International Journal of Instruction *January 2012 ● Vol.5, No.1*
e-ISSN: 1308-1470 ● www.e-iji.net *p-ISSN: 1694-609X*

THE IMPACT OF GLOSS TYPES ON IRANIAN EFL STUDENTS' READING COMPREHENSION AND LEXICAL RETENTION

Mohammad Taghi Farvardin
PhD candidate, Khorasgan Branch, Islamic Azad University, Isfahan, Iran
a.farvardin@gmail.com
Reza Biria
Asst. Prof., Khorasgan Branch, Islamic Azad University, Isfahan, Iran
biria@khuisf.ac.ir

Research has shown that the effect of marginal glosses on reading comprehension and vocabulary retention is a controversial issue. The purpose of this study was to investigate this issue among Iranian university EFL students. Three types of glosses were applied in this study: single gloss in participants' first language (SL1G), single gloss in participants' second language (SL2G), and multiple-choice gloss (MCG) in participants' second language. One hundred and twenty undergraduate students majoring in English Teaching at Azad University of Najafabad, Iran, read the texts under three conditions: SL1G, SL2G, and MCG. Afterwards, participants answered two vocabulary tests, one administered immediately after the reading test and another three weeks later. One-way repeated measures ANOVA and follow-up post hoc tests ($p<.05$) showed that MCG facilitated participants' vocabulary learning while reading the text more than SLGs. The results of One-way ANOVA also revealed that SL2G was the most facilitative gloss type for the participants' reading comprehension. The study illustrates how different types of textual glosses can affect both reading comprehension and vocabulary retention. Limitations and suggestions for future research are discussed.

Key Words: reading comprehension, single gloss, multiple-choice gloss, narrative text, expository text, language learning

INTRODUCTION

Many researchers believe that vocabulary learning is the most important facet of second-language (L2) learning (Knight, 1994) and "an essential part of mastering a second language" (Schmitt, 2008, p.329). The fact that incidental vocabulary acquisition occurs in L2 learning is generally accepted among

researchers. Most researchers concur with this view that except for the first few thousand most common words, L2 vocabulary is largely acquired incidentally (Huckin & Coady 1999). Gass (1999) proposed that incidental vocabulary learning does not mean that the learner does not pay attention to the word in question; only that his or her attention is focused on comprehending the reading passage as a whole, and memory of the new word comes as a natural result of this process. Further, Huckin & Coady (1999), in a review article on incidental vocabulary learning, claimed that "much second vocabulary learning occurs incidentally while the learner is engaged in extensive reading" (p.181). According to the literature, there are some strategies which can promote incidental vocabulary learning such as using dictionary (Knight, 1994) and glossing (Davis, 1989; Hulstijn, 1992; Jacobs et al., 1994; Watanabe, 1997). Researchers have studied glosses as one of the helpful and practical devices in enhancing reading comprehension and lexical retention. As Nation (2001) put it, gloss is "a brief definition or synonym, either in L1 or L2, which is provided with the text" (p. 174).

Although glossing reduces the difficulties from insufficient context and reduces possible incorrect inference, it has limited effect on long-term vocabulary retention (Holly & King, 1971; Jacobs et al., 1994; Watanabe, 1997). To tackle this problem, Hulstijn (1992) proposed the use of multiple-choice gloss (MCG) to combine both advantages of vocabulary glosses and meaning inferring. The design of MCG was based on the mental effort hypothesis. It claims that inferring requires mental effort. The greater the mental effort, the better and learner's recall and retention of information acquired through that effort (Hulstijn, 1992; 2001).

There have been some studies done on the impact of glossing on improving L2 reading comprehension. Holley and King (1971), Johnson (1982), Jacobs et al. (1994), Bell and LeBlanc (2000), Cheng and Good (2009) showed no significant effect for glossing in L2 reading comprehension, whereas Davis (1989), Jacobs (1994), Lomicka (1998), and Ko (2005) showed that glosses in fact enhance L2 reading comprehension. However, the impact of gloss types on reading comprehension has been a controversial issue. Some research revealed no significant difference between gloss types (e.g. Jacobs et al., 1994) and others indicated the superiority of one gloss type over another type (Hulstijn et al., 1996; Ko, 2005; Miyasako, 2002; Farvardin & Biria, 2011).

The effectiveness of single (L1 and L2) and MC gloss (L1 and L2) on lexical retention has been a controversial issue. Some researches revealed no significant difference between gloss types (Jacobs et al., 1994) and others indicated the superiority of one gloss type over another type (Hulstijn et al., 1996; Miyasako,

2002; Ko, 2005). Findings of previous research examining the effects of single gloss and MC gloss, however, are inconsistent (Hulstijn, 1992; Watanabe, 1997; Nagata, 1999). According to the aforementioned studies, some research has suggested glosses to be helpful for such readers, whereas others have challenged their efficacy.

Therefore, this study aims to show whether single gloss in students' first language (SL1G), single L2 gloss in students' second language (SL2G), and multiple choice gloss (MCG) in students' second language differ in facilitating Iranian university EFL students' reading comprehension and lexical retention. Within the scope of this study, the following questions were addressed:

1) Is there any difference among SL1G, SL2G, and MCG in facilitating Iranian university EFL students' reading comprehension?

2) Is there any difference among SL1G, SL2G, and MCG in facilitating Iranian university EFL students' lexical retention?

METHOD

Participants

To collect the required data for the research questions, a total of one hundred twenty undergraduate students (36 males and 84 females) in four intact classes were selected. The participants were 76 sophomores and 44 junior students majoring in English Teaching at Azad University of Najafabad. The participants' age ranged from 18 to 24. Before data collection, the researcher explained the nature of study to the potential participants. Participants were informed that all the information collected during the study would be kept confidential, and their scores would not be shared with their teachers and would not affect their grades.

Instrumentation

Gloss Types

Based on the research questions, three different types of glosses were used: SL1G, SL2G and MCG. In other words, the participants read the texts under three different learning conditions: SL1G, SL2G, and MCG. Participants in the SL1G group read the passage with provision of Persian translations that only had one correct meaning. Participants in the SL2G group read the text with provision of English synonyms or definitions that only enjoyed one correct meaning. The L2 synonyms or definitions which were provided in both texts were selected such that the participants could easily understand them.

Participants in MCG group read the text provided with MCGs which contained not only one correct meaning but also another incorrect one as a distracter. This device is based on the mental effort hypothesis (Hulstijn, 2001) that claims students have the opportunity to infer from context and undergo the process of mental effort in searching and evaluating the best word meaning. It must be noted that the criterion for MC glossing was polysemy, namely those words which had more than one meaning. However, those target words which had just one meaning were provided with SGs.

Reading Text

In the present study, a text entitled "The Great Australian Fence" was selected from IELTS Practice Tests Plus (2001). The length of text was 901 words and its readability was 11 on the Flesch-Kincaid Grade Level readability scale. The text was administered under three conditions, namely text including SL1Gs, text accompanied by SL2Gs, and the passage with MCGs. In the Appendix, the reading text with SL2Gs is provided.

Reading Comprehension Test

The researcher designed the comprehension test to measure the impact of glosses on reading comprehension. In developing the items for the reading comprehension test the following reading skills were considered: the purpose of the author, expression meaning, main idea, attention to details, implied ideas, and tone (of the author or passage). The comprehension test was administered immediately after the completion of the reading task. An MC reading test consisting of 20 items in English was given to the participants after the reading. Participants were expected to select a correct answer among four choices. Questions were matched to all parts of the text so that the test could check for overall understanding of the passage. Two TEFL professors who were adept at writing MC questions were consulted to check each item and to judge the plausibility of the distracters. It was tried that every detail in the texts be tested. Any type of production test was avoided because the text was quite long and the time allocated to the researcher (60 minutes each session) for the treatment and data collection was not enough to administer other comprehension tests.

Vocabulary Pretest

The main purpose of the vocabulary pretest was to exclude the target words which already existed in the participants' current lexical knowledge before conducting the study. The 25 target words plus 5 key words in the reading text were presented in the pretest sheet. The participants were instructed to write down any possible meanings, either English or Persian, they could think of for

the given 30 English words. The criterion for selecting the target vocabulary words from the pretest was that of Johnson (1982) that those "words known by more than 25 percent of the participants were no longer regarded as target vocabulary words for the research test" (p. 507). After counting the correct answers, eight target words were revealed to be known for more than 25% of the participants (see Table 1). The excluded words contained four words included *eccentric*, *eradicate*, *expedition* and *vividly*. The results were derived from one hundred eight participants.

Table1. Results of the vocabulary pretest

Vocabulary of The Reading Text	*Number of Correct Answers*	*Vocabulary of The Reading Text*	*Number of Correct Answers*
vividly	37	erect	8
eccentric	31	predator	7
eradicate	29	ubiquitous	7
expedition	27	cull	5
descend (from)	18	sovereign	5
excess	17	prodigious	5
outlaw	15	ingenuity	4
flock	14	terrestrial	2
horde	13	supplant	2
mesh	10	levy	1
vermin	10	bounty	0
futile	9	scrub	0
barren	8		

Vocabulary Posttests

To investigate the effect of gloss on short-term lexical retention, an MC recognition test was given to the participants immediately after the reading treatment. The test included 25 recognition items, i.e. one item for each target word. The distracters and the target word in each item were from the same frequency range according to Collins COBUILD Dictionary (1995). To measure the impact of gloss on long-term lexical retention, a delayed vocabulary posttest administered to the participants three weeks later. The content and the requirements of the test were the same as the immediate posttest; only the order of vocabulary items was randomized. The coefficient alpha of the vocabulary tests for different groups (SL1G group, SL2G group, and MCG group) in the text ranged from .78 to .84.

Target Words Selection

Target words were selected based on the assumption that the words would be unknown, unfamiliar, or difficult for the participants in the study (e.g. Hulstijn

et al., 1996; Jacobs et al., 1994; Knight, 1994; Watanabe, 1997). A pretest was utilized to assess vocabulary knowledge prior to the reading task, thus revealing participants' degree of familiarity with the target items. In the text 30 words were glossed. Twenty five words were target words and five words were those presumed to be crucial for comprehension. The meaning of glossed words was provided for the participants in the margin of the text. The meaning of L1 glossed and L2 glossed words was according to their meaning in the text. The MC glossed words were provided for the participants with two meanings. One meaning served as distracter and another was the word meaning related to the text.

Procedures

Four intact classes including sophomores and junior students (N=120) who majored in English Teaching at Azad University of Najafabad were selected. As there were three versions of glossed reading text (SL1G, SL2G, and MCG), participants were randomly divided into three groups. The number of participants in each group was 40. But after administering two vocabulary posttests, the number of participants in each group decreased to 33. Twenty one participants were dropped since they were absent in delayed posttests. In data collection, first, a vocabulary pretest was given to all participants so as to find the words that are unknown or difficult for them. They should write the meaning of 30 given words either in English or in Persian in 10 minutes. Then three versions of reading texts were randomly distributed to each participant: target words aided by SL1Gs, target words aided by SL2Gs, and target words aided by MCGs. Each reading text followed a comprehension test including 20 MC items. Participants had to read the text and answer reading comprehension questions within 30 minutes. Afterwards, immediate vocabulary posttest was administered to all participants. It contained 25 MC items. Each item tested one target word. The allocated time for the immediate vocabulary test was 15 minutes. Vocabulary posttest was administered to the participants three weeks later. The content and the requirements of the test were the same as the immediate posttest; only the order of vocabulary items was randomized. For delayed posttest, the time limit for completing the test sheet was set at 15 minutes.

Data Analysis

To address the first research question, participants' vocabulary scores were analyzed with One-way repeated measures ANOVA. The independent variable is gloss type which has three levels: SL1G, SL2G, and MCG. The dependent variable is participants' scores in posttests which has two levels: immediate vocabulary scores and delayed vocabulary scores. In addition to repeated

measures ANOVA, multivariate measures were also applied to investigate the mean difference between groups on each posttest. A follow-up post hoc Tukey's HSD test was conducted to examine the differences among the three groups of gloss types. A p value of < .05 was used as the criterion of statistical significance for ANOVAs, repeated measure ANOVAs, multivariate measures, and pos hoc tests. The SPSS 17 was adopted to analyze the data. To answer the second research question, participants' reading comprehension scores were analyzed separately with One-way ANOVA to determine if there were statistically significant main effects for the differences in paired comparisons. The independent variable was gloss types, and the dependent variable was the participants' reading comprehension. Following the ANOVA, post hoc comparisons were done using Tukey's HSD. A Tukey's HSD test (HSD stands for "honestly significant difference") is a post hoc ANOVA test that compares each mean with all others, separately. Therefore, the Tukey's HSD test reveals if the mean score of sample A is significantly different compared to sample B or sample C. In the case of this study, a Tukey's HSD test distinguished between the means of the three groups.

RESULTS

The results for the study are presented below. The results are presented according to the research questions. For each question, there is a short description of how the results were obtained, followed by a summary of the results, and a brief statement of what the results illustrate.

Results of the Effect of Gloss Type on Vocabulary Scores

The participants' vocabulary scores in SL1G group, SL2G group, and MCG group were scored. Subsequently, the Repeated Measures of ANOVA were applied (Table 2).

Table 2. Results of the tests of between-subjects effects

Source	*df*	*Mean Square*	*F*	*Sig.*
GLOSS	2	594.75	25.29	.000
Error	96	11.76		

Table 2 shows the Repeated Measures of ANOVA of one between-subjects factor (gloss type) and one within-subject factor (the two posttests) indicating a significant main effect of gloss type on participants' vocabulary learning, $F(2, 96) = 25.29$, $p < .05$. To examine the effect of gloss type on each posttest, multivariate measures were applied to show the participants' vocabulary learning in the immediate and delayed posttests (Table 3).

Table 3. Results of the tests of gloss effects

Source	Posttests	df	Mean Square	F	Sig.
GLOSS	Immediate Posttest	2	201.88	23.07	.000
	Delayed Posttest	2	149.11	16.76	.000
Error	Immediate Posttest				
	Delayed Posttest	96	8.75		
		96	8.90		

As Table 3 depicts, the effect of gloss remained significant throughout the two posttests; F (2, 96) = 23.07, p<.05 on the immediate posttest and 16.76, p<.05 on the delayed posttest. In addition, Repeated Measures of the two posttests revealed that the interaction between gloss type and Test (the two posttests) was significant, with F (2, 96) = 9.10, p< .05, (See Table 4).

Table 4. Results of the tests of within-subjects effects

Source	*df*	*Mean Square*	*F*	*Sig.*
TEST * GLOSS	2	53.61	9.10	.000
Error (TEST)	96	5.89		

Furthermore, as Table 5 demonstrates, a Tukey's HSD test revealed a significant difference between MCG group and SL2G group and another between MCG group and SL1G group (p< .05). However, as Table 5 shows, there are no significant difference between SL1G group and SL2G group (p> .05). The mean difference between MCG group and SL2G group is significant (p= .000), and the mean difference is positive (MD= 4.32). So, it can be concluded that the mean in MCG group is greater than the mean in SL2G group. In addition, the mean difference between MCG group and SL1G group is significant (p= .000), and the mean difference is positive (MD= 2.77). Hence, it can be concluded that the mean in SL1G group is greater than the mean in SL2G group.

Table 5. Results of the post hoc test

Gloss Type	*Gloss Type*	*Mean Difference*	*Std. Error*	*Sig.*
MCG	SL2G	4.32	.62	.000
MCG	SL1G	2.77	.62	.000
SL1G	SL2G	1.55	.62	.36

Table 5 shows that although there is a positive mean difference between SL1G group and SL2G group (MD= 1.55), there is no significant difference between them (p> .05). To examine the effect of each gloss type on participants' short-term retention (participants' scores at the immediate posttest) and participants' long-term retention (participants' scores at the delayed posttest), the mean scores of gloss types were compared two by two. In Table 6 the mean scores in

MCG group in the immediate posttest, 16.06 (SD = 3.05), and the delayed posttest, 12.06 (SD = 3.01) are depicted. In the same Table, the mean scores of SL2G group in the immediate and delayed posttests are 11.06 (SD =2.95), and 8.42 (SD = 2.42), respectively.

Table 6. Results of the Mean Difference between MCG Group and SL2G Group in Each Posttest

Dependent Variable	*MCG*		*SL2G*		*Mean Difference*	*Std. Error*	*Sig.*
	Mean	SD	Mean	SD			
Immediate Posttest	16.06	3.05	11.06	2.95	5.00	.75	.000
Delayed Posttest	12.06	3.01	8.42	2.42	3.64	.76	.000

Comparing these mean scores, it can be observed that MCG group consistently outperformed SL2G group in each recall test. In effect, the mean differences between MCG group and SL2G group remained significant throughout the two posttests, as indicated in Tukey's HSD Test under multivariate measures; 5.00, and 3.64, $p < .05$. Table 7 shows that the mean scores for MCG group in the immediate posttest and the delayed posttest are 16.06 (SD = 3.05, and 12.06 (SD = 3.01).

Table 7. Results of the mean difference between mcg group and sl1g group in each posttest

Dependent Variable	*MCG*		*SL1G*		*Mean Difference*	*Std. Error*	*Sig.*
	Mean	SD	Mean	SD			
Immediate Posttest	16.06	3.05	14.45	2.86	1.61	.75	.086
Delayed Posttest	12.06	3.01	8.13	3.43	3.93	.76	.000

Comparing with the mean scores of SL1G group on each vocabulary test (14.45, SD = 2.86; 8.13, SD = 3.43), MCG group outperformed SL1G group in the delayed posttest ($p < .05$). Table 20 indicates that the mean differences between MCG group and SL1G group are 1.61 at the immediate posttest, and 3.93 at the delayed posttest.

Table 8 reveals that the difference between SL1G group and SL2G group in the immediate posttest is statistically significant ($p<.05$), whereas in the delayed posttest there is not statistically significant difference. In the immediate posttest the mean differences is 3.39, but three weeks later the mean difference decreases to -.29 at the delayed posttest.

Table 8. Results of the mean difference between sl1g group and sl2g group in each posttest

Dependent Variable	SL1G		SL2G		Mean Difference	Std. Error	Sig.
	Mean	SD	Mean	SD			

Immediate Posttest	14.45	2.86	11.06	2.95	3.39	.75	.000
Delayed Posttest	8.13	3.43	8.42	2.42	-.29	.76	.922

Results of the Effect of Gloss Type on Reading Comprehension

First, the participants' reading comprehension scores in the three groups (SL1G group, SL2G group, and MCG group) were scored. Afterwards, to verify if there were statistically significant main effects for the differences in paired comparisons, a One-way ANOVA was applied. Table 9 depicts a significant main effect of gloss type on the participants' reading comprehension scores, F (2, 96) = 15.40, p<.05.

Table 9. Results of ANOVA on reading comprehension test

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	57.61	2	873.90	15.40	.000
Within Groups	253.32	96	8.43		
Total	310.93	98			

A post hoc Tukey's HSD test was applied to show which differences are significant. As showed in Table 10, the Tukey's HSD test on the pairwise comparisons revealed a significant difference between SL2G group and MCG group and another between SL2G group and SL1G group (p< .05).

Table 10. Results of the post hoc test

Gloss Type	*Gloss Type*	*Mean Difference*	*Std. Error*	*Sig.*
SL2G	MCG	2.64	.634	.000
SL2G	SL1G	2.16	.634	.000
SL1G	MCG	.48	.634	.350

The mean difference between SL2G group and MCG group is significant (p= .000), and the mean difference is positive (MD= 2.64). Thus, it can be concluded that the mean in SL2G group is greater than the mean in MCG group. In addition, the mean difference between SL2G group and SL1G group is significant (p= .000), and the mean difference is positive (MD= 2.16). As a result, it can be concluded that the mean in SL2G group is greater than the mean in SL1G group. Table 10 shows that there is no significant difference between SL1G group and MCG group (p> .05).

DISCUSSION AND CONCLUSION

This study aimed to ascertain the effect of gloss types (SL1G, SL2G and MCG) on Iranian EFL students' reading comprehension and lexical retention.

The first research question addressed the issue of the impact of textual glosses on lexical retention. It can be inferred from the results that MCG facilitated lexical retention more than other gloss types. The multivariate analysis revealed that learning vocabulary incidentally with MCG was more effective than SL2G in both short-term memory (the immediate posttest) and long-term memory (the delayed posttest). Also, the results entailed that learning vocabulary incidentally with MCG may not be effective more than SL1G in short-term memory, but the effect may increase in long-term memory (three weeks). Furthermore, SL1G group outperformed SL2G group in the immediate posttest but the difference diminished three weeks later. These results showed that learning vocabulary incidentally with SL1G maybe more effective than SL2G in short-term memory, but the effect would lessen in long-term memory (three weeks). The mean score of MCG group measured by the immediate posttest was higher than that of SL2G group and the difference was significant. This result is in line with previous findings that prove a positive immediate effect of MCG on word knowledge (Hulstijn, 1992; Watanabe; 1997). Moreover, this result confirms the mental effort hypothesis (Hulstijn, 1992, 2001) that MCG provided a useful reference as readers were hindered by unknown words, and in so doing required them to draw on the contextual clues from passage to choose a correct meaning. In the delayed posttest, MCG still remained effective in lexical retention after three weeks with significant difference from both SL1G and SL2G groups. In addition, these findings are in line with those by Hulstijn (1992) who found that readers in MC condition retained significantly more words than those in the SG condition. Into the bargain, the significant difference between SG group and MCG group in the present study is in contrast with the Watanabe's (1997) findings. Unlike Watanabe's (1997) findings, the results indicated a tendency that MCG group had higher mean scores than SG groups in the immediate posttest and again three week later, in the delayed posttest.

The second research question raised the question of the impact of gloss types on L2 reading comprehension. The results showed SL2G yielded the highest effect on participants' comprehension than SL1G and MCG. That is, SL2G facilitated participants' reading comprehension the most. The significant effect of SL2G on reading comprehension is in line with Farvardin and Biria (2011) and Ko (2005) who concluded that L2 marginal glosses are more effective in enhancing learners' reading comprehension than L1 glosses. In contrast to Lomicka (1998) and Bell and LeBlanc (2000) that found no significant difference between gloss types in the participants' reading comprehension, the present study found one gloss type to be more facilitative for the participants' reading comprehension.

Limitations and Suggestions for Future Research

There are many external factors that should be further controlled in future research.

Since the present study investigated the retention of the target words three weeks after the immediate post-test, a future study can investigate the longer delayed effects to ascertain whether the positive effects on retention generated by MCG and SL1G diminish or not. Also, a combination of MC and other forms of vocabulary tests may lead to different results at different levels of comprehension. A qualitative research such as adopting introspective techniques can be conducted to investigate individual reading strategy toward different types of glosses. Participants' comprehension of the reading material was tested at the recognition level with MC responses. The study only measured learners' receptive knowledge of the target words, so if future study can incorporate both the measurement of learners' receptive knowledge and their productive knowledge, there will be more significant findings. A future study can explore the effects of SG and MCG at the foot of the page, or at the end of the text, to see whether location of gloss has any impact on learners' vocabulary learning. In addition, because the focus of the study was just on the gloss types no control group was adopted. Hence, further study can be conducted by adding a control group so that a better picture from the impact of gloss types on EFL students will be obtained.

REFERENCES

Bell, F. L. & LeBlanc, L. B. (2000). The Language of Glosses in L2 Reading on Computer: Learners' Preferences. *Hispania,* 83(2), 274-285.

Cheng, Y. H. & Good, R.L. (2009). L1 Glosses: Effects on EFL Learners' Reading Comprehension and Vocabulary Retention. *Reading in Foreign Language*, 21 (2), 119-142.

Collins Cobuild English Dictionary. (1995). London: Harper Collins Publishers.

Davis, J. (1989). Facilitating Effects of Marginal Glosses on Foreign Language Reading. *The Modern Language Journal,* 73, 41-48.

Farvardin, M.T. & Biria, R. (2011). Textual Glosses, Text Types, and Reading Comprehension. *Theory and Practice in Language* Studies, 1(10), 1408-1415.

Gass, S. M. (1999). Discussion: Incidental Vocabulary Learning. Studies in Second Language Acquisition, 21, 319-333.

Holley, F. & King, J. (1971). Vocabulary Glosses in Foreign Language Reading Materials. *Language Learning*, 21(2), 213-219.

Hulstijn, J.H (1992). Retention of Inferred and Given Word Meanings: Experiments in Incidental Vocabulary Learning. In: P.J.L Arnaud & H. Bejoint (Eds.), *Vocabulary and Applied Linguistics*, London: Macmillan, 113-125. International Reading Association.

Hulstijn, J. (2001). Intention and Incidental Second Language Vocabulary learning: A reappraisal of elaboration, rehearsal, and automaticity. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 258-286). Cambridge: Cambridge University Press.

Huckin, T. & Coady, J. (1999). Incidental Vocabulary Acquisition in a Second Language: A review. Studies in Second Language Acquisition, 21, 181-193.

Hulstijn, J. H., Hollander, M., & Greidanus, T. (1996). Incidental Vocabulary Learning by Advanced Foreign Students: The Influence of Marginal Glosses, Dictionary Use, and Reoccurrence of Unknown Words. *The Modern Language Journal*, 80 (3), 327-339.

Jackman, V. & McDowell, C. (2001). *IELTS Practice Test Plus*. UK: Pearson Education.

Jacobs, G. (1994). What Lurks in the Margin: Use of Vocabulary Glosses as a Strategy in Second Language Learning. *Issues in Applied Linguistics*, 5, 115-137.

Jacobs, G. M., Dufon, P., & Fong, C. H. (1994). L1 and L2 Glosses in Reading Passages: Their Effectiveness for Increasing Comprehension and Vocabulary Knowledge. *Journal of Research in Reading*, 17, 19-28.

Johnson, P. (1982). Effects on Reading Comprehension of Building Background Knowledge. *TESOL Quarterly*, 16(4), 503-516.

Knight, S. (1994). Dictionary: The Tool of Last Resort in Foreign Language Reading? A New Perspective. *The Modern Language Journal*, 78, 285-299.

Ko, H. M. (2005). Glosses, Comprehension, and Strategy Use. *Reading in a Foreign Language*,17. 125-143.

Lomicka, L. (1998). To Gloss or not to Gloss: An Investigation of Reading Comprehension Online. *Language Learning and Technology*, 1(4) 1-50.

Miyasako, N. (2002). Does Text-glossing Have any Effects on Incidental Vocabulary Learning Through Reading for JAPANESE Senior High School Students? *Language Education & Technology*, 39, 1-20.

Nagata, N. (1999). The Effectiveness of Computer-assisted Interactive Glosses. *Foreign Language Annals*, 32, 469-479.

Nation, I.S.P. (2001). *Learning Vocabulary in Another Language.* Cambridge: Cambridge University Press.

Schmitt, N. (2008). Review Article: Instructed Second Language Vocabulary learning. Language Teaching Research, 12, 329-363.

Watanabe, Y. (1997). Input, Intake, and Retention: Effects of Increased Processing on Incidental Learning of Foreign Language Vocabulary. *Studies in Second Language Acquisition*, 19, 287-307.

APPENDIX

Reading Text with Single L2 Gloss

The Great Australian Fence

A war has been going on for almost a hundred years between the sheep farmers of Australia and the **dingo**, Australia's wild dog. To protect their livelihood, the farmers built a wire fence, 3,307 miles of continuous wire **mesh**, reaching from the coast of South Australia all the way to the cotton fields of eastern Queensland, just short of the Pacific Ocean.	an Australian wild dog net
The Fence is Australia's version of the Great Wall of China, but even longer, (1) **erected** to keep out hostile invaders, in this case (2) **hordes** of yellow dogs. The empire it preserves is that of the woolgrowers, (1) **sovereigns** of the world's second largest sheep (2) **flock**, after China's - some 123 million head - and keepers of a wool export business worth four billion dollars. Never mind that more and more people- **conservationists**, politicians, taxpayers and animal lovers- say that such a barrier would never be allowed today on ecological grounds. With sections of it almost a hundred years old, the dog fence has become, as conservationist Lindsay Fairweather ruefully admits, 'an icon of Australian frontier **ingenuity**'.	(1) built; (2) crowd (1) rulers; (2) groups of sheep or birds people who believe in protecting the natural world creativity
To appreciate this unusual **outback** monument and to meet the people whose livelihoods depend on it, I spent part of an Australian autumn travelling the wire. It's known by different names in different states: the Dog Fence in South Australia, the Border Fence in New South Wales and the Barrier Fence in Queensland. I would call it simply the Fence.	a remote place
For most of its **prodigious** length, this epic fence winds like a river across a landscape that, unless a big rain has fallen, scarcely has rivers. The **eccentric** route, prescribed mostly by property lines, provides a sampler of old **topography**: the Fence goes over sand dunes, past salt lakes, up and down rock-strewn hills, through dense **scrub** and across **barren** plains.	huge strange science of mapping small tree unproductive
The Fence stays away from towns. Where it passes near a town, it has actually become a tourist attraction visited on bus tours. It marks the traditional dividing line between cattle and sheep. Inside, where the dingoes are legally classified as **vermin**, they are shot, poisoned and trapped. Sheep and dingoes do not mix and the Fence sends that message mile after mile.	harmful animals or insects
What is this creature that by itself threatens an entire industry, inflicting several millions of dollars of damage a year despite the presence of the world's most obsessive fence? Cousin to the coyote and the jackal, **descended from** the Asian wolf, *lupus dingo* is an introduced species of wild dog. Skeletal remains indicate that the dingo was introduced to	originated from

Australia more than 3,500 years ago probably with Asian seafarers who landed on the north coast. The adaptable dingo spread rapidly and in a short time became the top **predator**, killing off all its marsupial competitors. The dingo looks like a small wolf with a long nose, short pointed ears and a bushy tail. Dingoes rarely bark; they yelp and howl. Standing about 22 inches at the shoulder - slightly taller than a coyote – the dingo is Australia's largest land **carnivore**.	hunter meat-eater
The woolgrowers' war against dingoes, which is similar to the sheep ranchers' rage against **coyotes** in the US, started not long after the first European settlers disembarked in 1788, bringing with them a cargo of sheep. Dingoes officially became **outlaws** in 1830 when governments placed a **bounty** on their heads. Today bounties for problem dogs killing sheep inside the Fence can reach $500. As pioneers penetrated the interior with their flocks of sheep, fences replaced shepherds until, by the end of the 19th century, thousands of miles of barrier fencing crisscrossed the vast grazing lands.	wild dog-like animals people against law reward
The dingo started out as a quiet observer,' writes Roland Breckwoldt, in A Very Elegant Animal: The Dingo, 'but soon came to represent everything that was dark and dangerous on the continent.' It is estimated that since sheep arrived in Australia, dingo numbers have increased a hundredfold. Though dingoes have been **eradicated** from parts of Australia, an educated guess puts the population at more than a million. Eventually government officials and graziers agreed that one well-maintained fence, placed on the outer rim of sheep country and paid for by taxes (1) **levied** on woolgrowers, should (2) **supplant** the maze of private netting. By 1960, three states joined their barriers to form a single dog fence.	destroyed (1) imposed; (2) replace
The intense private battles between woolgrowers and dingoes have usually served to define the Fence only in economic terms. It marks the difference between profit and loss. Yet the Fence casts a much broader ecological shadow for it has become a kind of **terrestrial** dam, deflecting the flow of animals inside and out. The ecological side effects appear most **vividly** at Sturt National Park. In 1845, explorer Charles Sturt led an (1) **expedition** through these parts on a (2) **futile** search for an inland sea. For Sturt and other early explorers, it was a rare event to see a kangaroo. Now they are **ubiquitous** for without a native predator the kangaroo population has exploded inside the Fence. Kangaroos are now cursed more than dingoes. They have become the rivals of sheep, competing for water and grass. In response state governments **cull** more than three million kangaroos a year to keep Australia's national symbol from overrunning the lands. Park officials, who recognize that the fence is to blame, respond to the **excess** of kangaroos by saying the fence is there, and we have to live with it.	of or relating to land clearly (1) journey; (2) useless present everywhere kill a large number