Copyright Undertaking

This thesis is protected by copyright, with all rights reserved.

By reading and using the thesis, the reader understands and agrees to the following terms:

1. The reader will abide by the rules and legal ordinances governing copyright regarding the use of the thesis.

2. The reader will use the thesis for the purpose of research or private study only and not for distribution or further reproduction or any other purpose.

3. The reader agrees to indemnify and hold the University harmless from and against any loss, damage, cost, liability or expenses arising from copyright infringement or unauthorized usage.

If you have reasons to believe that any materials in this thesis are deemed not suitable to be distributed in this form, or a copyright owner having difficulty with the material being included in our database, please contact lbsys@polyu.edu.hk providing details. The Library will look into your claim and consider taking remedial action upon receipt of the written requests.

Pao Yue-kong Library, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

http://www.lib.polyu.edu.hk
THE EFFECT OF GLOSSING ON L2
COMPREHENSION AND VOCABULARY
LEARNING : AN EXPERIMENTAL STUDY

submitted by

LEUNG Siu-hong

Submitted in partial fulfilment of the requirements for the degree
of Master of Arts in English Language Teaching

Department of English
Hong Kong Polytechnic University
January, 1997
Acknowledgements

My full gratitude is expressed to my wife, and my friends in the MA course. Without their spiritual support and sincere encouragement, it would have been impossible for me to undertake this work.

I also wish to express my thanks to my sister and her husband, Mr and Mrs Ho, who inspired me to take up the teaching profession as my career, and gave me invaluable advice in preparing this dissertation.

Special thanks and appreciation to my research supervisor, Dr. May Fan, for her thoughtful and earnest advice, and endless support in my dissertation.

Finally, my gratitude goes to my colleague, Mr Raymond Chan, in St. Francis Xavier's School, Tsuen Wan for his care and concern during my study in the course.
Abstract

Abstract of dissertation entitled:

The Effect of Glossing on L2 Comprehension and Vocabulary Learning: An Experimental Study

submitted by LEUNG Siu-hong

for MA in English Language Teaching

at the Hong Kong Polytechnic University in January, 1997.

As an English teacher in Hong Kong, I am very much concerned reading problems among Secondary One students in relation to comprehension and vocabulary learning are not trivial. Glossing, being one of the feasible ways to deal with this matter, has long been debated for its value in reading materials. The main focus of the present study is the effect of L1 and L2 glosses in L2 reading text on comprehension and vocabulary learning. The students' attitude towards glossing was also investigated.

This is an experimental study. There was one control group and two experimental groups. The control group was a no-gloss
group while the first experimental group was a L1-gloss group and the second experimental group was a L2-gloss group. The subjects under study were 169 Secondary One students. The materials for data collection included a comprehension test and two vocabulary tests. A questionnaire was also used for collecting the opinion of the students. Findings of the study indicated that glossing has a positive effect on both comprehension and vocabulary learning in general. More importantly, L1 glosses play a significant role in helping the students with comprehension and vocabulary learning. This is especially so when it comes to a self-access mode of learning. These findings have significant implications on the preparation of reading materials and in particular, the Hong Kong Extensive Reading Scheme.
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acknowledgments</td>
<td>i</td>
</tr>
<tr>
<td></td>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td></td>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>Chapter 1</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.1 Background of the Study</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.2 Literature Review</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.3 The Present Study</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1.4 Structure of the Dissertation</td>
<td>15</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Methodology I</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>2.1 Subjects</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>2.2 Design</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>2.2.1 Treatment</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>2.3 The Reading Text</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>2.3.1 Selection of Text</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>2.3.2 Selection of unfamiliar vocabulary items</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2.3.3 Three Versions of the Reading Text</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2.4 The Comprehension Test</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>2.5 The Vocabulary Tests</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>2.6 The Questionnaire</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>2.7 The Pilot Study</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>2.7.1 Aims</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>2.7.2 Subjects in the Pilot Study</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>2.7.3 Administration of the Pilot Study</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>2.7.4 The Findings of the Pilot Study</td>
<td>27</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Methodology II</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>3.1 The Main Study</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>3.1.1 Phase One</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>3.1.2 Phase Two</td>
<td>31</td>
</tr>
</tbody>
</table>
3.2 Rating of the Comprehension Test
  3.2.1 Idea Units
  3.2.2 T-unit
  3.2.3 Story Schema
  3.2.4 Identification of Idea Units
  3.2.5 Marking the Test
3.3 Rating of the Vocabulary Tests
3.4 Analysis of Data

Chapter 4 Results and Discussion
  4.1 Glosses and Comprehension
  4.2 Glosses and Vocabulary Learning
    4.2.1 The Immediate Vocabulary Test
    4.2.2 The Delayed Vocabulary Test
  4.3 Comprehension and Vocabulary Tests
  4.4 Hong Kong Extensive Reading Scheme and Comprehension Test
  4.5 Students’ Attitude toward Glossing

Chapter 5 Conclusion
  5.1 Discussion on the Findings
  5.2 Implications of the Present Study
  5.3 Limitations of the Present Study
  5.4 Suggestions for Further Studies

Bibliography

Appendices
## List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.1</td>
<td>Vocabulary Items in the Pilot Study</td>
<td>25</td>
</tr>
<tr>
<td>Table 2.2</td>
<td>Vocabulary Items deleted or replaced for the Main Study</td>
<td>28</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Results of the Comprehension Test</td>
<td>40</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Differences among the Control group, the L1-gloss group, and the L2-gloss group</td>
<td>41</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Results of the Immediate Vocabulary Test</td>
<td>43</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Differences among the no-gloss group, the L1-gloss group, and the L2-gloss group</td>
<td>44</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Results of the Immediate and the Delayed Vocabulary Tests</td>
<td>45</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Differences among the no-gloss group, the L1-gloss group, and the L2-gloss group</td>
<td>46</td>
</tr>
<tr>
<td>Table 4.7</td>
<td>Preference for Glosses in L2 Reading Texts</td>
<td>49</td>
</tr>
<tr>
<td>Table 4.8</td>
<td>Language of Glosses: Chinese or English</td>
<td>50</td>
</tr>
<tr>
<td>Table 4.9</td>
<td>Location of the Glosses</td>
<td>51</td>
</tr>
</tbody>
</table>
Chapter 1 - Introduction

1.1 Background of the study

As a teacher of English language in a Hong Kong secondary school, the researcher often hears the groans uttered by students that they spend too much time looking up a dictionary for the meaning of unfamiliar words especially when they read authentic materials, such as newspaper articles and novels.

Since 1993, my school has been a member of the Hong Kong Extensive Reading Scheme (HKERS) which aims at improving the reading ability of students through extensive reading in English. All the reading materials are prepared and supplied by the Education Department. Students are being streamed to different reading levels, ranging from Level X to Reading Kit 1, according to their performance in a placement test. They can hence choose the reading materials which are corresponding to their reading ability. The administration of the scheme relies heavily on the practice of self-access learning. This is to reduce the role of teacher in class to the minimal while granting
autonomy to students to select their favourite books and read them in their own pace.

In the course of administering the HKERS lessons, the researcher notices that there are differences in the reading materials used for readers who are relatively low in reading ability and the more proficient ones. For the less skilful readers in the scheme, the Reading Kits 1 and 2 are specially designed for them in such a way that there are some vocabulary glosses in the first language (L1) of the participants - Chinese placed at the end of the text. The length of the reading passage runs no more than two pages. In contrast, the reading materials for other more skilful readers are different from the Reading Kits 1 and 2. They are graded readers from foreign and local publishers. Some of them contain second language (L2) vocabulary glosses at the bottom of each page or at the end of the book. It is obvious that the application of L1 vocabulary glosses in L2 reading texts is confined to the less skilful readers in the scheme. It would therefore be quite interesting to investigate the impact of using L1 and L2 glosses on reading in the context of comprehension and vocabulary learning. The following section examines the studies on vocabulary glosses in the literature.
1.2 Literature review

Vocabulary glosses prepared in second language (L2) reading are common as it is one of the accepted practices in the preparation of reading materials for foreign language students (Holley and King, 1971:213). Davis (1989:41) holds the same view that it is 'a standard feature of foreign-language readers'. In fact, there are other types of glosses, such as question glosses which can be a useful means of enhancing students' retention of what they read (Hamilton, 1985, cited in Jacobs, 1994: 116). This study focuses mainly on vocabulary glosses.

A vocabulary gloss can be defined as 'a short definition' (Nation, 1990: 134) or 'an explanation of the word' (Pak, 1986, cited in Jacobs et al., 1994: 20).

Vocabulary glosses are often placed in the right margin, at the bottom of a page, or at the end of the text. Another location of glosses, though less common, can be found, for instance, in Ming Pao Daily, a
Chinese newspaper. The paper has adopted L1 glosses in its English page to render easy reading. The following is an example:

Shanghai - The textile workers of Shanghai have played a special role in the saga (長編故事) of modern China. (‘Market economy dents Chinese “iron rice bowl”’ in Ming Pao Daily, Jan 10, 1997)

In language learning, the use of vocabulary glosses is very popular for various reasons. Firstly, the widely use of authentic texts calls for the application of vocabulary glosses. The use of authentic texts in L2 instruction heightens students' need for vocabulary assistance (Rivers, 1987, cited in Jacobs et al., 1994: 21). There has been strong support for the use of authentic texts. Jacobs (1994: 118) complains that materials which are specially written for learners of a language, while striving for making comprehension easier, often do just the opposite. Moreover, nonauthentic materials deprive learners of all the richness of the language. Hence, Rivers (1987, cited in Jacobs, 1994:118) concludes that it is worthwhile exposing students to the target language as native speakers of that language see and hear it.
Another reason for the need of glossing is related to low frequency words. Since Twaddell (1973, cited in Jacobs, 1994: 117) contends that low frequency words play an important role in a language and remain unknown to learners until they possess a high level of language proficiency, the use of glossing is regarded as 'a necessary evil'.

Thirdly, students' preference for glosses is also one of the major considerations of teachers in the choice of reading materials. In the study of Holley (1970, cited in Holley and King, 1971: 213-214), 90% of the subjects preferred reading materials with glosses while 95% of the subjects believed that they would learn new vocabulary faster or as fast when glosses were made available. Similarly, another survey conducted by Jacobs et al. (1994: 26) indicated that an overwhelming 98.7% of L2 students in a US university preferred glosses. In this connection, from the perspective of L2 learners, glosses enhance reading comprehension and facilitate vocabulary learning, and they are complementary to each other (Jacobs, 1994: 116).
Holley and King (1971) hypothesise two further advantages of glossing as an aid to vocabulary learning. They referred to the findings of Anderson et al. (1969, cited in Holley and King, 1971: 214) which showed that the use of 'prompting' may bring about the superior scores in paired associate studies. Hence, Anderson et al. postulate that students would learn vocabulary effectively if they were consistently provided with the correct meanings of new words in reading materials to avoid guessing. Based on the study of Anderson et al. (1969), Holley and King (1971: 214) conclude that glosses in reading materials help students avoid incorrect guesses in which only context could guide them. Given that the difficulty of deriving meaning from context is not easy to cope with for learners as they have to be alert to all the available clues and need to spend a lot of time on practising guessing. Nation (1990: 130) criticises, 'it interrupts reading considerably in terms of time and focus of attention'.

Another hypothesis advanced by Holley and King (1971) on how glossing can assist vocabulary learning is that learning words can be enhanced if the rehearsal works among learners. According to the citation from Norman (1969: 68-69, 86, cited in Holley and King, 1971:
214), 'rehearsal' has the favourable effect of 'rehearsal' on verbal learning. 'Rehearsal' here means either the subvocal (covert) or vocal (overt) repetition of the unfamiliar word. In other words, students shift their attention to the checking of the gloss of unknown vocabulary from the text. They may then repeat the word or phrase to themselves and this in turn will help them retain the meaning in memory until their focus is back to the place where they encountered the last unknown word in the text. Such rehearsal was found to be useful for vocabulary learning as learners repeat the process by looking up the meaning of new words and returning back to the text.

On the other hand, Nation (1990: 134) suggests four advantages for the use of glossing in order to support his claim on its possible comprehension-enhancing functions. First, glossing provides readers with quick access to the meaning of those words which are crucial to the text but not important in the language as a whole. The second advantage cited by Nation is that, with the help of glosses, students need not seek teachers' assistance in comprehending the text. As students are able to read independently, teachers can find more time to help students with other reading problems. Thirdly, glosses make it less likely for
students to resort to a dictionary or to seek the assistance of their teacher with the meaning of unknown words. For this reason, learners should not experience too many interruptions that may hamper the reading process. Fourthly, glossing allows students to focus on their own unknown words. The individualisation of vocabulary helps students look up the definition when they only need to.

The effect of glossing on L2 reading comprehension has been investigated in at least five other studies and the findings are inconsistent. The target languages of the reading texts within these studies are various, namely English (Johnson, 1982: 506; Pak, 1986, cited in Jacobs, 1994: 120), French (Davis, 1989: 43), and Spanish (Jacobs et al., 1994: 22; Jacobs, 1994: 123).

In the study of Johnson (1982: 510), the result indicated that the exposure to meanings of difficult vocabulary words in the passage had no effect on the comprehension of L2 readers. Similar findings were found in the study of Pak (1986, cited in Jacobs, 1994: 120) which found no differences in overall comprehension between L2 students who read glossed and those who read unglossed versions of the same
texts. Jacobs et al. (1994: 25) did not find significant differences between the glossed and unglossed group, posthoc analysis on the comprehension test showed that those participants with higher language proficiency were able to benefit from vocabulary glosses. In contrast, the findings of Davis (1989: 44-45) valued the facilitating effect of vocabulary glosses as significant differences were found between the unglossed group and the two glossed groups. Also, another study from Jacobs (1994: 128) revealed that students who read the text with L1 or L2 glosses recalled approximately 30% more idea units. The findings of studies on glosses therefore seem to be contradictory.

Jacobs, Dufon, and Fong (1994: 19-28) investigated the effects of L1 and L2 glosses on comprehension and vocabulary learning for L2 learners and measured the learner's attitudes toward glosses.

In their study, 101 undergraduate students studying Spanish in a US university were invited to participate in the study. An authentic text from a Spanish reader was selected. Two attachments, one in Spanish and the other in English, were developed to accompany with the text during the experiment. These attachments contained glosses of 32
words and phrases from the text. A vocabulary test which requires participants to translate the glossed words or phrases from Spanish to English was also devised. Recall protocol of the reading passage was adopted as the comprehension test. The instrument that measured the attitude of participants on glossing was a three-item questionnaire.

In their study, students were randomly assigned to one of the three treatment conditions: 1) the control group - no gloss, 2) the first treatment group - English glosses, and 3) the second treatment group - Spanish glosses. Participants were first asked to read the text carefully, and then to return it. A blank sheet was given to them to recall as much as they could about the details of the text in English. After that, a vocabulary list as they had read in the text was distributed for students to translate them in English. Half of the participants were requested to fill in the questionnaire and the rest of them completed it during the delayed post test 4 weeks later. Those subjects took part in the delayed post test were given the same vocabulary list to perform what they had done before.
The major findings of the study was that no significant differences were found in the comprehension test among the various gloss conditions. This implies that neither L1 glosses nor L2 glosses facilitated the comprehension of the subjects when comparing the performance of the no-gloss group, though some differences were found between the two groups. Although the glossed groups outperformed the unglossed group in the vocabulary test, only insignificant differences were found between the glossed group and the unglossed group and the difference disappeared in the delayed post-test after 4 weeks. So the study did not provide evidence to confirm the hypothesis that L1 and L2 glosses would enhance the comprehension and vocabulary learning of L2 learners.

1.3 The Present Study

Inspired by the study of Jacobs et al. (1994), I would like to replicate their study with my Secondary One students in Hong Kong. The present study, however, includes some characteristics which differ from theirs.
As far as the subjects are concerned, none of the previous studies (Johnson, 1982; Pak, 1986; Davis, 1989; Jacobs et al., 1994; and Jacobs, 1994) invited secondary school students to participate in their studies. All of them invited as the subjects undergraduate or adult L2 students. In this regard, this may not be entirely applicable to secondary school L2 learners. In this study, students at Secondary One level of the age of 12-13 were invited and they were not proficient L1 learners as they were just in their first month of secondary education when they took part in the experiment.

In the study of Jacobs et al. (1994), they worked on the English-speaking students who were learning Spanish and this study was based on Cantonese-speaking students learning English. Cantonese is the L1 of the participants in the present study whilst English is the mother tongue of those subjects in their study. The learning style of these English and Chinese students may be totally different as the English language is orthography whilst the Chinese language is logography.

The reading text of the two studies are also different. For instance, the reading text used in the present study is a story about
moonrats which gives a lesson to readers in the end of it. This style of writing may activate their story schema which they acquired in their primary education. In Jacobs et al. (1994), they chose an authentic article from Spanish language periodicals which describes the recent changes in romantic customs in Spain. This was due to the interest of their subjects as it was one of their criteria employed in selecting text.

The present study and the study of Jacobs et al. (1994) also differ in the physical position where the vocabulary glosses are placed. In response to the opinions of the subjects of their study, the glosses of the present study were placed immediately after the unknown items in the text rather than on a separate vocabulary list as an attachment. Since the vocabulary items were unknown to most of the subjects, there was no need to place them on a separate sheet to distract the attention of the subjects while reading.

This study, therefore, seeks to ask the following research questions:
1. Do learners with the help of vocabulary glosses while reading L2 texts perform better than those without glosses on measures of comprehension?

2. Do learners with the aid of vocabulary glosses perform better than those without glosses on measures of vocabulary?

3. Are L1 or L2 glosses more effective in enhancing comprehension and vocabulary learning?

4. Is there a relationship between the comprehension test scores and the two vocabulary tests scores?

5. Is there a correlation between the Hong Kong Extensive Reading Scheme placement test scores and the comprehension test scores for the no-gloss group?

6. What are the students' preferences for the followings?

   i. L2 reading text with and without glosses

   ii. Chinese and English vocabulary glosses, and

   iii. the position of glosses in L2 reading text: in the margins, at the bottom of the page, at the end of the text, or immediate after the unknown items
1.4 Structure of the dissertation

This chapter, as mentioned above, reviewed the background of the study, Chapter Two and Three will outline the methodology employed in the present study. The results of the study will be reported and discussed in Chapter Four. In the closing chapter, the findings of the study are summarised and implications and limitations of the present study will be highlighted. Recommendations will also be made for future research.
Chapter 2 - Methodology I

As stated in the introductory Chapter 1, the main aim of this study is to investigate the effects of L1 and L2 vocabulary glosses on L2 comprehension and vocabulary learning. This chapter will report the subject under study, the design of the study, the instruments used for data collection and the pilot test.

2.1 Subjects

One hundred and sixty-nine Secondary One students of the St. Francis Xavier's School, Tsuen Wan, were invited to take part in the study. These students at the age of between 12 and 13 were classified to be Band One according to their academic results in primary six. In Hong Kong, primary six students were categorised into 5 Bands in which Band One is the best and Band Five is at the other end of the scale. The subjects all came from 4 classes in the boys' secondary school. They are Cantonese speakers living in Hong Kong. Primary schools in Hong Kong mainly employ Chinese as the medium of instruction across the curriculum except in English Language lessons. Another reason they were chosen was that the researcher is teaching in that school at that
level. It was more convenient to collect the data and co-ordinate the administration of the study.

2.2 Design

As a quantitative research, the study adopted an experimental design. Subjects were allocated to one of the three treatment conditions: 1) control group - no gloss, 2) experimental group with L1 glosses and 3) treatment with L2 glosses. The HKERS placement test is an official instrument to differentiate those good L2 readers from the poor ones. It was therefore an excellent indicator to be used in allocating the participants into the control group and the experimental groups. In the HKERS, classification of reading materials ranges from Level X, A, B, C, D, E, F, G, Reading Kit 2, to Reading Kit 1. Level X is the highest reading level and Reading Kit 1 is the lowest. Among the Secondary One students, Level D is the highest reading level and Reading Kit 1 is the lowest. Since the time lag between the HKERS placement test and the pilot study was about 2 weeks, the placement test scores of the subjects were used as references allocating the students to the control group and the experimental groups.
The HKERS placement test was used as an important factor in the grouping of the study. The three groups in the study were found in such a way that they consisted of students at various reading levels so that each group included students of mixed ability.

The main study adopted a treatment - post-test design. In the post-test, the students were asked to complete a comprehension test, a vocabulary test, and a questionnaire. Approximately 4 weeks later, a delayed post-test on vocabulary was given to the same students. In the delayed post-test, the students were asked to do the same vocabulary test they did in the post-test.

2.2.1 Treatment

There was a no-gloss group and two treatment groups. Different versions of text were provided. The text for the control group did not contain any glosses. One of the treatment group had the text with Chinese glosses and the other treatment group had the text with English glosses. All the vocabulary items to be tested were boldfaced in the versions for the control and the experimental groups.
2.3 The Reading Text

2.3.1 Selection of Text

The criteria used for selecting the text were as follows:

1. The interest of the participants in the study;

2. The presence of some vocabulary items in the text unknown to the participants; and

3. The length of the text which enabled the participants to finish reading and to complete the dependent measures within one lesson - 40 minutes.

After consulting two other experienced English teachers teaching Secondary One, a story was chosen as the reading text in the study.

The story was chosen from the Reading Kit 2 of the Hong Kong Extensive Reading Scheme. Since the Reading Kit 2 was specially prepared for the poor readers in the scheme, the length of the reading passage was limited to two pages at most. The title of the story was "When the Moonrat was King". This story which was written by Kerr (1990), was about a moonrat who was the King of the animals. The Moonrat wanted to travel around the world, so he ordered the other
animals to build a ship for him. He was dissatisfied with the size of the ship built until it was reduced to a tiny piece of wood. The animals were outraged as they had spent a lot of their time and worked hard for that. They finally expelled the Moonrat into the jungle with rotten food, and this caused the bad smell of moonrats nowadays.

2.3.2 Selection of unfamiliar vocabulary items

The researcher first identified 23 words that the subjects might find difficult in the text. Then two experienced English teachers in Secondary One were consulted about whether they would perceive those words as unfamiliar vocabulary items among their students. They were also invited to suggest other vocabulary items in the story which might be difficult for the subjects. Finally, they agreed that 17 out of 23 words originally chosen would be difficult to most of the Secondary One students. These 17 words were later tested in the pilot study to make sure that most subjects found them unfamiliar.

2.3.3 Three Versions of the Reading Text

A. The no-gloss group
The version of the reading text provided for the control group - no-gloss group, was the one which had the 15 vocabulary items printed in bold type but the items were without glosses. (See Appendix 1)

B. The L1-gloss group

The version of the reading text used for the L1-gloss group had the 15 items glossed with Chinese translation. The Chinese glosses gave the context meaning of the items; and the Chinese was easy enough for the students to understand. They were located right after the vocabulary items. (See Appendix 2)

C. The L2-gloss group

The text with 15 English glosses was made available to the last group. For the glosses, English synonyms or phrases with similar meaning were used as long as the meanings were close to the context meaning. The sole criterion applied to this version was that the English glosses given should be readily understandable to most of the subjects. The glosses were placed in the same position as that of the L1-gloss version. (See Appendix 3)
2.4 The Comprehension Test

The instrument used to test comprehension was an immediate recall test in which the subjects had to recall the story they had just read without referring to it. (See Appendix 4)

The subjects were requested to use their L1 to complete this task as Lee (1986: 207-208) contends that more evidence of comprehension can be yielded if a native-language recall task is adopted. In his study, significant differences were evident in the quantity of idea units recalled depending on the recall language (Lee, 1986: 209). In addition, the subjects in the present study were in their Secondary One. Their L2 proficiency was rather low in terms of their ability to express their ideas.

2.5 The Vocabulary Tests

A. Immediate post-test on vocabulary

In addition to the comprehension recall test, the students were given two vocabulary tests. They were tests on 15 items in the story. The subjects were given the items in English and were asked to use Chinese to write out their meaning. (See Appendix 5)
B. Delayed post-test on vocabulary

The same test paper was used for the immediate post-test and the delayed post-test which was administered approximately 4 weeks later to test the retention of those vocabulary items.

2.6 The Questionnaire

Another instrument used in the study for data collection was a three-item questionnaire in which questions were put to the subjects to assess their attitude about glossing. This questionnaire intended to ask whether they like glossing in L2 reading text, their preference for the language of glosses, and the position of glosses in the text. (See Appendix 6)

2.7 The Pilot Study

2.7.1 Aims

A pilot study was conducted before the main study. The aims of the pilot study were three-fold. First, it was to determine the time the subjects would need to read through the passage. It was inappropriate to choose a text which was too long as it might affect the subjects'
ability to recall. Another consideration was that the administration of all measures should be finished within 40 minutes. Secondly, it provided a basis for eliminating those vocabulary items which are known by most of the subjects. Thirdly, it gave the researcher the opportunity to modify those L2 glosses which subjects thought to be too difficult to understand.

2.7.2 Subjects in the Pilot Study

The pilot study took place in mid-September 1996 when the new Secondary One students had just taken the HKERS placement test. 10 students were randomly selected for the pilot study. They happened to include 2 from level E, 6 from level F, 1 from level G, and 1 from Reading Kit. It may be said that this group covered the whole range of students of various reading level.

2.7.3 Administration of the Pilot Study

The researcher conducted the test in a normal classroom setting and the participants were released from their classes with the permission of their teachers. All the subjects were told that their results in the study would have nothing to do with any school tests or examinations. To
achieve the aims of the pilot study, the students were asked to take part
in the following:

1. a pre-reading vocabulary test

2. a comprehension test

3. a vocabulary test

4. a group interview

First, a pre-reading exercise was given to the students to check
whether they already knew the 17 test items. Those items are listed
below:

<table>
<thead>
<tr>
<th>Table 2.1 : Vocabulary Items in the Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ugliest 6. enormous 11. attack 16. rotten</td>
</tr>
<tr>
<td>2. proud 7. claws 12. threw 17. reason</td>
</tr>
<tr>
<td>3. orders 8. crossly 13. suitable</td>
</tr>
<tr>
<td>4. travel 9. tiny 14. jungle</td>
</tr>
<tr>
<td>5. forest 10. wasted 15. smell</td>
</tr>
</tbody>
</table>

In this exercise, the participants were asked to indicate whether
they knew the words. They then had to write out the meaning of the
words which they claimed to know in Chinese. This was to prove that their claim was true and to ensure that the findings would be useful to the main study in identifying those real unfamiliar words to them.

On the completion of the pre-reading exercise, a reading text was distributed. They were told to read through the whole text with the help of the English glosses provided and at the same time, they were informed of a comprehension test and a vocabulary test to be followed. In the pilot study, only the version of reading text with L2 glosses was used as one of the aims of the pilot study is to find out whether the English glosses were difficult for the students to understand. Also, the participants were requested to raise their hands after they finished their first reading. This helped the researcher to estimate the exact time limit for the main study. Actually, the students were given five more minutes when they had finished the first reading before the text was collected from them.

After the reading text was collected, the comprehension test and the vocabulary test were distributed accordingly. The participants were requested to finish the comprehension test first when the ideas of the
text were still fresh in their memories. The comprehension test required the subjects to recall the contents of the text and write them down in their L1. They were even allowed to use Chinese words which sounded the same to express their meaning, which may be a help to those who were weak in Chinese. It was because the researcher wanted to minimise what might hinder their recall of the text. After completing the comprehension test, the students were given the vocabulary test. The time for both tests was noted.

After the tests, the researcher had a group interview with the subjects in order to gather their views on the tests they had taken.

The findings of the pilot test contributed a lot in shaping the main study in terms of the vocabulary items to be tested, the language of the L2 glosses, and the actual time required for completion, which will be reported below.

2.7.4 The findings of the pilot study

As far as time was concerned, the pilot study indicated that most of the subjects were able to finish reading the story, the comprehension test,
and the vocabulary test within 30 minutes. The students were allowed 40 minutes to do them in the main study.

Results of the pre-reading vocabulary test revealed that 7 items (ugliest, orders, travel, forest, attack, threw, smell) were known by 20% or more of the students. It was decided that among these 7 items, 2 were not considered for glossing (ugliest, forest) whereas the remaining 5 items were replaced by more difficult words of similar meaning in the main study as shown in Table 2.2.

Table 2.2 : Vocabulary Items deleted or replaced for the Main Study

<table>
<thead>
<tr>
<th>Pilot Study</th>
<th>Main Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ugliest</td>
<td>deleted</td>
</tr>
<tr>
<td>2. orders</td>
<td>commands</td>
</tr>
<tr>
<td>3. travel</td>
<td>voyage</td>
</tr>
<tr>
<td>4. forest</td>
<td>deleted</td>
</tr>
<tr>
<td>5. attack</td>
<td>assault</td>
</tr>
<tr>
<td>6. threw</td>
<td>pitched</td>
</tr>
<tr>
<td>7. smell</td>
<td>odour</td>
</tr>
</tbody>
</table>
As for the language of the L2 glosses, it was found during the group interview that only one word in a gloss was regarded as too difficult to the students - the word 'unnecessarily'. It was replaced by 'used without any need' in the main study. In this way, the comprehension of the subjects would not be hindered by the language of the L2 glosses.

Having reported the aims of findings of the Pilot Study, the following chapter will describe in detail the main study and in particular, how the subjects under study were assessed in the comprehension and vocabulary learning test.
Chapter 3 - Methodology II

3.1 The Main Study

The main study was carried out in two phases. In Phase one, after reading the story the subjects were given the comprehension test, the immediate vocabulary test, and the questionnaire to complete. In Phase two, about four weeks later, a delayed post-test on the same vocabulary items was administered to measure the retention of vocabulary learning among the subjects.

3.1.1 Phase One

Phase one was conducted in mid-October, 1996. And all Secondary One students in the school were invited to take part in the study except those ten students who were involved in the pilot study and three absentees on that day. The subjects were arranged to finish all the tasks in four separate classrooms in the morning session. The subjects were told by their English teachers that their test results would not be used for internal or external assessment. Instructions were given in Cantonese - their mother tongue so as to avoid any misunderstanding which might affect their performance in the tests.
The 159 subjects were assigned to one of the three conditions: 1) the control group - no gloss, 2) the first treatment group - Chinese glosses, and 3) the second treatment group - English glosses. The invigilators distributed the three versions of the reading text to participants according to the assigned condition.

Participants were first asked to read the passage carefully and hand in the text in 10 minutes. Then, the teachers gave them a comprehension test in which they had to write down in Chinese as much of the passage as they could remember. After this test, they were requested to complete a vocabulary test in which the 15 boldfaced vocabulary items in the passage were listed and they were asked to give the Chinese translation of the items. About 20 minutes in total were given for the completion of the comprehension and vocabulary test in total. After collecting both test papers, a questionnaire was distributed to the participants to elicit their attitude on glossing.

3.1.2 Phase Two
In four weeks time, a delayed post-test on vocabulary was carried out with a view to finding out the retention of those vocabulary items which appeared in the reading text. The same vocabulary test was used in the post-test and the delayed post-test. Teachers of English who lent a hand to the study were invited to administer the delayed vocabulary test. The same participants in Phase one were asked to take the delayed post-test.

3.2 Rating of the Comprehension Test

Given that one of the main aims of the study was to find out whether glosses could enhance the comprehension of L2 learners, it was important to find out how comprehension could be measured in the first place.

3.2.1 Idea units

In the study of Jacobs et al. (1994), comprehension ability was measured by the number of 'idea units' recalled. However, the definition of idea units was not mentioned or shown, nor any example cited, in the study. As this played a crucial role in the whole study, the researcher decided to sort out this problem by writing to one of the authors, Dr. George M. Jacobs, in Singapore in June, 1996 for his
advice. Unfortunately, Dr. Jacobs replied in early-August that he was unable to help me out in this situation since the major researcher in the study and the materials used were not readily accessible to them. Therefore, he kindly forwarded the address of another researcher, Peggy Dufon, in Indonesia to me through e-mail. Although immediate action to contact her was taken through mail, no further news could be heard until late October. She replied that the materials of their study were left in the States, which meant that it was impossible to access any relevant materials. Fortunately, she suggested some studies which might be relevant to my study.

3.2.2 T-unit

While waiting for the reply from Peggy Dufon, the researcher looked into the notion of T-unit in the analysis of the reading passage. T-unit is one of the ways in discourse analysis to investigate the basic units of speech. According to the definition formulated by Hunt (1966, cited in Crookes, 1990:184), T-unit is 'one main clause plus whatever subordinate clauses happen to be attached or embedded within it'. This method was formerly designed for the assessment of syntactic development in children's first language (L1) writing. Later on, some
applied linguists, such as Larsen-Freeman (1978, cited in Crookes, 1990:184); Larsen-Freeman and Storm (1977, cited in Crookes, 1990:184); Scott and Tucker (1974, cited in Crookes, 1990:184), adopted the T-unit to measure the development of L2 learners' written English. In the course of identifying T-unit in the reading passage, the researcher realised that it was hard to determine the number of T-units in a sentence. For instance, in a sentence "The other animals were very angry with the Moonrat, because they had worked so hard and wasted so much time", following Greenbaum and Quirk (1990:288), there is only one T-unit as 'because' serves as a conjunct that endorses the meaning of a subordinator that introduces the preceding clause. The analysis is limited as it is plainly syntactic.

In fact, Kroll (1977, cited in Crookes, 1990:184) criticises the shortcomings of the T-unit by pointing out that this existing structurally relevant measure being too specific to the written modality, was grammatical rather than psychological units.

3.2.3 Story Schema
In view of the narrative nature of the reading text, an attempt was made to analyse the story in the light of story schema. A schema is a structure in a semantic memory that specifies the general or expected arrangement of a body of information (Carroll, 1994: 174). In the early work of Bartlett on story recall (Bartlett: 1932, cited in Carroll, 1994: 174), Bartlett noticed that when the participants were given unusual stories that were inconsistent with their schemata, recall was usually distorted in the direction of the schemata. In line with this, story grammar which focuses on the typical order in which different types of events take place in a story is developed to reflect the story schema.

Taylor and Taylor (1990:62) describe the four elements of a good story. These are: (1) character(s) or protagonist(s) - the main character, hero(s) or heroine(s), in the story who triggers off the development of the whole story; (2) a plot which is a chart of how the character actions, and shows how the goal is attained at the end; (3) a setting, is the natural or artificial environment where the character takes actions; (4) a moral, is a concise summary of the story and often a lesson on life.
3.2.4 Idea Units

Concerning the analysis of texts, Taylor and Taylor (1983: 332) hold the view that sentences vary tremendously in length and structure even though they are major linguistic and processing units. Johnson (1970, cited in Taylor and Taylor, 1983: 332) developed the concept of idea units. An idea unit may contain one idea or show a place for the readers to pause. It may include a clause and consist of five to eight words on average. In his experiment in asking subjects to rank the importance of idea units in a paragraph, Johnson found a positive relationship between the structural importance of an idea unit and its recall. Research from Silmey et al. (1977, cited in Taylor and Taylor, 1983: 333) indicates that proficient readers were able to recall more idea units than the poor readers did.

For this study, it was finally decided that Johnson's concept of idea units was most suitable to the present study. Following Johnson and with the help of another English teacher, 26 idea units were identified in the reading text of the present study. (See Appendix 7)
3.2.5 Marking the Test

Once the idea units were settled, a different process was used in rating the recall protocols. It was anticipated that there would be some discrepancies over the translation of certain ideas, since participants were required to recall the L2 passage by using their L1. Two raters, the researcher and the Chinese-speaking English teacher who joined the process of identifying idea units, were involved in the work of scoring. It was agreed to award two marks for each idea unit which completely match the meaning of the reading passage. Only one mark would be given to each incomplete idea unit.

In order to establish inter-rater agreement on marking in the comprehension test, the following procedure was carried out. First, the name of the participants in the test were covered and replaced by a personal number for identification. This was to avoid any unfair judgements due to the familiarity between raters and the subjects. Then the comprehension test of 20 subjects were randomly selected from the three groups for the task of establishing inter-rater agreement. Inter-rater agreement for the comprehension test was 0.8814 (Pearson product moment correlation). Differences of opinion were discussed
until a consensus was reached. The raters then divided all the comprehension tests and each rated half of them.

In the course of rating in the comprehension test, seven subjects who were considered to be unable to interpret the ideas of the reading passage correctly right from the beginning were excluded from the analysis of the study because the focus of the test was on comprehension and if the students misunderstood the text from the study, it was meaningless to their work at all. Since the seven students were distributed in various groups, this decision did not affect the findings of the present study. So, in total 152 subjects were finally taken into account for the data analysis.

3.3 Rating of the Vocabulary Tests

The rating of the vocabulary test was the same as the comprehension test, that is two marks for correct meaning as explained by the gloss in the reading passage and one mark for those answers which are close to the meaning of the vocabulary items in the text. The establishment of the inter-rater agreement on the vocabulary tests was much the same way as the comprehension test. 20 tests were selected randomly from
three groups and scored independently by the two raters. Inter-rater agreement was 0.9958 (Pearson product moment correlation). The raters then shared the vocabulary tests and scored them separately.

3.4 Analysis of Data

For the present study, One-Way Analysis of Variance (ANOVA)s were run to examine whether there were statistically significant main effects for the differences in paired comparisons, with treatment condition being the independent variable and scores on the comprehension test and the first and second vocabulary tests being the dependant variables. Pearson product moment correlation coefficients were used to determine the degree of relationship between scores on the comprehension and those on each of the two vocabulary tests. The correlation between the HKERS placement scores and the scores of the no-gloss group was processed in the same way. In addition, the analysis of the data in the questionnaire employed frequency counts and percentages for the responses on the three items.

In the following chapter, the findings of the study will be reported and discussed in detail.
Chapter 4 - Results and Discussion

This chapter reports the findings in relation to the comprehension test and the two vocabulary tests. The preferences of the students on glossing will also be reported.

4.1 Glosses and Comprehension

In the main study, the control group and the two experimental groups were given the same comprehension test. The results of the comprehension test are as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cases</th>
<th>Mean Scores</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Gloss</td>
<td>53</td>
<td>14.53</td>
<td>7.8</td>
</tr>
<tr>
<td>Chinese Gloss</td>
<td>50</td>
<td>22.46</td>
<td>8.16</td>
</tr>
<tr>
<td>English Gloss</td>
<td>49</td>
<td>17.06</td>
<td>7.63</td>
</tr>
</tbody>
</table>
Table 4.1 shows that there were differences among the groups. Both the L1-gloss group and the L2-gloss group performed better than the no-gloss group, which was the control group. This indicates that glossing enhances comprehension.

As one of the main aims of the study was to find out the effect of L1 and L2 glosses, One-Way ANOVA was applied to look at whether there were any significant differences among the three groups (no gloss, L1 glosses, and L2 glosses). The results are reported as follows:

Table 4.2 : Differences among the Control group, the L1-gloss group, and the L2-gloss group

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>1676.2338</td>
<td>838.1169</td>
<td>13.540</td>
<td>0.0000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>149</td>
<td>9222.4439</td>
<td>61.8956</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results of the test show that significant differences were noted among the no-gloss group, L1-gloss group, and L2-gloss group in the comprehension test (F-ratio = 13.54 at p<0.0005). Further analysis was made by running the Multiple Range tests of Tukey's HSD at 0.05 significant level. It was observed that though the L2-gloss group did better than the no-gloss group, no significant difference was found between them. Conversely, the performance of the L1-gloss group was significantly better than the no-gloss group as well as the L2-gloss group indicating that L1 glosses are more effective than L2 glosses in enhancing comprehension of L2 learners.

4.2 Glosses and Vocabulary Learning

Another aim of the study is to find out whether vocabulary glosses enhance vocabulary learning. This section reports analysis of the immediate vocabulary test and the delayed vocabulary test.
4.2.1 The immediate vocabulary test

Results of the immediate vocabulary test are as follows:

Table 4.3: Results of the Immediate Vocabulary Test

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cases</th>
<th>Mean Scores</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Gloss</td>
<td>53</td>
<td>5.74</td>
<td>6.2</td>
</tr>
<tr>
<td>Chinese Gloss</td>
<td>50</td>
<td>13.56</td>
<td>8.9</td>
</tr>
<tr>
<td>English Gloss</td>
<td>49</td>
<td>6.45</td>
<td>5.96</td>
</tr>
</tbody>
</table>

In the above table, the mean scores for the Chinese-gloss group and the English-gloss group are higher than that of the no-gloss group, showing that positive effect of glossing on vocabulary learning in general. However, it is very obvious that the L1-gloss group outperformed the other two groups.
One-Way ANOVA was applied to find out if there were any significant differences among the no-gloss group, the L1-gloss group, and the L2-gloss group. The results are shown in the following table.

Table 4.4: Differences among the no-gloss group, the L1-gloss group, and the L2-gloss group

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>1891.0188</td>
<td>945.5094</td>
<td>18.579</td>
<td>0.0000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>149</td>
<td>7582.7443</td>
<td>50.8909</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results indicated that significant differences were found among them (F-ratio = 18.58 at p<0.0005). The Tukey's HSD Test showed that there were significant differences between the L1-gloss group and the no-gloss group and between the L1-gloss group and the L2-gloss group. However, the differences between the L2-gloss group and the no-gloss group were not significant, which was expected as the mean scores were quite close. This, again, indicates the positive effect of L1 glosses.
4.2.2 The delayed vocabulary test

The results of the immediate vocabulary test and the delayed vocabulary test are reported together as follows:

Table 4.5: Results of the Immediate and the Delayed Vocabulary Tests

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Cases</th>
<th>Post-test Scores</th>
<th>Delayed Post-test Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Means</td>
<td>SD</td>
</tr>
<tr>
<td>No Gloss</td>
<td>53</td>
<td>5.74</td>
<td>6.2</td>
</tr>
<tr>
<td>Chinese Gloss</td>
<td>50</td>
<td>13.56</td>
<td>8.9</td>
</tr>
<tr>
<td>English Gloss</td>
<td>49</td>
<td>6.45</td>
<td>5.96</td>
</tr>
</tbody>
</table>

Regarding the delayed vocabulary test, the overall performances of the three groups were not as good as in the immediate vocabulary test. More importantly, although the effect of L1 glosses in the immediate vocabulary test was outstanding, a drastic drop of its effect was found in the delayed test. This implies that vocabulary learning cannot rely on glossing. However, it should be pointed out that the
L1-gloss group still outperformed the other two groups as mean scores for this group was at 7.44 while the no-gloss group and the L2-gloss group got 5.04 and 5.08 respectively.

To find out whether there were significant differences among the three groups, an One-Way ANOVA was run to analyse their scores in the test. The results are shown in following table.

Table 4.6: Differences among the no-gloss group, the L1-gloss group, and the L2-gloss group

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>190.2925</td>
<td>95.1463</td>
<td>3.9734</td>
<td>0.0208</td>
</tr>
<tr>
<td>Within Groups</td>
<td>149</td>
<td>3567.9180</td>
<td>23.9458</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
among the control group and the two experimental groups, the results showed that significant differences were found between the L1-gloss group and the no-gloss group and between the L1-gloss group and the L2-gloss group. No significant differences were found between the no-gloss group and the L2-gloss group, which is expected as their mean scores in the delayed vocabulary test were extremely close, that is 5.0377 and 5.0816 respectively. So, though the scores for the three groups had dropped considerably, the L1-gloss group still did significantly better than the L2-gloss group and the no-gloss group. It can be found that the results of the delayed post-test are similar to that of the post-test.

4.3 Comprehension and Vocabulary Tests

An attempt was made to find out whether there was any correlation between the comprehension test scores and the two vocabulary tests scores. Results of the correlation analysis indicated that there was a positive and significant correlation between the comprehension test and the immediate vocabulary test (0.4358 at p<0.005). On the other hand, the correlation coefficient between the comprehension task and the delayed vocabulary test was also positive and significant (0.4858 at
p<0.005). So, there is a significant positive correlation between the comprehension test scores and the scores in both the immediate and delayed vocabulary tests indicating that students who did well in the comprehension test also did well in the two vocabulary tests. This is natural if unknown words were no more a barrier for students to comprehend the story, they could achieve better results in both comprehension and vocabulary tests.

4.4 Hong Kong Extensive Reading Scheme and Comprehension Test

The correlation between the HKERS placement test scores and the comprehension test scores of the no-gloss group were also looked into. The Pearson product moment correlation coefficient between the two scores was 0.5694 at p<0.005. This showed that the 2 tests scores were significantly and positively correlated. In this respect, the findings of the present study support the reliability of the HKERS placement test which in return indicate the validity of the comprehension test used for the study.
4.5 Students' Attitude toward Glossing

Students were asked of their preferences for glossing in L2 reading texts. Students were questioned if they prefer:

a) L2 reading text with or without glosses,

b) Chinese glosses or English glosses, and

c) whether glosses be placed in the margins, at the bottom of the page, at the end of the text, or immediate after the unknown items.

The results of the questionnaire were showed as follows:

Table 4.7: Preference for glosses in L2 reading texts

<table>
<thead>
<tr>
<th>Preferences</th>
<th>Number of respondents</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>With glosses</td>
<td>129</td>
<td>84.9</td>
</tr>
<tr>
<td>Without glosses</td>
<td>23</td>
<td>15.1</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100</td>
</tr>
</tbody>
</table>
The results showed that 84.9% of the respondents preferred reading text with glosses. Only 15.1% did not prefer glosses. The latter group of students might have more confidence in their reading skills that they could read efficiently even with the presence of unknown words in the L2 reading text. For the overwhelming majority of students, however, they regarded glossing as an aid to reading L2 texts. As for the preference for L1 or L2 glosses, the results are revealed in table 4.8.

<table>
<thead>
<tr>
<th>Preferences</th>
<th>Number of respondents</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>117</td>
<td>88.6</td>
</tr>
<tr>
<td>English</td>
<td>12</td>
<td>11.4</td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>100</td>
</tr>
</tbody>
</table>

The 23 participants who had reservations about the effectiveness of glossing in reading L2 text were eliminated. In other words, only 129 students were left in the analysis of their attitude toward glossing in L2 reading text. Among them, 88.6% preferred glosses in Chinese. This
finding confirmed the need for L1 glosses and was consistent with the finding that the L1-gloss group did better in the comprehension and vocabulary tests.

Concerning the location of the glosses, 82.17% of the respondents preferred to have the glosses placed immediately after the unknown items as shown in table 4.9.

Table 4.9: Location of the Gloses

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of respondents</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the margins</td>
<td>5</td>
<td>3.88</td>
</tr>
<tr>
<td>At the bottom of the page</td>
<td>10</td>
<td>7.75</td>
</tr>
<tr>
<td>At the end of the text</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>Immediate after the unknown items</td>
<td>106</td>
<td>82.17</td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>100</td>
</tr>
</tbody>
</table>

In the above table, students preferred the gloss to be inserted right after the vocabulary items. This might be because they could
concentrate on the comprehension of the text and did not need to move away from the text to the glosses elsewhere, which is not difficult to understand.

The following chapter will summarise the findings and draw the conclusion.
Chapter 5 - Conclusion

The present study sets out to investigate whether L1 glosses and L2 glosses in reading texts would aid the comprehension and vocabulary learning of L2 learners, and to gauge the attitude of Secondary One students toward glossing.

5.1 Discussion on the Findings

From the results of the comprehension test, there were some differences between the performances of the control group and the two experimental groups. The One-Way ANOVA revealed that the differences between them were statistically significant. Glossing in general enhances comprehension and the performance of the L1-gloss group in the comprehension test was significantly better than the no-gloss group as well as the L2-gloss group while no significant differences were found between the L2-gloss group and the no-gloss group though the L2-gloss group scored higher. This indicated that the effect of L2 glosses was not as great as L1 glosses in enhancing L2 comprehension. On the other hand, the findings were totally different from what were concluded in the study of Jacobs et al. (1994) that no
significant differences were found among the control group and the two experimental groups. This findings revealed that glossing may not be the crucial factor for them to comprehend L2 texts.

The reasons for the differences between the findings of the present study and the study of Jacobs et al. (1994) may due to a lot of reasons. In Jacobs et al. (1994: 25), the comprehension scores of the no-gloss group, the L1-gloss group, and the L2-gloss group were 16.4, 17.3, and 18.2 respectively. Their scores were very low when compared with the maximum scores of 108. The vocabulary scores were also very low. The scores for the three groups were 5.3, 9.6, and 8.6 respectively where the maximum scores were 32. In the delayed vocabulary test, the mean number of items recalled of the three groups were 4.4, 4.6, and 5.3 respectively. As a matter of fact, both the control and the experimental groups in the study of Jacobs et al. (1994) did very poorly in both tests. This might be because the text chosen was too difficult for the students and they failed to capture the effect of glosses if there were any. Or it might be the text was too long. Anyway, the subjects under study were very different.
Results of the vocabulary test showed that the L1-gloss group and the L2-gloss group did better than the no-gloss group. This suggests that the glossed text really enhanced the vocabulary learning of L2 learners. Moreover, the findings of Jacobs et al. (1994) revealed similar results as both the L1-gloss group and the L2-gloss group had higher scores than the no-gloss group.

In the delayed post-test on vocabulary, all the three groups did not do as well as they did in the post-test. This phenomenon was quite similar to the findings of Jacobs et al. (1994: 26) which revealed the disappearance of the effect of glosses. This shows that the retention of vocabulary does not rely solely on the use of glosses.

However, the L1-gloss group still performed significant better than the no-gloss group and the L2-gloss group. In contrast, no significant differences were found between the no-gloss group and the L2-gloss group, which is similar to the findings in the comprehension test. No significant differences were found among the three groups in the delayed post-test of Jacobs et al. (1994: 25)
This showed that L1 glosses were effective in helping students on both vocabulary learning as well as comprehension.

On the other hand, it was found that the comprehension test scores and the immediate vocabulary test scores correlated positively and significantly. The correlation between the comprehension test and the delayed vocabulary test was also found to be positive and significant. As the no-gloss group could not access the glossed text, unknown words might hinder the comprehension and vocabulary learning of L2 learners. Thus, their performances in the three tests remained at the bottom among the three groups, confirming that there was positive effect of glossing on comprehension and vocabulary learning.

In addition, it was found that the HKERS placement test scores and the comprehension scores of the no-gloss group significantly correlated. This showed the consistency and reliability of both tests on students' comprehension. Those students who did better in the HKERS placement test also performed better in the comprehension test.
The results of the questionnaire showed the information on the preferences of students toward glossing. 84.9% subjects preferred reading text with glosses. This is consistent with the findings that students who were provided with glossed text performed significantly better in the comprehension test and the two vocabulary tests. Concerning the language of the glosses, 88.6% of the subjects preferred Chinese. This relates positively to the outstanding performances of the L1-gloss group in the measures of both comprehension and vocabulary learning. In addition, 82% of the students preferred the glosses to be placed after the unfamiliar words or phrases whilst being located at the end of the text, at the bottom of the page, and at the margin achieved 6%, 8.3%, and 3.8% respectively.

In the study of Jacobs et al. (1994: 26) and the present study, glossed text was perceived as popular among the subjects. However, differences existed on the language preferred for the glosses since only half of the subjects in Jacobs et al. (1994) favoured L1 glosses whilst the overwhelming majority in the present study chose L1 glosses. This might be because the study of Jacobs et al. (1994) looked at
undergraduate students while this study looked at Secondary One students whose language proficiency level was much lower.

5.2 Implications of the Present Study

The positive effect of L1 and L2 glosses in the present study confirms the findings of Davis (1989: 44-45) and Jacobs (1994: 128) that glossing in L2 reading texts enhances the comprehension and vocabulary learning of L2 learners. This also confirms Hulstijn (1992: 123)'s contention that reading L2 texts without the guidance of teachers, the classical 'closed' (glossing) procedures, such as giving a synonym or translation, seem to constitute safer cue procedures. This means that the provision of glossing in reading L2 texts reduces wrong guessing of vocabulary items to the minimum and this practice is especially suitable for unguided L2 learning. The findings of this study also support the view of Holley and King (1971: 218) that glosses should definitely be used where extensive reading is desirable, or limited time is available for reading, because they allow more rapid reading without any apparent loss in vocabulary learning. These findings have important implication for the administrators of the HKERS who intend to foster
the reading interests of Secondary One students without the assistance of their teachers.

More importantly, the positive effect of L1 glosses on comprehension and vocabulary learning was confirmed by the performances of the L1-gloss group. Students' preferences for glossing also indicated that Chinese (L1) glosses were much more popular than English (L2) glosses even though the subjects were admitted to the school adopting English as the medium of instruction. This implies that Secondary One students may need L1 glosses to help their comprehension and vocabulary learning especially when they do the reading independently. While Holley and King (1971: 214) claim that experienced teachers always hold the view that 'glosses serve as a crutch which hampers learning', the researcher of the present study suggests otherwise. English teachers in Hong Kong should make use of the positive effect of L1 glosses if they would like to promote self-access learning among their Secondary One students.

Moreover, the positive and significant correlation between the HKERS test scores and the comprehension test scores of the no-gloss
group implies the positive effect of L1 glosses may be relevant to the HKERS as the scheme is a self-access reading programme in which junior secondary students choose their favourite English books and read at their own paces without the assistance of their teachers. As the reading materials of the scheme are prepared by the Education Department, it is better for them to adopt more reading materials with Chinese glosses.

Regarding the location of the glosses, most of the subjects were in favour of having the glosses placed immediate after the unknown items. This ran counter to the perception of publishers on the choice of location where glosses were placed. Quick access to the meaning of vocabulary without having to go through all the trouble of shifting through the text is the general aspiration of most students in the study. To their disappointment, glosses are always printed in the margin, at the bottom of the page, or at the end of the book which may hamper the reading interest and comprehension of poor readers as they have to refer to the glosses frequently. Publishers of reading materials are therefore urged not to lose sight of this finding in designing the relevant publications.
5.3 Limitations of the Present Study

As the comprehension test adopted the form of recall protocol, it was indeed a new experience to the subjects. This format might, to some extent, affect their performance as they seldom need to retell L2 story with their L1. In order to avoid this problem, future researchers may let the subjects practise this recall task several times prior to the main study.

Another limitation of the study has to do with the delayed post-test on vocabulary. As there was an interval of four weeks between the immediate vocabulary test and the delayed vocabulary test, students might have learnt some of the items they came across in the immediate vocabulary test from other lessons during this period.

5.4 Suggestions for Further Studies

As the subjects of the present study came from a secondary school using English as an medium of instruction, it may be interesting to investigate the effects of L1 and L2 glosses in L2 text among students in Chinese-medium schools.
It is true that the students' attitude towards glossing are very encouraging. However, glossing is not the only means. Instead, Nation (1990: 133-138) suggests that exposing students to various approaches to learning new vocabulary such as referring to a dictionary, and reviewing words met in texts, may help them on vocabulary learning. Moreover, Jacobs et al. (1994: 27) assert that assisting students to comprehend L2 reading passages may not merely depend on using glossing, but also other means such as multiple readings of the same passage.
Bibliography


Kerr, J.Y.K. (1990), When the Moonrat was King. In *Reading Kit 2*, Workcard 43. Longman: Hong Kong.


Appendix 1

Group A

注意事项 (Instructions)
细阅以下文章，理解文章中的粗体字，並牢記故事詳細内容，
限時十分鐘。(Read the story, pay attention to the meaning of the
boldfaced words and remember the story.) (Time allowed: 10 minutes)

When the Moonrat was King

This is a story told by old people in China long ago.

Long ago the King of the animals was not the Tiger but the Moonrat. The Moonrat is about the size of a cat, with a long nose and long black hair on its back. He was the ugliest King that the animals ever had but he was very proud of himself. He also liked to give commands to the other animals.

One day he decided that he wanted to voyage around the world. He called all the forest animals together and said: 'I want you to build me a boat.'

The animals cut down an enormous forest tree and made a beautiful boat for their King. When it was ready, the Moonrat looked at it.

'It's much too big,' he said. 'Make it smaller.' The other animals worked at the boat with their teeth and their claws and made a boat which was only half the size of the first one.

'It's still too big,' said the Moonrat crossly. The other animals made the boat smaller still, and still the Moonrat was not pleased. 'Too big, too big,' he cried each
time. Finally the boat was just a tiny piece of wood. The Moonrat picked it up and started cleaning his teeth with it!

The other animals were very angry with the Moonrat, because they had worked so hard and wasted so much time. They began to assault him and pitched bad eggs and vegetables at him. 'You are stupid and lazy, Moonrat,' they shouted. 'You are not suitable to be our King. Get out!'

The Moonrat ran away into the jungle and never came back. That is why the moonrat always lives alone and only comes out at night. The odour of the rotten food which the animals threw at him stayed on his body. That is the reason why, even today, moonrats always smell so bad.
Appendix 2

Group B

注意事项 (Instructions)

细阅以下文章，理解文章中的粗体字，并牢记故事详细内容，
限时十分钟。 (Read the story, pay attention to the meaning of the
boldfaced words and remember the story.) (Time allowed: 10 minutes)

**When the Moonrat was King**

This is a story told by old people in China long ago.

Long ago the King of the animals was not the Tiger but the Moonrat. The
Moonrat is about the size of a cat, with a long nose and long black hair on its back.
He was the ugliest King that the animals ever had but he was very proud (自豪) of
himself. He also liked to give commands (命令) to the other animals.

One day he decided that he wanted to voyage (航海) around the world. He
called all the forest animals together and said: "I want you to build me a boat."

The animals cut down an enormous (巨大) forest tree and made a beautiful
boat for their King. When it was ready, the Moonrat looked at it.

"It's much too big," he said. "Make it smaller." The other animals worked at
the boat with their teeth and their claws (爪) and made a boat which was only half
the size of the first one.
'It's still too big,' said the Moonrat **crossly** (憤怒地). The other animals made the boat smaller still, and still the Moonrat was not pleased. 'Too big, too big,' he cried each time. Finally the boat was just a **tiny** (細小) piece of wood. The Moonrat picked it up and started cleaning his teeth with it!

The other animals were very angry with the Moonrat, because they had worked so hard and **wasted** (浪費) so much time. They began to **assault** (攻擊) him and **pitched** (擲) bad eggs and vegetables at him. 'You are stupid and lazy, Moonrat,' they shouted. 'You are not **suitable** (適合) to be our King. Get out!'

The Moonrat ran away into the **jungle** (叢林) and never came back. That is why the moonrat always lives alone and only comes out at night. The **odour** (氣味) of the **rotten** (腐爛的) food which the animals threw at him stayed on his body. That is the **reason** (原因) why, even today, moonrats always smell so bad.
Appendix 3

Group C

注意事項 (Instructions)
細閱以下文章，理解文章中的粗體字，並牢記故事詳細內容，限時十分鐘。(Read the story, pay attention to the meaning of the boldfaced words and remember the story.) (Time allowed: 10 minutes)

When the Moonrat was King

This is a story told by old people in China long ago.

Long ago the King of the animals was not the Tiger but the Moonrat. The Moonrat is about the size of a cat, with a long nose and long black hair on its back. He was the ugliest King that the animals ever had but he was very proud (thinking highly) of himself. He also liked to give commands (words which make others follow) to the other animals.

One day he decided that he wanted to voyage (to go from one place to another by boat) around the world. He called all the forest animals together and said: 'I want you to build me a boat.'

The animals cut down an enormous (very large) forest tree and made a beautiful boat for their King. When it was ready, the Moonrat looked at it.
'It's much too big,' he said. 'Make it smaller.' The other animals worked at the boat with their teeth and their claws (a sharp, hard point on the foot of an animal) and made a boat which was only half the size of the first one.

'It's still too big.' said the Moonrat crossly (angrily). The other animals made the boat smaller still, and still the Moonrat was not pleased. 'Too big, too big,' he cried each time. Finally the boat was just a tiny (very small) piece of wood. The Moonrat picked it up and started cleaning his teeth with it!

The other animals were very angry with the Moonrat, because they had worked so hard and wasted (used without any need) so much time. They began to assault (fight against) him and pitched (to make something fly through the air by hand) bad eggs and vegetables at him. 'You are stupid and lazy, Moonrat,' they shouted. 'You are not suitable (good enough) to be our King. Get out!'

The Moonrat ran away into the jungle (a thick forest found in hot countries) and never came back. That is why the moonrat always lives alone and only comes out at night. The odour (bad smell) of the rotten (bad) food which the animals threw at him stayed on his body. That is the reason (cause) why, even today, moonrats always smell so bad.
Appendix 4

請在二十分鐘內完成測試一及二
(Finish Tests 1 and 2 in 20 minutes)

測試一：文章內容回憶 (Test 1: Recall Story)

姓名：__________ 班別：______________ 班號：__________

試盡量回憶整篇文章的內容，並以中文詳細寫出。
(Recall the details of the story and write them down in Chinese)

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________

________________________
Appendix 5

第一期測試二　和　第二期測試：詞語解釋
(Test 2: Immediate Vocabulary Test, and Delayed Vocabulary Test)
姓名：________ 班別：________________ 班號：________

(Explain the meaning of the following words in Chinese. These words appeared in the story you just read.)

1. proud
2. commands
3. enormous
4. claws
5. crossly
6. tiny
7. wasted
8. assault
9. pitched
10. suitable
11. jungle
12. odour
13. rotten
14. reason
15. voyage

※※※ 全卷完 ※※※
(End of Paper)
Appendix 6

問卷調查 (Questionnaire)

姓名：_________ 班別：_________ 班號：_________

試在下列各題中，選出最適合你的答案，並在方格內加上「√」。
(Choose your most desirable answer by putting a “√” in the appropriate box.)

1. 你是否比較喜歡閱讀有註釋的文章？
   (Do you prefer reading texts with glosses?)
   □ 是 (轉往下題)       □ 否 (問卷完)
   Yes (go to Question 2)   No (end of questionnaire)

2. 你喜歡哪種語言的註釋？(What language would you prefer for the glosses?)
   □ 中文 (Chinese)       □ 英文 (English)

3. 你喜歡註釋放在那裏？(Where do you like the glosses to be put?)
   □ 頁邊空白處 (In the margin)
   □ 在每頁最下方 (At the bottom of the page)
   □ 在整篇文章完結之後 (At the end of the text)
   □ 緊隨跟深字之後 (Inserted in the text right after the difficult words)

※※※ 多謝合作 ※※※
(Thank you for your co-operation!)
## Appendix 7

### Key ideas in each section of the story

**When the Moonrat was King**

<table>
<thead>
<tr>
<th>Sections</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>1. The Moonrat was the King of the animals.</td>
</tr>
<tr>
<td></td>
<td>2. He is about the size of a cat,</td>
</tr>
<tr>
<td></td>
<td>3. with a long nose</td>
</tr>
<tr>
<td></td>
<td>4. and long black hair on its back.</td>
</tr>
<tr>
<td></td>
<td>5. He was the ugliest King.</td>
</tr>
<tr>
<td></td>
<td>6. He was proud of himself.</td>
</tr>
<tr>
<td></td>
<td>7. He liked to give commands to other animals.</td>
</tr>
<tr>
<td>Episode 1</td>
<td>8. The Moonrat wanted to voyage around the world.</td>
</tr>
<tr>
<td></td>
<td>9. He asked the forest animals to build a boat for him.</td>
</tr>
<tr>
<td>Reaction 1</td>
<td>10. The animals cut down a big tree to make a boat.</td>
</tr>
<tr>
<td>Episode 2</td>
<td>11. The Moonrat thought the boat was too big.</td>
</tr>
<tr>
<td></td>
<td>12. The animals used their teeth</td>
</tr>
<tr>
<td></td>
<td>13. and their claws to make a smaller boat.</td>
</tr>
<tr>
<td>Reaction 2</td>
<td>14. The Moonrat insisted to make the boat small</td>
</tr>
<tr>
<td></td>
<td>15. until it became a small piece of wood.</td>
</tr>
<tr>
<td></td>
<td>16. He used it to clean his teeth!</td>
</tr>
<tr>
<td></td>
<td>17. The other animals were angry</td>
</tr>
<tr>
<td></td>
<td>18. as they worked hard</td>
</tr>
<tr>
<td></td>
<td>19. and wasted a lot of time.</td>
</tr>
<tr>
<td></td>
<td>20. They attacked him with bad eggs</td>
</tr>
</tbody>
</table>
21. and vegetables.

22. The animals did not regard the Moonrat as their king.

23. He ran into the jungle

24. and never came back.

25. The smell of rotten food stayed on his body.

26. That is why, even today, moonrats always smell bad.