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THE EFFECT OF TEACHING PREFIXES ON VOCABULARY LEARNING OF INTERMEDIATE EFL LEARNERS

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ABSTRACT

The present study is concerned with teaching the prefixes and its effect on vocabulary learning of Iranian intermediate EFL students. Vocabulary is a fundamental basis of every sentence in every language. Students' vocabulary knowledge develops through a variety of ways. One of the most popular strategies in vocabulary learning supported by many researchers is using affix knowledge. Therefore, to obtain a complete picture of vocabulary learning concerning using affix knowledge, it would be desirable to observe the students' performance in the light of their knowledge about prefixes. This study investigates the relationship between teaching prefixes and its effect on vocabulary knowledge of Iranian intermediate EFL learners. Based on this aim, 60 students at intermediate level of English participated in this study. They were randomly assigned to an experimental and a control group each comprising 30 participants. Before starting the treatment a pretest was administered to find out learners' prefix knowledge at the beginning of the study. The control group received the traditional instruction while the experimental group was instructed to use prefixes in vocabulary learning. On last step a posttest was administered to both groups. Analysis of the results of independent sample t-test and two-way ANCOVA showed that the experimental group outperformed the control group significantly in the posttest. It was concluded teaching prefixes had a positive effect on learners' vocabulary knowledge.

INTRODUCTION

The trends of linguistic theory play a role in the development of language pedagogy. The earlier dominance of Chomskyan School of linguistics partly accounts for the general neglect of vocabulary acquisition in favor of syntactic development. However, the fact that foreign language learners generally see vocabulary learning as their first priority and report that they encounter considerable difficulty in vocabulary learning is extensively recognized by language teachers and repeatedly pointed out in various learning contexts. The argument that learning strategies are teachable also helps to break the myth that some learners have an aptitude for languages and thus achieve high language proficiency without too many efforts. The main goal of this study is for students to confidently infer unknown words meaning during reading in any subject area. One way teachers can assist students in learning new words is by teaching them the meaning of common affixes. This knowledge is important because words that use affixes are used across many subjects, for example the prefix 'tri-' means three. In science the student may learn that a triangle has three sides. In history, student may come across the word triton in relation to Greek mythology. In art, a student could be asked to design a *tri-fold*.

MATERIALS AND METHODS

Examination of the best way to learn words has created a large body of research investigating how attention paid to the uses of affixal morphemes can improve overall growth in the effective vocabulary that a student has. Several important ideas have emerged from this discussion of the importance of prefix learning in language acquisition: the internal architecture of words; morphological knowledge; etymology strategy; vocabulary learning strategy and so on. One of the ways that students can develop their vocabulary is through knowledge of word building devices like affixes. The purpose of this study is to see the effects of systematic vocabulary teaching using prefixes on Iranian EFL learners, who have very little

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affix knowledge before the teaching. More precisely, this study is designed to find answer to this question that what is the effect of teaching prefixes on vocabulary learning of intermediate EFL learners? To find out a proper answer for this question the researcher used the following design.

Design of the Study

This study used an experimental design. Participants were selected via an OPT test from among a population of 100 students. They were assigned randomly to an experimental group and a control group in two classes. Both classes took place in the morning. Both classes were given a pretest of vocabulary on the same day. The amount of time allotted to the learning in both classes was the same. Students in experimental group were taught using the explicit direction instruction (teaching prefixes) as treatment, and students in control group were taught using traditional way of vocabulary teaching (using dictionary) and received no treatment. Lessons were delivered two times per week, for approximately 90 minutes per lesson. After one month a posttest of vocabulary was given to both the experimental and the control group.

Participants

Participants in this study included from two classes of English students, all in the intermediate level. They were selected via an OPT test as a homogeneity test and finally 60 students whose scores were one standard deviation above and one standard deviation below the mean were selected among 100 students who were studying in the first year of university. Each class had 30 students. They were randomly assigned to experimental and control group. The participants are both male and female university students, ranging from 20 to 27 years of age. Their sex was not considered a determining factor. They were Iranian native speaking. None of them has the experience of living in English speaking countries.

Materials

One instrument utilized before the treatment was an oxford placement test (OPT). It was originally intended to homogenize the research participants. 60 Iranian EFL learners with similar achievement levels in proficiency and vocabulary knowledge were selected. Then the subjects were given a pretest and posttest (see Appendices B and C) that were developed to test student vocabulary and decoding skills as they relate to prefixes. One group of questions tested student knowledge of the definitions, other questions tested students understanding of particular prefixes, identifying them and guess the meaning of them. The tests consist of 40 multiple choice questions. Although the questions were different, both the pretest and posttest were identical in structure, number of questions, and type of questions. The reliability of the test was calculated through Cronbach Alpha formula (r=0.84).

Procedure

Participants of this study were 60 EFL learners studying English as their major within the age range of 18 to 22 of both males and females (at Islamic Azad University of Tonekabon, Iran). Their language proficiency level was determined by the OPT test. Then they were randomly assigned to one control group and one experimental group, each including thirty students. They were given a pretest with twenty multiple choice items. There were four possible answers related to the prefix of each word and students had to guess the correct answers. Student who guessed the correct meaning of the word received one point. The control group memorized some new words every class period for one month (each class takes place for one and a half hours twice a week). Students in control group had to come up with their own examples of how they can use each word in sentences. They followed their normal educational program and they were taught new vocabularies through traditional way of vocabulary teaching using dictionary. The teacher translated each word in Persian without any other help. The experimental group received the treatment. They studied new words with the help of etymology. Students analyze the meaning of the prefixes of each word in the class. They used prefixes, broke down words, get the meaning, and combined them together. The designed pretest was administer to the two groups to elicit evidence in order to compare with the posttest results. After completing the treatment sessions a posttest was administered. The control group received the same materials and the amount of time allotted to the learning in both groups was the same. The posttest results were gathered and compared with those of pretest. The analysis of data was carried out through SPSS software.

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RESULTS AND DISCUSSION

One of the ways that students can develop their vocabulary is through knowledge of word building devices like affixes. Affixes in English include prefixes and suffixes. Using affix knowledge for vocabulary development is one of the most popular strategies supported by many researchers (Nation, 1990). There are a lot of ways to improve our knowledge of vocabulary and one of these ways can be having knowledge of prefixes which can help learners in learning unfamiliar words. The main goal of this study is for students to confidently infer unknown words meaning during reading in any subject area. Words are building blocks in a language. By learning the lexical items, we start to develop knowledge of the target language. Based on our experience of being a language learner, we seem to have no hesitation in recognizing the importance of vocabulary in L2 learning. The research question of this study concerns the effectiveness for L2 learners of memorizing new words through learning prefixes as opposed to through a word translation approach. When it comes to teaching vocabulary, teachers in Iran tend to use the word translation approach, which is focused on emphasizing spelling and meaning. The way in which the researcher considered to analyze the row data and find appropriate result mentioned in the following sections.

Methods of Analyzing Data

For analyzing data the researcher used of descriptive statistics and inferential statistics methods. In descriptive statistics, mean and standard deviation and in inferential statistics, analysis of covariance (ANCOVA) was used for comparing the results of pretest and posttest between control group and experimental group.

Data Analysis and Findings

The purpose of the pretest was to gauge if there was any significant difference between the levels of the two groups in the area of prefixes before treatment. The purpose of the posttest was to find out the difference in the students' levels after treatment, between the experimental group and the control group and whether there was a significant movement and progress in the level of experimental group after teaching prefixes.

The results of the two tests were analyzed through descriptive and inferential statistics methods. In another words, the scores of the tests were analyzed by using certain descriptive and inferential statistical techniques by using the SPSS program. In descriptive statistical analysis, the data is summarized and described numerically within a certain group of individuals. The criterion of Mean and Standard Deviation (SD) were used in carrying out the descriptive analysis of this research. The mean is the sum of all scores divided by the total number of items. It is the most commonly used and most widely applicable measure of the central tendency of distribution. The standard deviation is a measure of dispersion that gives information to the extent to which a set of scores is varied in relation to the mean. It is the positive square root of the variance and tries to find the variability of all scores around the mean. The larger the standard deviation, the more is the variability from the central point in the distribution indicating a heterogeneous group.

The smaller the standard deviation, the closer is the distribution to the central point indicating a homogeneous group. In this study twenty multiple choice questions were given to the participants (both experimental and control group). The participants were asked to guess the meaning of the words. The mean and standard deviation of their scores is indicated in table below:

Table 1: Descriptive analysis of the pretest of control and experimental group

Groups	N	Mean	Std.
Experimental	30	9.07	1.574
Control	30	9.43	1.455

The above table displays that there are no essential differences between the mean of the experimental group 9.07 (SD=1.574) and the mean of control group 9.43 (SD=1.455) in the pretest. Therefore, this proved that the levels of the two groups were almost identical.

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Table 2: Descriptive analysis of the posttest of experimental and control group

Groups	N	Mean	Std.
Experimental	30	16.73	1.311
Control	30	9.83	1.440

Table 2 shows the mean scores of the experimental and control group after treatment (one month). The experimental group had a mean of 16.73 (SD=1.311) whereas the control group had a mean of 9.83 (SD=1.440). Therefore, results of the above table proved that the mean of the experimental group was higher than the mean of the control group. That means the experimental group which was taught prefixes performed better than the control group. The mean of experimental group improved from pretest to posttest but there was not a significant change in mean of control group from pretest to posttest. So it was concluded that teaching prefixes improves learners' vocabulary learning.

Inferential Analysis of the Data
Two-way between groups analysis of covariance (ANCOVA) was conducted to see whether there was any significant difference between the experimental group and control group in the term of their posttest scores or not. Preliminary analysis were concluded to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variance, homogeneity of regression slope, and reliable measurement of the covariate (participants' pretest scores of the two groups experimental and control groups were used as the covariate in this analysis).
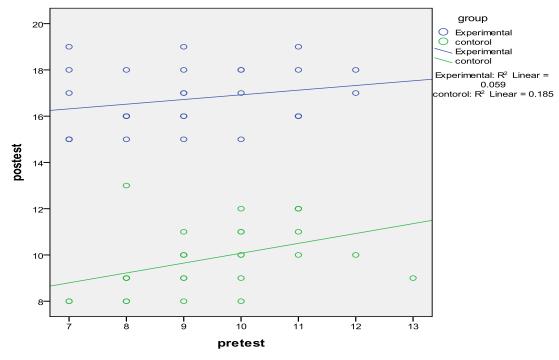

Figure 1: Homogeneity of regression slope in experimental and control group

Figure 1 indicated that there was a linear relationship between pretest and posttest scores in both groups. If there was not a linear relationship (correlation) the researcher was not allowed to use of analysis of covariance (ANCOVA) in his/her study.

Table 3: Levene's test of equality of error variance

F	Df_1	Df_2	Sig
0043	1	58	.836

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Table 3 indicates that the sig value is 0.836, (α=0.05) so 0.836 >α indicating there was no violation of the assumption.

Table 4: Homogeneity of regression slope

Ss	Df	Ms	F	Sig	η^2
1.663	2	1.663	.971	.329	.017

The result of table 4.4 indicates that the sig value 0.329 is bigger than α=0.05 (p>α) so the F value (0.971) is not significant in statistics. Therefore, with confidence of 95% we can say we have homogeneity of regression slope. After the previous studying in the figure1 and table 3 and 4 the researcher can use analysis of covariance or ANCOVA.

Table 5: Posttest

Groups	N	Mean	SD.
Experimental	30	16.78	.240
Control	30	9.77	.240

In posttest the standard deviation error of both groups is the same.

Table 6: Dependent Variable: posttest

Source	Type III of Sum Squares^a	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	726.583^a	2	363.291	212.167	.000	.882
Intercept	165.986	1	165.986	96.938	.000	.630
Pretest	12.433	1	12.433	7.261	.009	.113
Group	726.527	1	726.527	424.302	.000	.882
Error	97.600	57	1.712			
Total	11411.000	60				
Corrected Total	824.183	59				

a. R Squared = .882 (Adjusted R Squared = .877)

Table 7: Analysis of results of covariance

Source	Ss	Df	Ms	F	Sig	η^2
Groups	726.527	2	726.527	424.302	.000	.882
Errors	97.600	57	97.600			

As we can observe from the table 4.6 the sig value is 0.000 that is smaller than α (α=0.05) it means 0.000<0.05, so with 95% confidence level, the researcher can claim prefix teaching have positive impact on the vocabulary development of Iranian EFL learners. $F_{(1.57)}$ = 424.302: p< 0.01: partial η^2 =0.882

Results of Hypothesis Testing
The major question addressed in this study was whether teaching prefixes would improve EFL learners' vocabulary learning at the intermediate level of language proficiency or not. In the data analysis section, it was indicated that teaching prefixes improved students vocabulary learning to statistically significant extent. According to the analysis that was done in this chapter, it was concluded that the mean of the experimental group who received the treatment was significantly higher than the scores of the group taking traditional teaching (by using dictionary and translation). By comparing the mean of pretest in two groups, it was observed that two groups were at the same level. When the mean of posttest of two groups were compared, it was observed that the mean of experimental group improved from pretest to posttest.

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So it was concluded that teaching prefixes improved learners' vocabulary learning. As table 4.6 showed, the level of sig 0.000 was smaller than the probability value, p-value = $0.000 < \alpha = 0.05$. This indicated that the experimental group outperformed the control group. In other words, it revealed that the treatment given to the experimental group had affected this group to some extent. Therefore, the null hypothesis stating that prefix teaching has no effect on vocabulary learning was rejected. These results show that despite the students' positive image of this strategy, many of them do not use of it in their own learning. However, teaching affixes would increase the number of words to be dealt with, possibly leading to a heavy learning burden on the learners. Thus this study focuses on prefixes only. Prefixes are keys to meaning. In many words, the meaning is clearly mapped into the prefix, as in *interior, exterior, posterior, anterior*, and *ulterio*r. Prefixes are easy to find, because they are always at the beginning of the words, although it becomes tricky when the word has multiple prefixes, as in *insubstantial.* This knowledge enables learners to construct many English words correctly by learning to put the building blocks (e.g., affixes) together in the proper way and to determine the meanings of thousands of English words that have never seen or heard before (Fekri, 2011). This knowledge enables learners to remember new words much longer than they can remember by just learning unrelated word lists. It seems boring to learn new words by memorizing them. The result is that most people learn these words, but because they do not use them, they forget them. In contrast, teaching affixes aims to have students comprehend each word rather than just memorize each word one by one. Students need to be taught strategies that will assist them in decoding and comprehending foreign vocabulary words. There are some problems learners have with prefixes, the first one is meaning. Some prefixes have more than one meaning, e.g. *in-* (not, into), *ex-*(out, beyond, former). Also several prefixes have the same meaning (e.g., *un-, in-, im-, ir-, dis-*,). The second one is spelling. This is a problem mainly concerning higher levels when students have been exposed to many different variations of prefixes and words that go with them. In addition, it has many facets. The prefixes*, il-, ir-, im-* are all variations of the prefix in- and which to choose usually depends on the first letter of the word the prefix is attached to. This makes recognizing them as a prefix difficult and choosing the right one, too. The third one is identifying prefixes. Some words look as if they have a prefix attached to them but in reality they are single words (e.g., region, rectangle, read). As this is very often the case, this is an important issue. Morphological awareness apparently plays a significant role in L1 vocabulary development. The mean scores of the control group showed only a modest improvement. In addition, given the differences found between the experimental and control groups, there appears to be an advantage to teaching using prefixation knowledge. This study showed that the two groups are different, and given the higher mean values for the experimental group in posttest, there is a clear indication that using prefix training helped students acquires vocabulary better than regular grammar-translation methods. This study supports the claims that L2 morphological awareness appears to be developed gradually (Anglin, 1993; Ku and Anderson, 2003) and that understanding and manipulating the internal structure of words is correlated with L1 vocabulary growth (Anglin, 1993; Nagy and Scott, 1990). Morphemic analysis instruction can help L2 learners independently learn new vocabulary and take charge of their own vocabulary development. In addition, it is important that teachers utilize methods that suit the students' level and needs. Before deciding whether the learners need explicit morphological analysis to boost their vocabulary knowledge, the learners' morphological awareness and their vocabulary size should be investigated. In short, teachers should not neglect vocabulary acquisition. For example, it is suggested to teachers that using an affixation based teaching method was superior to pure memorization of vocabulary. The teachers' role is also important because the teachers' interest and teaching style affect students' learning. In this study an opt test was administered to 100 students from Azad university of Tonekabon to be sure of the homogeneity of the participants. Those who were located one standard deviation above and below the mean were selected for data analysis. So 60 students were selected as participants of intermediate level. Afterward, the researcher randomly made two classes and called the two classes as experimental group and the other control group each of them including 30 students (this is in line with the design of this research, which is quasi-experimental). Then the participant in two groups participated in the pretest consisting of a multiple choice test, via 8 sessions of treatment. The participants

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in the experimental group work on prefixes which were represented by the teachers while in the control group, the same material was taught by using the traditional method of teaching the vocabulary learning. After the treatment phase was over, the participants in both groups participated for the posttest. By comparing the mean of pretest with the mean of posttest of two groups, it was observed that the mean of experimental group was higher than the mean of control group. The result of this study showed that the amount of sig for source of variation is sig< 0.05 (0.000< 0.05). Thus, the null hypothesis, stating that teaching prefixes do not have any impact on the development of the Iranian EFL learners' vocabulary learning. It can be seen in this result and previous findings, the scores of students who had used the prefix knowledge were greater than the scores of students who had used dictionary and translation in learning vocabulary.

REFERENCES
Abbot S and Berninger V (1999). It's never too late to remediate: A developmental approach to teaching word recognition. *Annals of Dyslexia* **49** 223-250.
Aitchison J (2001). *Language Change: Progress or Decay?* (Cambridge: Cambridge University Press).
Aitchison J (2003). *Words in the Mind: An Introduction to the Mental Lexicon* (Oxford and New York: Brasil Blackwell).
Aizawa K (1998). Developing a vocabulary size test for Japanese EFL learners. *ARELE* **9** 75-85.
Anbarestani M (2010). *The effects of call programs on expanding lexical knowledge of vocabulary of EFL Iranian intermediate learners*. (unpublished master's thesis). Sabzevar Tarbiat Moallem University, Sabzevar, Iran.
Anderson GS (1984). *A Whole Language Approach to Reading* (Lanham, MD: University Press of America).
Anglin JM (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development* **58**(10) 1-166.
Bahns J and Eldaw M (1993). Should we teach EFL students collocations? *System* **21**(1) 101-114.
Bauer L and Nation P (1993). Word families. *International Journal of Lexicography* **6** 253-279.
Baumann JF, Edwards EC, Font G, Tereshinski CA, Kame'enui EJ and Olejnik S (2002). Teaching morphemic and contextual analysis to fifth-grade students. *Reading Research Quarterly* **37**(2) 150-176.
Baumann JF, Edwards EC, Boland E, Olejnik S and Kame'enui EJ (2003). Vocabulary tricks: Effects of instruction in morphology and context on fifth-gradestudents' ability to derive and infer word meaning. *American Educational Research Journal* **40** 447-494.
Beck IL and Mckeown MG (1991). Conditions of vocabulary acquisition. In: *Handbook of Reading Research,* edited by Barr R, Kamil M, Mosenthal P and Pearson PD (New York: Longman) 789-814.
Chung T and Nation ISP (2003). Technical vocabulary in specialized texts. *Reading in a Foreign Language* **15**(2) 103-116.
Clark EV, Gelman SA and Lane NM (1985). Compound nouns and category structure in young children. *Child Development* **56** 84-94.
Coady J (1997). L2 vocabulary acquisition: A synthesis of the research. In: *Second Language Acquisition,* edited by Coady J and Huckin T (Cambridge: Cambridge University Press) 273-290.
Cohen AD (1998). *Strategies in Learning and using a Second Language* (London, New York: Longman).
Coxhead A (2000). A new academic word list. *TESOL Quarterly* **34**(2) 213-238.

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Cunningham AE and Stanovich KE (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology* **33** 934-945.

Cunningham AE and Stanovich KE (1998). What reading does for the mind. *American Educator* **22** 8-15.

Ellis N (1997). Vocabulary acquisition: Word structure, collocation, word-class and meaning. In: *Vocabulary: Description*, *Acquisition and Pedagogy,* edited by Schmitt N and McCarthy M (Cambridge, UK: Cambridge University Press) 122-139.

Fekri A (2011). *The Effect of Teaching Etymology Strategy on Learning Vocabulary by Iranian intermediate EFL Learners* (unpublished master's thesis). Sabzevar Tarbiat moallem University, Sabzevar, Iran.

Flynn K and Hill J (2005). English language learners: A growing population. Mid-continent research for education and learning (MCREL) policy brief, Retrieved August 6, 2010, from http:// www. mcrel. org/ pdf / policy briefs /5052PI-PB English language learners.pdf 1-11.

Fukkink PG and Glopper K (1998). Effects of instruction in deriving word meaning from context: A meta-analysis. *Review of Educational Research* **68**(4) 450-468.

Gains R and Redman S (1986). *Working with Words* (Cambridge: Cambridge University Press).

Graves MF (2004). Teaching prefixes: As good as it gets? In: *Vocabulary Instruction: Research to Practice,* edited by Baumann JF and Kame'enui EJ (New York: Guildford Press) 81-99.

Griffiths C (2006). Strategies development and progress in language learning. *Prospect* **21**(3) 58-75.

Groot AMB (2006). Effects of stimulus characteristics and background music on foreign language vocabulary learning and forgetting. *Language Learning* **56**(3) 463-506.

Goulden R, Nation P and Read J (1990). How large can a receptive vocabulary be? *Applied Linguistics* **11** 341-363.

Harris AJ and Sipay ER (1990). *How to Increase Reading Ability*? (NY: Longman).

Hatch E (1983). Simplified input and second language acquisition. In: *Pidginization and Creolization as Language Acquisition,* edited by Anderson RW (Rowley, MA: Newbury House) 64-88.

Miller GA and Gildea PM (1987). How children learn words. *Scientific American* **27** 94-99.

Nagy WE and Anderson RC (1984). How many words are there in printed school English? *Reading Research Quarterly* **19** 304-330.

Nagy WE, Berninger VW, Abbott R, Vaughan K and Vermeulen K (2003). Relationship of morphology and other language skills to literacy skills in at-risk second graders and at-risk fourth grade writers. *Journal of Educational Psychology* **95** 730-742.

Nagy WE (2007). Metalinguistic awareness and the vocabulary- comprehension connection. In: *Vocabulary Acquisition: Implications for Reading Comprehension,* edited by Wagner RK, Muse AE and Tannenbaum KR (New York: Guildford Press) 25-77.

Nation ISP (1990). *Teaching and Learning Vocabulary* (New York: Heinle & Heinle).

Nunes T, Bryant P and Bindman M (2006). The effects of learning to spell in children's awareness of morphology. *Reading and Writing* **19** 767-787.

O'Mally MJ and Chamot AU (1990). *Learning Strategies in Second Language Acquisition* (Cambridge: Cambridge University Press).

Ortega L (2009). *Understanding Second Language Acquisition* (London: Hodder Arnold).

Oxford RL and Scarcella RC (1994). Second language vocabulary learning among adults: State of the art in vocabulary instruction. *System* **22**(2) 230-243.

Oxford RL (2001). Language learning strategies. In: *The Cambridge Guide to Speakers of other Languages,* edited by Carter R and Nunan D (Cambridge: Cambridge University Press) 166-172.

Richard JC (1976). The role of vocabulary teaching. *TESOL Quarterly* **10** 77-89.

Schmitt N and Meara P (1997). Researching vocabulary through a word knowledge framework: Word associations and verbal suffixes. *Studies in Second Lang*uage *Acquisition* **19** 17-36.

Schmitt N and Zimmerman CB (2002). Derivative word forms: What do learners know? *TESOL Quarterly* **36**(2) 145-171.

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Schmitt N (2008). Instructed second language vocabulary learning. *Language Teaching Research* **12**(3) 329-363.

Sesnan B (2001). *How to Teach English* (Oxford, UK: Oxford University Press).

Stoel C (2005). Target word selection based on JW'S vocabulary level. Retrieved May 20, 2011, from http:// www.asha,org/ 2005/ handout/ 293-berman-s.

Stern HH (1975). What can we learn from the good language learner? *The Canadian Modern Language Review* **31**(4) 304-318.

Wysocki K and Jenkins JR (1987). Deriving word meanings through morphological generalization. *Reading Research Quarterly* **22**(1) 66-81.

Yule G (2006). *The Study of Language,* 3rd edition (Cambridge, New York: Cambridge University Press).

Zhou M (2010). On teaching vocabulary to non-English majors. *Journal of Language.*