectives*. London: Allen & Unwin.
- Celce-Murcia, M. (1991). *Teaching English as a second or foreign language*. NY: Newbury house.
- Chall, J. S. (1987). Two vocabularies for reading: Recognition and meaning. In M. G. McKeown & M. E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 7-17). Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Cienka, B., Luka, P., & Smith, M. (Eds.) (2005). *Conceptual and discourse factors in linguistic structure*. Stanford, CA: CSLI.
- Corrigan, R. (2007). An experimental analysis of the affective dimension of deep vocabulary knowledge on inferring the of words in context. *Applied Linguistics*, 28(2), 211-240.
- Corrigan, R. (2001). Semantic influences on attributions of causality in interpersonal events. In A. Cienka, B. Luka, & M. Smith (Eds.), *Conceptual and discourse factors in linguistic structure* (pp. 77-89). Stanford, CA: CSLI.
- Fellbaum, C. (1998). *An Electronic lexical database*. London: The MIT Press.
- Garman, M. (1990). *Working with words: A guide to teaching and learning vocabulary*. Cambridge: Cambridge University Press.

- Hachinson, K. A. (2003). Is semantic priming due to association strength or feature overlap? A microanalysis review. *Psychonomic Bulletin 2nd Review*, 10, 785-813.
- Harley, B. (1996). Introduction to vocabulary learning and teaching in second language. *The Canadian Modern Language Review*, 53(1), 3-12.
- Hatch, E., & Brown, C. (1995). *Vocabulary, semantic and language education*. Cambridge: Cambridge University Press.
- Haycraft, J. (1978). *Teaching vocabulary: An introduction to language teaching*. London: Longman.
- Hedge, T. (2000). *Teaching and learning in the language classroom*. Oxford: Oxford University Press.
- Heise, D. (2002). Understanding social interaction with affect control theory. In J. Berger & M. Zelditch (Eds.): *New direction in contemporary sociological theory*. Lanham, MD: Rowman & Littlefield.
- Hill, J. (1999). Collocational competence. *English Teaching Professional*, 11, 3-6.
- Hirsh, D., & Nation, I. S. P. (1992). What vocabulary size is needed to read unsimplified texts for pleasure? *Reading in a Foreign Language*, 8, 689-696.
- Holly, F. M. (1973). A study of vocabulary learning in context: The effect of new-word density in German reading materials. *Foreign Language Annals*, 6, 339-696.
- Hu, M., & Nation, I. S. P. (2000). Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language*, 13(1), 403-430.
- Judd, E. L. (1978). Vocabulary teaching and TESOL: A need for a reevaluation of existing assumptions. *TESOL Quarterly*, 12, 71-76.
- Kamps, J., & Marx, M. (2002). Words with attitude. *TESOL Quarterly*, 16, 82-88.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the Input Hypothesis. *The Modern Language Journal*, 73, 440-464.
- Laufer, B. (1997). *The lexical plight in second language reading*. Cambridge: Cambridge University Press.
- Laufer, B. (1992). How much lexis is necessary for reading comprehension? In P. J. L. Arnaud & H. Bejoint (Eds.), *Vocabulary and applied linguistics* (pp. 126-132). London: McMillan.
- Miller, G. (2005). *Wordnet: A lexical database for the English language*. Princeton, NJ: Princeton University Press.
- Nation, I. S. P. (1983). Testing and teaching vocabulary. *Guidelines*, 5 (RELC Supplement, pp. 12-24).
- Nattinger, J., & James, R. (1992). *Lexical phrases and language teaching*. Oxford: Oxford University Press.
- Osgood, C., May, C., & Miron, M. (1975). *Cross-cultural universals of affective meaning*. Urbana, IL: University of Illinois Press.
- Oxford, R., & Crookall, D. (1990). Vocabulary learning: A critical analysis of techniques. *TESL Canada Journal*, 7(2), 9-30.
- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *Canadian Modern Language Review*, 58(2), 282-307.
- Read, J. (1993). The development of a new measure of L2 vocabulary knowledge. *Language Testing*, 10(3), 355-371.
- Rivers, W. M. (1981). *Foreign language skills*. Chicago: University of Chicago Press.

Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

Williams, B. (2002). Collocation with advanced levels. Retrieved on January 30, 2009 from: www.teachingenglish.org.uk/think/vocabulary/collocation_1.html.