CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The objective of this study is to alleviate the perception of the difficulties faced by L2 learners who are involved in learning Chinese characters. It is achieved by associating the unique characteristics of the Chinese characters with contextual reading.

The methodology selected for this study is a mixed method that includes qualitative (case study) and quantitative (use of tables, flowchart and graphs) interpretations. The case study is sourced from a small pool of students who are studying in an international school in Kuala Lumpur. They are learning the Chinese language as a second language. Data are collected from interviews, reading comprehension tests and surveys.

3.2 Theoretical framework

The theoretical framework of this empirical study is based on the findings of studies which link phonological and morphological structure awareness with Chinese characters that were conducted on native speakers of Chinese (McBride-Chang, Cheuk, Cho, Wagner, Muse, Liu, Shu, & Zhou, 2005; Tan, Spinks, Eden, Perfetti, & Siok, 2005; McBride-Chang, Shu, Zhou, Wat, & Wagner, 2003; Nagy, Kuo-Kealoha, Wu, Li, Anderson, & Chen, 2002; Ku & Anderson, 2001; Zhou, Marslen-Wilson, Taft, & Shu, 1999), and on non-native speakers (Jin, 2006; Liu, Wang, Perfetti, 2005; Shen 2005). The results of these studies suggest that learners find it easier to learn and remember Chinese characters by their related phonological and morphological characteristics.

The use of lexical processing strategies (LPSs) in reading for comprehension (Fraser 1999) is also used as a supplementary framework to study the usefulness of LPSs in reading Chinese texts. In addition to Fraser's lexical processing strategies, Kong's (2006) text- and reader-initiated reading strategies between L1 and L2 are also deemed useful in facilitating reading Chinese texts.

3.3 Background of the study

This study was conducted in the compound of an international school where the school curriculum is based on the North American educational system. In this system, high school students have the option of pursuing a full International Baccalaureate (IB) Diploma when they are in grade 11(age of 16), and they sit for the examination at the end of grade 12. IB Diploma is a rigorous two year course that leads to a European university entrance standard examination. It is mandatory for all diploma students to take a second language for the full diploma. In recent years, this IB diploma has been regarded as a prestigious university entrance for universities in the United Kingdom, Europe, United States, Canada, Australia, New Zealand, and Singapore. Consequently, all diploma students take their academic work very seriously.

In the IB language courses, there are four different levels of proficiencies for the appropriate placements of the diversified candidacies. Students who are native or neo-native speakers of Chinese, have to take either IB Chinese A1 or A2 courses. Beginners of Chinese language, who have learnt the language for two years, then sit for the IB examination called Chinese Ab initio. IB Mandarin B is a course designed for students who have learnt the Chinese language between three to five years. This course is named as Mandarin B because a Cantonese B course is given, in addition to many other languages. International candidates from Hong Kong may select a Cantonese course if

their spoken language is Cantonese. For the purpose of this study, the participants take Mandarin as it is the Chinese language course that the school offers.

3.4 Background of the Participants

The academic year for the students in this study commences in August and concludes in June. The schedule for the students is based on a six-day rotation instead of a normal five day schedule. Each day there are only four periods of classes, and each class is of 85 minutes long. Every student needs to have eight classes over two school days to make up a full-time schedule. Therefore, the participants of this study will attend Chinese class on Day 2, 4 and 6. This study was initiated in February 2008 where written consent and approval were obtained from the students and their parents, and also the school principal. A survey regarding the motivation orientation, learning strategies, perceived challenges in learning Chinese, and the self-evaluation as a second language learner, was conducted on the participants through a questionnaire.

The researcher and the participants had agreed to designate Day 4 of the school schedule as the testing day for the study. From February to May of 2008, excluding the school gazetted holidays, a total of twelve Day 4s were used to explore this study.

The first year IB students who had chosen Chinese language as one of their diploma courses, were selected for this study. This is a class which the researcher had also taught for two years, prior to the commencement of the IB course. Six students are in this class, but they are from different cultural and language backgrounds such as Koreans, Malay, Malay/Chilean, and Malaysian Chinese/Nyonya. All the participants are in grade 11 and are between the ages of 16 and 17 years as shown in Table 3.1.

Table 3.1
Particulars of Participants

Participants		Gender	Nationality	Age	Number of Years learning Chinese
1	AA	M	Malaysian Chinese/Nyonya	16	6
2	SH	M	Korean	17	4
3	AM	F	Malay	16	9
4	BD	F	Korean	16	4
5	EL	F	Malay/Chilean	16	3
6	HR	F	Korean	16	3

3.5 Materials

The IB examinations are conducted in May and November of each year. To ensure validity and reliability of data extracted from this study, the main instrument used is the past year's examination papers of IB Mandarin B dated from year 2000 (both May and November sessions) to year 2004. The vocabularies contained in the past year's examination papers are used to gauge the level of proficiency which the participants are expected to achieve, by the end of their second year in IB.

3.5.1 Reading comprehension test

There are four texts in the reading comprehension section of the examination paper. The first text of every examination paper which contains reading comprehension tasks are selected as the testing battery. A sample of the May 2000 first text booklet and the question booklet are provided in Appendix A. A total of ten tests with ten different topics from year 2000 to 2004 are used and they are included in Table 3.2.

Table 3.2
Information on the Testing Battery

Year	Month	Topics of Chinese texts	Number of questions for each text
2000	May	My bedroom	10
2000	November	Food to relieve exam tension	12
2001	May	Sun Yit Shen in comics	12
2001	November	Credit card & prizes	11
2002	May	English constellation	11
2002	November	Trishaw & motorcycle	13
2003	May	Dieting tea	13
2003	November	Royal museum	11
2004	May	Classified advertisement	12
2004	November	Fitness centre	9

3.5.2 Pre- and post- tests of 100-vocabulary

A list of 100-items containing key words from the ten texts in Table 3.2 is generated for use as the pre- and post-tests 100 vocabulary items. The participants have to match the Chinese character vocabularies with the English meanings. This testing instrument is intended for checking purposes, to see if the participants had improved their memory retention of the Chinese characters after the study is completed (see Appendix B).

3.5.3 Treatment exercise

From each text shown in Table 3.2, a list of 20 to 40 items of anticipated new vocabulary is constructed (see Appendix C). This treatment exercise is formatted into three columns. The first column is a list of the Chinese characters which were anticipated to be unknown to the participants. The second column consists of blanks for the participants to write down the Hanyu pinyin (phonology) and the related meanings (semantic) in English next to the Chinese characters. The third column provides spaces for the participants to record more vocabularies which can be found from the dictionary

(morphology). Ten lists are generated from the ten texts and were used as treatment for participants to learn more vocabulary.

3.6 Procedure

The current study commenced after written consent were received from the participants and their parents in February 2008. The first step of the procedure was to use the 100-vocabulary list as a pre-test. Participants were allowed to spend as much time as they needed to attempt the 100-vocabulary test. The results of this pre-test were used as an indicator to note how many vocabulary items the participants already knew prior to this study.

A series of ten reading comprehension tests was then conducted as a second step. On each of the following Day 4 school schedule, the participants were given 20 minutes of the class time to answer each of the reading comprehension test irrespective of number of questions in each test (refer to Table 3.2). After each reading comprehension test, a list of 20 to 40 items of anticipated new vocabulary which were extracted from the reading comprehension text was used as treatment exercise, with the intention of enabling the participants to increase the number of vocabulary.

The third step in the procedure was to conduct individual conferences with the participants immediately after each of the reading comprehension tests was over. Anecdotes of each of the participants' strategies in handling the reading comprehension tests were documented for data analysis.

The same 100-vocabulary list was then administered when all the ten reading comprehension tests were completed. This happened over a period of four months. The

results of the raw scores of both the pre- and post-tests of the 100-vocabulary were then tabulated as shown in Appendix D. The testing was then concluded with individual interviews that had been conducted at the end of the 100-vocabulary post-test.

3.6.1 Pre-test

The participants took the 100-vocabulary list test as a pre-test on the school schedule of Day 4 from February 2008. There was no time constraint for the participants to do this test. The score was taken as an indication of how many vocabulary they already knew before a series of ten reading comprehension tests was given.

3.6.2 Reading comprehension test

On each of the following Day 4 set in a rotation of six-day school schedule, the first 20 minutes of the class was used to do the comprehension tests which had been sourced from past year examination papers. After each test, the researcher discussed the answers of the test with the participants. The correct scores were then recorded. One of the lexical processing strategies such as "infer" was introduced to participants by getting them to identify and to highlight those vocabulary which they did not know. The researcher then further provided information of the phonology and morphology of the identified difficult vocabulary. In this manner, the participants were introduced to the linguistic characteristic of the Chinese characters as described in the *shíshū* (refer to Chapter 2, Section 2. 5, p.17 to 24).

3.6.3 Treatment exercise

At the end of each reading comprehension test, a treatment exercise was provided for the participants so as to enable them to learn the anticipated difficult vocabulary from the test. In order to learn and master as much vocabulary as possible from a wide range

of topics in a limited time, the participants were also required to use a dictionary to find the related lexical items. Consulting a dictionary is one of the three lexical processing strategies as described by Fraser (1999) (refer to Chapter 2, Section 2.9). Participants were reminded to transfer all the newly learnt vocabulary into their own notebooks for future reference.

3.6.4 Individual conferencing

Individual conferences were also held while the participants were working on their treatment exercises after each of the reading comprehension tests. Each participant was withdrawn from his or her seat to sit next to the researcher. The researcher then checked the text for highlights or notes that the participant made. Questions were directed at the participant as how he or she guessed the meanings of unfamiliar vocabulary or phrases in the text. Strategies which the participants had used to decode meanings of the new characters in unfamiliar texts were identified, and then documented manually. One-on-one teaching was also incorporated during the conference.

3.6.5 Post-test

When all of the ten reading comprehension tests of the past year papers were completed, the same list of 100-vocabulary was administered as post-test. Scores were then recorded.

Individual interviews were conducted at the end of the post-test to document the perception of the students regarding the usefulness of the study. A flow chart to show the steps of the procedure is illustrated in Figure 3.1.

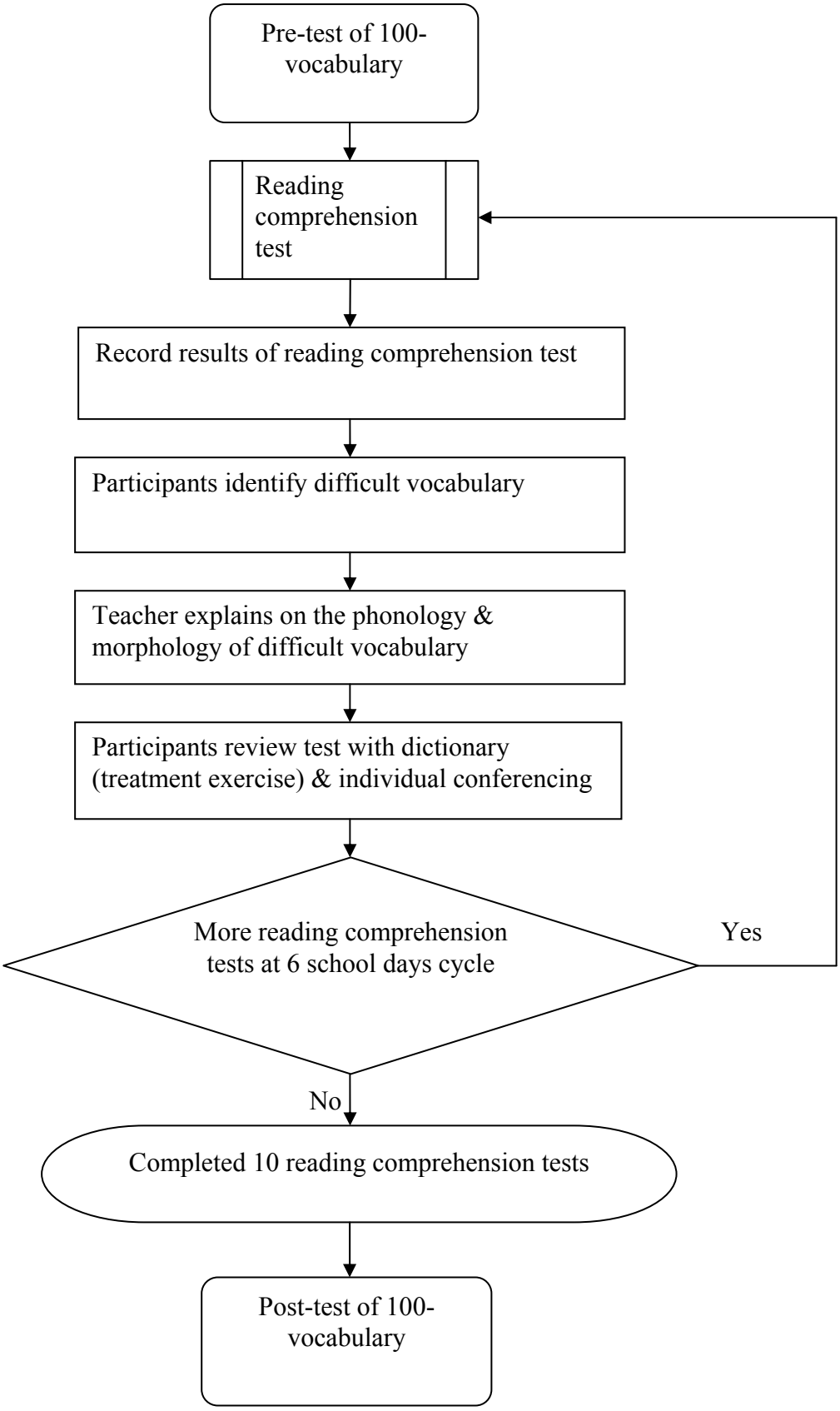

Figure 3.1
Flowchart of the Procedure

3.7 Data collection

The written survey was given at the beginning of the study to collect information about the participants. The responses gathered from the questionnaire in the written survey are summarised as in Table 4.1 (refer to Chapter 4, p.58). The table provides information on the linguistic background, length of formal Chinese language education, perceived strengths and weaknesses, learning strategies, and motivation orientation of all of the six participants. These responses will be used in the analysis of the results of the study.

The pre-test of the 100-vocabulary was then administered. It was used as a diagnostic test to gauge the number of vocabulary the participants knew before the treatment exercises were given. At the end of the study, the same 100-vocabulary test was administered as a post-test. The results of the post-test were expected to be higher than the pre-test, assuming that the participants had learnt the vocabulary through the treatment exercises.

The total scores from the pre- and post-tests of the 100-vocabulary list are plotted in the bar graph as shown in Figure 4.1 (refer to Chapter 4, p.59). This bar graph is used to show the difference between the two scores and it is used to identify if the participants have made an improvement, after four months (February to May, 2008) of treatment exercise. The irregular pattern detected in the bar graph presses for a detailed analysis of the 100-vocabulary tests. Hence, the results from the pre- and post-tests of the 100-vocabulary of all the participants are tabulated as in Appendix D. Further analysis of the errors made by the participants generated more data for investigation as shown in Tables 4.2 and 4.3 (refer to Chapter 4).

After the pre-test of the 100-vocabulary was administered, a series of ten reading comprehension tests was given on every Day 4 of the participants' school schedule. In the duration of the four months of comprehension tests, ten treatment exercises had been conducted. Data acquired from the ten reading comprehension tests is shown in Figure 4.2. Since the number of items tested in the reading comprehension tests varies from test to test (refer to Table 3.2, p. 47), all the raw scores for the reading comprehension tests needed to be converted into percentages. Hence, the raw and the converted scores from the comprehension tests are constructed as shown in Tables 4.5 and 4.5a respectively (refer to Chapter 4). During the treatment exercises, anecdotes from individual conferences with the participants were recorded. These anecdotes will be used for the discussion of the results of the study.

At the conclusion of the ten comprehension tests, the 100-vocabulary test was administered again as a post-test. Individual interviews were also conducted to gather information about the usefulness or effectiveness of the study. The comments and suggestions documented are presented as narratives in Chapter 4.

3.8 Conclusion

Researchers from the fields of linguistics, education, psychology, cognition, and neurology have conducted studies on the reading of the Chinese characters and its association with the phonology and morphology implications. The results seem to show positively, the usefulness of the information that can be derived from the different components of the Chinese characters. Yang and Zhu's (1997) method of teaching the characters according to the ten categories in their etymological dictionary Xiandai Shuowen Jiezi (现代说文解字) seems to be an effective approach too.

Although the data collected from this empirical study is small, it is anticipated that participants would use the radical information, phonetic regularity, and their schematic knowledge of characters in learning new vocabulary. This was in addition to using the lexical processing strategies (Fraser, 1999) and the transfer of L1 reading strategies to reading the Chinese texts (Kong, 2006). These strategies were introduced to the participants during the discussion of the reading comprehension tests. The participants also discussed and shared amongst themselves the strategies that they found useful during the treatment exercises.

It is anticipated that the participants would be able to apply the above mentioned strategies effectively in their learning of the Chinese language, and in their preparation of the IB Mandarin B examination in due course.