

Teaching Vocabulary through Semantic Mapping as a Pre-reading Activity across Genders

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ABSTRACT: This study has examined the effect of semantic mapping on learning vocabulary across genders. The researchers selected 120 intermediate students after the administration of a standard proficiency test. A vocabulary test was also used to measure the students' vocabulary knowledge. The experimental group received semantic mapping in the pre-reading stage, but the control group did not receive this treatment. The results of the study, based on statistical analysis of ANCOVA, indicated that the experimental group outperformed the control group in vocabulary learning. As for the gender differences, the results indicated no significant difference between males and females. It can be suggested that semantic mapping can be used as an efficient methodology for teaching vocabulary, a technique which is equally effective for male and female EFL Learners.

Keywords: semantic mapping, pre-reading, gender, vocabulary learning.

Word knowledge is an essential element of communicative competence, and it leads to successful production and comprehension of second language (Coday & Huckin, 1997). There is now a widespread agreement about the role of lexicon in language acquisition process, and many researchers place lexical competence at the heart of the communicative competence, which is viewed as the ability to communicate effectively and appropriately (Coady, 1997). Hatch (1983) has stated that "it is the lexical level that adult second language learners claim as the most important. When our first goal is communication, when we have little of the new language at our command, it is the lexicon that is crucial. The words will make basic communication possible." (p. 74)

For many years, little attention was given to the learning and the teaching of vocabulary in language programs. During the past decades, teachers had focused on the importance of grammar and sound system of language. These teachers believed that students were able to learn the necessary lexicon without help (Allen, 1983), and the prevailing method for

vocabulary teaching was the use of vocabulary drills or bilingual lists (Brown, 2001).

However, the whole scene changed, and vocabulary teaching began to assume its place in language programs. Now it is evident that the lack of vocabulary knowledge creates a barrier that discourages students from learning a foreign language. Learners should try to find a way to expand their lexicon; otherwise, they will lose interest (Zhihong, 2000) or feel insecure in learning languages (Morgan & Rinvoluceri, 1986). As Shen (2003) has stated, the prominent role of word knowledge cannot be ignored in language pedagogy due to the number of available theories on L2 vocabulary learning and teaching. Semantic mapping, which involves thinking about the relationship between what learners know and new words, is just one of these new approaches. In this process, the concepts and the existing relationship between the concepts are visualized (Novak & Gowin, 1984). Semantic mapping is a graphic display that visually shows the relationships between terms and ideas to learners as they perform the learning task (Hall & Strangeman, 2002). It can create associative networks for words, and it is an activity that helps bring into consciousness the relationship among the words in a text (Morgan, 2003).

William's (1994) study showed that semantic mapping enables students to visualize the relationships and categorize these relationships. Teachers can introduce semantic maps in circles, squares, or ovals with connected lines. To this end, the teacher can write the main idea on the board and ask students to brainstorm about the reading topic; the students can then put the words in circles which connect to the main idea. Debate (2006) believes that concept maps provide a summary of the key concepts in the text, and they can also help learners build schemata that they do not yet possess.

The pre-reading activities have a great role in learning vocabulary items. Pre-reading activities provide a reader with necessary background to comprehend the material. The pre-reading also helps elicit prior knowledge, build background knowledge, and capture and hold the readers' attention (Alyousef, 2006).

Debate (2006) has rightly described semantic mapping as a useful way to teach vocabulary which "provides the teacher with an assessment of the students' prior knowledge or schema availability on the topic" (p.24). Similarly, Pittelman and Johnson (1985) have argued that semantic maps can help teachers assess the learners' prior knowledge, and make students ready for encountering the text. Heimlich and Pittelman (1986, cited in Morgan, 2003) have indicated that semantic mapping exercises can prepare learners for understanding, assimilating, and evaluating the information they read. White (1988) has argued that words form unique associative networks; therefore, knowing the relationships between the words helps students learn their meaning, and, as a result, students may develop the

ability to use the words appropriately. Crow and Quigley (1985, cited in Zaid, 1995) have also considered semantic mapping as an effective tool for improving the students' vocabulary knowledge.

Gender issue is currently gaining a considerable attention in language studies. According to Konrad et al. (2008), a great number of theoretical and methodological frameworks are now being used to describe the relationship between language and gender. Andreou, Valchose, and Andreou (2005) conducted a study to show the effect of gender on synthetic and semantic tasks in second language acquisition. The study showed that females outperformed males in accomplishing language tasks. The authors attributed this finding to gender differences and proposed hemispheric specialization of the brain as the main cause of this superiority. Brantmeier (2003) has also found a significant relationship between gender and passage content in L2 reading comprehension. In another study, Din, Ming, and Esther (2004) investigated the relationship between the gender variable and the students' literacy. This study indicated that men were able to obtain higher reading comprehension scores on scientific texts. However, some other researchers have reported no significant relationship between gender variable and language learning ability (e.g., Young & Oxford, 1997, cited in Pae, 2004).

The gender variable can also affect the strategies that learners use to learn a second language (Oxford, 1990, cited in Nourzadeh, 2005). A number of studies (e.g., Liu, 2004; Poole, 2005) have reported that gender variable can affect the use of language learning strategies. These studies have reported that female language learners employ more strategies than males. Other studies have suggested that female language learners use strategies more effectively than males (Ehrman & Oxford, 1989, cited in Tercanlioglu, 2004). The results of the study by Sabetkalam (2009), however, indicated no difference between male and female elementary EFL learners in using concept mapping strategy for reading comprehension.

As it is evident, the literature on the effects of gender variable is filled with inconclusive findings. However, this clear set back acted as a driving force for this study, and it motivated the researchers to reconsider the gender issue and the way it affects vocabulary learning strategies of Iranian EFL learners. The purpose of this research piece is twofold: on the one hand, it tries to investigate the effect of semantic mapping, as a pre-reading activity, on language learners' vocabulary knowledge. On the other hand, the study tries to compare the performance of male and female language learners who receive semantic mapping in the pre-reading stage. To this end, the researchers formulated the following research questions:

1. Is there any difference between the performance of students who use semantic mapping as a pre-reading activity for vocabulary learning and the performance of those who do not use this technique?
2. Is there any difference between the performance of male and female students who receive semantic mapping as a pre-reading activity for vocabulary learning?

Method

Participants

One hundred and forty intermediate students participated in the study. Prior to the experiment, the researchers administered a standard proficiency test, i.e., Preliminary English Test (PET), to determine the homogeneity of the groups. The researchers set ± 1 SD above and below the mean score as the criterion for selecting their sample. Based on this criterion, the researchers then selected 120 intermediate students (60 male and 60 female) to participate in this study. The male and female participants were then randomly assigned to four groups (two experimental and two control), each group consisting of 30 members.

Instrumentation

The researchers adopted eight gap filling exercises from the *Intermediate Vocabulary* by Thomas (1986), they then filled in the gaps to transform the disjointed texts to coherent reading passages. Afterwards, the researchers created incomplete semantic maps with the vocabulary items that were used in the text. The members of the experimental groups were required to complete the concept maps before reading the passage. The students of the control group, however, did not receive semantic maps before reading the texts. It should be noted that the groups received similar reading passages, and these passages were appropriate for intermediate EFL learners.

For the purpose of this study, the researchers used a standard proficiency test (PET), along with Paribakht and Wesche's (1993) Vocabulary Knowledge Scale (VKS). The PET was used to test the homogeneity of the sample, and the VKS was used to measure the participants' vocabulary knowledge; the VKS was administered as the pretest and the posttest to capture any significant differences between the performance of the experimental and control groups.

Procedure

Following the administration of the PET, the researchers used ± 1 SD above and below the mean criterion to select 60 male and 60 female students as the eligible participants of this study. Female students were

divided into two groups of experimental (n=30) and control (n=30). The same procedure was also replicated for the male students. The groups then took the VKS test as the pre-test. Each group attended eight sessions (twice a week). At each session, the students worked on one passage. When the students completed the eight-session teaching program, they all took the same VKS test as the post-test.

In the experimental groups (both male and female), the teacher announced the topic of the unit by drawing a large rectangle on the board and asked the students to think of words that might be related to the topic. The teacher listed the words given by the students on the side of the board and then gave them incomplete semantic maps containing the key words of the text, along with their definitions. The teacher then read these key words aloud. The students were then asked to categorize their ideas in the incomplete map that was given to them. When students had difficulty in identifying the categories, the teacher helped them overcome the difficulty by asking some guiding questions. When semantic maps were completed, each pair of the students compared and discussed its semantic map with other students. When the students made a copy of the map from the board, they received the reading passage; as the students received the passage, they were instructed to read the text silently and answer the follow up comprehension questions.

The control groups (both male and female) were also provided with a short passage. Once the topic of the passage was selected, the students were encouraged to ask their questions. Translating the key words of the text, the teacher asked the students to read the text within a specified time limit. After the silent reading, the students were asked to answer the follow-up comprehension questions.

Design

The study followed a quasi-experimental design; vocabulary learning was set as the dependent variable and teaching vocabulary through semantic mapping as the independent variable. The gender was also considered as the moderator variable. Based on the results of the standard proficiency test, the researchers randomly assigned the participants into one of the four thirty-member groups (two control groups and two experimental groups). Two analyses of covariance (ANCOVA) were used to find out the difference between the performance of the male and female groups. A one-sample Kolmogorov-Smirnov Tests was also used to indicate the normal distribution of the data.

Results

Table (1) shows the results of the one-sample Kolmogorov-Smirnov Test. It demonstrates the probability of 0.716 and 0.880 in the control groups and 0.331 and 0.081 in the experimental groups in the pre-test and post-test, respectively. The large significance value indicates that the data is normally distributed.

Table 1. One Sample Kolmogorov-Smirnov Test indicating the normal distribution of the data in control and experimental groups

GROUP			PRETEST	POSTTEST
Control	N		60	60
	Normal Parameters ^{a,b}	Mean	134.4667	301.3000
		Std. Deviation	14.4251	56.4183
	Most Extreme Differences	Absolute	.090	.076
		Positive	.088	.076
		Negative	-.090	-.060
	Kolmogorov-Smirnov Z		.697	.588
Asymp. Sig. (2-tailed)		.716	.880	
Experimental	N		60	60
	Normal Parameters ^{a,b}	Mean	140.2667	361.5500
		Std. Deviation	18.8705	42.6616
	Most Extreme Differences	Absolute	.122	.209
		Positive	.122	.184
		Negative	-.058	-.209
	Kolmogorov-Smirnov Z		.947	1.617
Asymp. Sig. (2-tailed)		.331	.081	

a. Test distribution is Normal.

b. Calculated from data.

The researchers also used ANCOVA to compare and analyze the performance of the students in control and experimental groups. In this analysis, semantic mapping strategy was set as the independent variable and the scores of the students in pre and post-test as the dependent variable, which was considered as a covariate variable. As Table (2) indicates, there is a significant difference between the moderate means of the experimental and the control groups' performances on the post-test ($F = 50.59$, $p = 0.00 < 0.5$). This finding indicates that the semantic as mapping strategy has an effect on the students' vocabulary learning. The degree of this effect is 30%, as measured by Eta Squared (η^2). A significant difference between

the performance of the students who received semantic mapping as a pre-reading activity and that of those who did not receive such activity is also evident in the data (Table 3). Moderate means difference between the control and experimental groups turned out to be 48.49.

Table 2. *The significant difference between the moderate means of the experimental and control groups on the post test*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	245747.75 ^a	2	122873.876	90.797	.000	.608
Intercept	4865.231	1	4865.231	3.595	.060	.030
PRETEST	136845.876	1	136845.876	101.122	.000	.464
GROUP	68462.615	1	68462.615	50.590	.000	.302
Error	158333.574	117	1353.278			
Total	13585185.0	120				
Corrected Total	404081.325	119				

a. R Squared = .608 (Adjusted R Squared = .601)

Table 3. *Moderate means difference between the control and experimental groups*

GROUP	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control	307.180 ^a	4.785	297.704	316.657
Experimental	355.670 ^a	4.785	346.193	365.146

a. Evaluated at covariates appeared in the model: PRETEST = 137.3667.

As shown in Figure (1), the diagonal line (at the top of the figure) represents the post-test results; the data is indicative of the fact that the treatment, i.e., semantic mapping, has had a positive effect on the students' performance in the post-test.

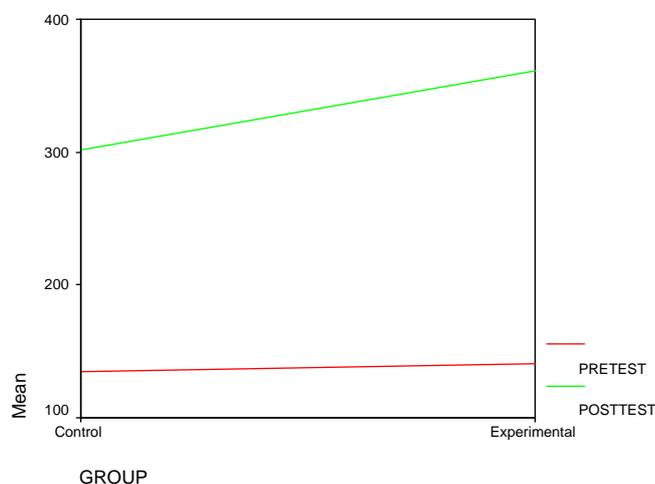


Figure 1. The plot of the difference between moderate means of the control and experimental groups

The researchers also used ANCOVA to answer the second research question. A one-sample Kolmogorov-Smirnov Tests was also used to indicate the normal distribution of the data. As illustrated in Table 4, normal distribution assumption seems to hold.

Table 4. One sample Kolmogrov- Smirnov Test indicating the normal distribution of the data in experimental groups (male and female)

GENDER			PRETEST	POSTTEST
male	N		30	30
	Normal Parameters a,b	Mean	133.7000	347.9333
		Std. Deviation	12.6386	48.5947
	Most Extreme Differences	Absolute	.121	.178
		Positive	.121	.149
		Negative	-.103	-.178
	Kolmogorov-Smirnov Z		.663	.977
Asymp. Sig. (2-tailed)		.772	.296	
Female	N		30	30
	Normal Parameters a,b	Mean	146.8333	375.1667
		Std. Deviation	21.8065	30.9472
	Most Extreme Differences	Absolute	.124	.258
		Positive	.124	.211
		Negative	-.090	-.258
	Kolmogorov-Smirnov Z		.677	1.413
Asymp. Sig. (2-tailed)		.749	.067	

a. Test distribution is Normal.

b. Calculated from data.

An analysis of covariance (ANCOVA) was run to compare the performance of male and female students in the experimental groups. Here, the independent variable was concept mapping, the moderator variable was gender, and the dependent variable was the post-test scores. The pre-test was considered as a covariate variable. The findings (displayed in Table 5) indicate no difference between the moderate means of male and female students on the post-test. This result is suggestive of the fact that the gender variable has very little effect on the students' performance on the post-test.

Table 5. *Tests of between- subjects effects in the experimental groups (male and female)*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	52244.629 ^a	2	26122.315	27.005	.000	.487
Intercept	21298.540	1	21298.540	22.018	.000	.279
PRETEST	41119.812	1	41119.812	42.510	.000	.427
GENDER	762.124	1	762.124	.788	.378	.014
Error	55136.221	57	967.302			
Total	7950485.000	60				
Corrected Total	107380.850	59				

a. R Squared = .487 (Adjusted R Squared = .469)

The moderate post-test mean score for the male and female students is displayed in Table (6). The moderate mean difference between the two groups' score is 7.612., which shows no statistical significance between the two sets of test scores.

Table 6. *Moderate means difference between the experimental groups (male and female)*

GENDER	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
male	357.744 ^a	5.874	345.981	369.507
Female	365.356 ^a	5.874	353.593	377.119

a. Evaluated at covariates appeared in the model: PRETEST = 140.2667.

As Figure (2) indicates, the parallel lines show that there is not a great difference between the performance of male and female students in the experimental groups. As illustrated in Figure (2), no significant difference can be seen in the performance of the male and female participants in pre to post-test observations.

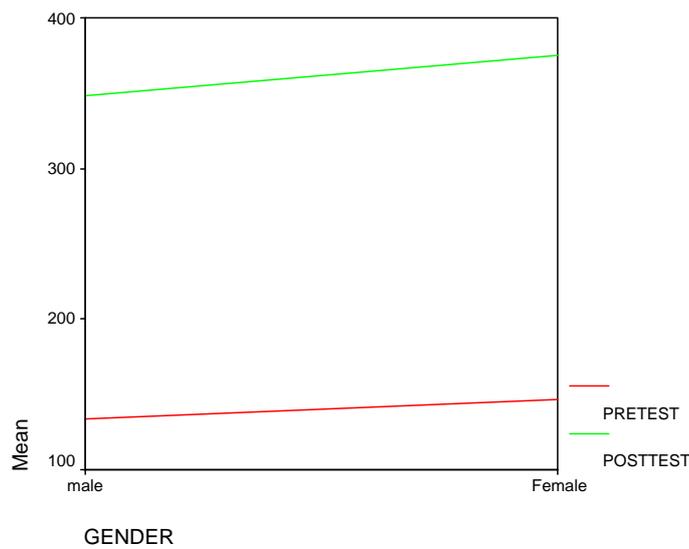


Figure 2. The plot for the difference between moderate means of the experimental groups (male and female)

Discussion

As for the first research question, the researchers found a significant difference between the performance of intermediate students who used semantic mapping as a pre-reading activity for vocabulary learning and the performance of those who did not use this technique. The results indicated that the semantic mapping technique can be used as an effective method for teaching vocabulary in language classes. The results of this study support previous findings that report a strong relationship between semantic mapping and vocabulary learning (e.g., Pittelman & Johnson ,1985; Schelinger, 2000; Zaid, 1995).

As for the second research question, the researchers found no significant difference between the performances of male and female students who received semantic mapping as a pre-reading activity for vocabulary learning. This finding contradicts the results of some earlier studies that investigated the effect of gender on the performances of the learners in semantic tasks (e.g., Kimura & Clarke 2002; Weiss et al., 2006, as cited in

Konrad et al., 2008). However, this study gives support to those who report no significant relationship between gender and vocabulary learning ability (e.g., Roberts & Bell, 2002, cited in Konrad et al., 2008; Sabetkalam, 2009).

Heimlich and Pittelman (1986, cited in Morgan, 2003) have argued that a semantic map is one type of graphic organizer. It helps students visually organize and graphically show the relationship between one piece of information and another. According to Brown (1994, cited in Maubach & Morgan, 2001), "left hemisphere is associated with logical and analytical thought, whereas right hemisphere is associated with processing visual and emotional information" (p. 43).

The absence of gender differences in vocabulary learning (the present study) and reading comprehension (Sabetkalam, 2009) in using concept mapping strategy, which involves both logical thought (left hemisphere) and visual processing (right hemisphere) can be suggestive for further research. This study was conducted on intermediate EFL learners; further research is suggested to see whether semantic mapping strategy has the same effect on other proficiency levels.

References

- Allen, F.V. (1983). *Techniques in vocabulary*. NY: Oxford University Press.
- Alyousef, H. S. (2006). Teaching reading comprehension to ESL/EFL learners. *Journal of Language and Learning*, 5 (1), 63-73.
- Andreou, G., Vlachos, F., & Andreou, E. (2005). Affecting factors in second language learning. *Journal of Psycholinguistic Research*, 34 (5), 429-438.
- Brantmeier, C. (2003). Does gender make a difference? Passage content and comprehension in second language reading. *Reading in a Foreign Language*, 15(1). Retrieved May 29, 2009 from nflrc.hawaii.edu/RFL/April2003/brantmeier/brantmeier.html
- Brown, H. D. (2001). *An interactive approach to language pedagogy*. NY: Longman.
- Coady, J. (1997). *Second vocabulary acquisition*. New York: Cambridge University Press.
- Coday, J., & Huckin, T. (1997). *Second language vocabulary acquisition: A rational for pedagogy*. New York: Cambridge University Press.
- Debate, E.V. (2006). Applying current approaches to the teaching of reading. *English Teaching Forum*, 44(1). Retrieved April 22, 2009 from exchanges.state.gov/english/teaching/forum/archives/docs/06-44-1-c.pdf
- Din, Y. Y., Ming, M. C., & Esther, S.S. (2004). Hong Kong student achievement in OECD-PISA study: Gender differences in science

- content, literacy skills, and test item formats. *International Journal of Science and Mathematics Education*, 2 (1), 91-106.
- Hall, T., & Strangman, N. (2002). Graphic organizer. *National Center on Accessing the General Curriculum*. Retrieved May 25, 2009 from <http://www.cast.org/publications/ncac/ncac-go.html>
- Hatch, E. (1983). *Psycholinguistics: A second language perspectives*. Rowley, MA: Newberry House.
- Konrad, C., Engelen, A., Schöning, S., Zwitterlood, P., Jansen, A., Pletziger, E., Beizai, P., Kersting, A., Ohrmann, P., Luders, E., Greb, R. R., Heindel, W., & Kugel, H. (2008). The functional anatomy of semantic retrieval is influenced by gender, menstrual cycle, and sex hormones. *Journal of Neural Transm*, 115(9), 1327-1337. Retrieved April 25, 2009 from www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2525845
- Liu, D. (2004). EFL proficiency, gender and language learning strategy use among a group of Chinese technological institute English majors. *Annual Review of Education, Communication and Language Sciences*, 1. Retrieved April 25, 2009 from research.ncl.ac.uk/ARECLS/vol1_documents/Dongyue/Dongyue.htm
- Morgan, J., & Rinvolucri, M. (1986). *Vocabulary*. Hong Kong: Oxford University Press.
- Morgan, M. (2003). *Welcome to exemplary practices in vocabulary instruction*. Retrieved April 22, 2009 from www.bridgew.edu/Library/CAGS_Projects/MMORGAN/web%20page/literature%20review.htm
- Muabach, A. M., & Morgan, C. (2001). The Relationship between gender and learning styles amongst A level modern languages students. *Language Learning Journal*, 23, 41-47.
- Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. Cambridge: Cambridge University Press.
- Nourzadeh, A. (2005). *On the relationship between Iranian EFL learners' gender and their use of reading strategies at high schools*. (M.A. thesis). Retrieved April 5, 2009 from www.teo.ir/images/part/maghale/upload/27.pdf
- Pae, T. I. (2004). Gender effect on reading comprehension with Korean EFL learners. *System*, 32, 265-281. Retrieved from www.eric.ed.gov/ERICWebPortal/recordDetail?accno
- Paribakht, T. S., & Wesche, M. B. (1993). The relationship between reading comprehension and second language development in a comprehension-based ESL program. (ERIC Document Reproduction Service No. ED342237), 1-22, Retrieved August 20, 2009 from www.eric.ed.gov/ERICWebPortal/recordDetail?accno

- Pittelman, S. D., & Johnson, D. D. (1985). Projects on the investigation of effectiveness of vocabulary instruction. (ERIC Document Reproduction Service No. ED 276988).
- Poole, A. (2005). Gender differences in reading strategy use among ESL college students. *Journal of College Reading and Learning*. Retrieved April 25, 2009 from findarticles.com/p/articles/mi_hb3247/is_1_36/ai_n29230438/
- Sabetkalam, M. (2009). *The effect of explicit teaching of concept mapping strategy on Iranian EFL learners' reading comprehension* (MA thesis, Islamic Azad University, Tabriz Branch).
- Schlesinger, Ch. (2000). Reading in the content area. Retrieved April 18, 2009 from www.albany.edu/~cs2160/research/rca/rcasummarymaparticlecritique.pdf
- Shen, W. W. (2003). Current trends of vocabulary teaching and learning strategies for EFL Settings. *Feng Chia Journal of Humanities and Social Sciences*, 7, 187-224.
- Thomas, B. J. (1986). *Intermediate vocabulary*. England: Longman Group Limited.
- Tercanlioglu, L. (2004). Exploring gender effect on adult foreign language learning strategies. *Issues in Educational Research*, 14 (2), 181-193, Retrieved August 20, 2009 from <http://www.iier.org.au/iier14/tercanlioglu.html>
- White, J.C. (1988). The role of associational patterns and semantic networks in vocabulary development. *English Teaching Forum*, 26 (4), 9-11.
- William, C. R. (1994). Semantic map planning: A framework for effective, reflective teaching, teacher development, and teacher research. (ERIC Document Reproduction Service No. ED377677).
- Zaid, A. M. (1995). Semantic mapping in communicative language teaching. *English Teaching Forum*, 33 (3), 1-6, Retrieved April 18, 2009 from eca.state.gov/forum/vols/vol33/no3/p6.htm
- Zhihong, Y. (2000). Learning words. *English Teaching Forum*, 30 (4), 18-21.

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