CHAPTER FOUR

RESULTS AND DATA ANALYSIS

4.1 Introduction

Data collected through the written tests are documented in the forms of tables and graphs. Responses from the survey are then presented in Table 4.1 while comments and suggestions from the individual conferences and the interviews are presented in the narrative form in the discussion section of this chapter.

It is hoped that the results documented would be favourable to the objective of this study. However, if second language learners of Chinese are convinced that utilizing the phonological and morphological characteristics of the Chinese characters is an effective way to learn and memorise Chinese characters, then it may be concluded that learning the Chinese language is more effective if the Xiandai Shuowen Jiezi characters learning (Zhu and Yang, 1997), lexical processing strategies (Fraser, 1999), and the transfer of L1 reading strategies to reading the Chinese texts (Kong, 2006) approaches are used.

4.2 Responses from the Survey

On receiving the written consent from the participants and their parents, the participants were asked to complete a questionnaire regarding their motivation orientation towards learning Chinese as their option for a second language in their IB diploma course. The survey also included the linguistic and language background, learning strategies, as well as the perceived weaknesses and strengths of the participants in learning Chinese.

The responses from the survey are summarised and tabulated in Table 4.1. The level of fluency achieved in a second language may not correlate directly to the duration of

learning the language formally in a school, as in the case of participant AM. Prior to learning the Chinese language at the present school, participant AM had been learning the language for six years while residing in Beijing with her family. According to participant AM, while living in Beijing she had the opportunity to speak Chinese with the local people. This is probably one of the reasons why participant AM is able to speak Chinese more effortlessly, as compared to her fellow classmates. Furthermore, participant AM is able to speak in Chinese with little influence of her own accent. However, in comparisons to her classmates, participant AM did not acquire the highest score in the 100-vocabulary tests (refer to Figure 4.1, p.59). Participant AM perceives memorising the Chinese characters was the most difficult part in learning the Chinese language (refer to Table 4.1, p.58).

Two other participants, EL and HR, who have been learning the Chinese language for three years (refer to Table 4.1, p. 58) appear to have high scores in the 100-vocabulary tests (refer to Figure 4.1, p.59). They both perceived that the most challenging part of learning the Chinese language is writing the Chinese characters. This implies that they find that recognising and knowing the meanings of the Chinese characters relatively easier.

Participants SH and BD indicated in their survey that they had been learning the Chinese language in school for four years. Participant SH thinks that the most challenging part of learning the Chinese language was reading and writing the Chinese characters; while participant BD finds it difficult to guess the meanings of the unfamiliar vocabulary when reading. This implies that both participants SH and BD have limited knowledge of the linguistic features of the Chinese characters. Hence, both

participants SH and BD are expected to benefit through learning more about the linguistic features of the Chinese characters in this study.

Although participant AA had been learning the Chinese language for six years and he believed that the most difficult part of learning the language was the memorising and writing of the Chinese characters. Participant AA had to engage a private tutor to practice speaking and reading Chinese characters out of school.

In summary, it may be assumed that all the participants had considered the most challenging part of learning the Chinese language was in the order of recognising, reading, memorising, and writing the Chinese characters.

Table 4.1

Summary of Responses from the Written Survey

RESPONSES BY ITEMS		PARTICIPANTS					
		AA	**SH**	**AM**	**BD**	**EL**	**HR**
1.0	**Linguistic Background**						
1.1	First Language	English	Korea	Malay English	Korea	English Spanish	Korea
1.2	Languages able to speak fluently	English	Korea English	Malay English	Korea English	English Spanish	Korea English
1.3	Languages able to read and write	English	Korea English	Malay English	Korea English	English	Korea English
2.0	**Formal Language Education**						
2.1	Length of formal learning Chinese in school	6 years	4 years	9 years	4 years	3 years	3 years
2.2	Any private tutoring in Chinese	Yes	Yes	No	Yes	Yes	Yes
2.3	Hours per week in learning Chinese with tutor	1 hr	1 hr	N/A	2 hrs	3 hrs	2 hrs
3.0	**Perceived Strengths and Weaknesses**						
3.1	What is most challenging part in learning Chinese	Writing and memorising characters	Writing and reading characters	Memorising characters	Guessing meanings of unfamiliar vocabulary	Writing Chinese characters	Writing Chinese characters
4.0	**Learning Strategies**						
4.1	How do you learn Chinese character	Read the characters often and flash cards game	Repetitive review of writing and reading characters	Repetitive review of writing and reading characters	Memorise characters and meanings, find synonyms	Dictation and flash cards game	Practice writing with radicals information
5.0	**Motivation Orientation**						
5.1	Why choose Chinese	Advantage for job later in life	Most useful language to learn	Future benefit	Father forced initially	Beneficial for social and cultural interaction	Future benefit

4.3 Results of the 100-vocabulary Tests

The results of the pre- and post-tests of the 100-vocabulary are utilized to see if there is an improvement in the scores, after four months of the treatment exercises. The scores are then converted into bar graph as shown in Figure 4.1 for comparison purposes.

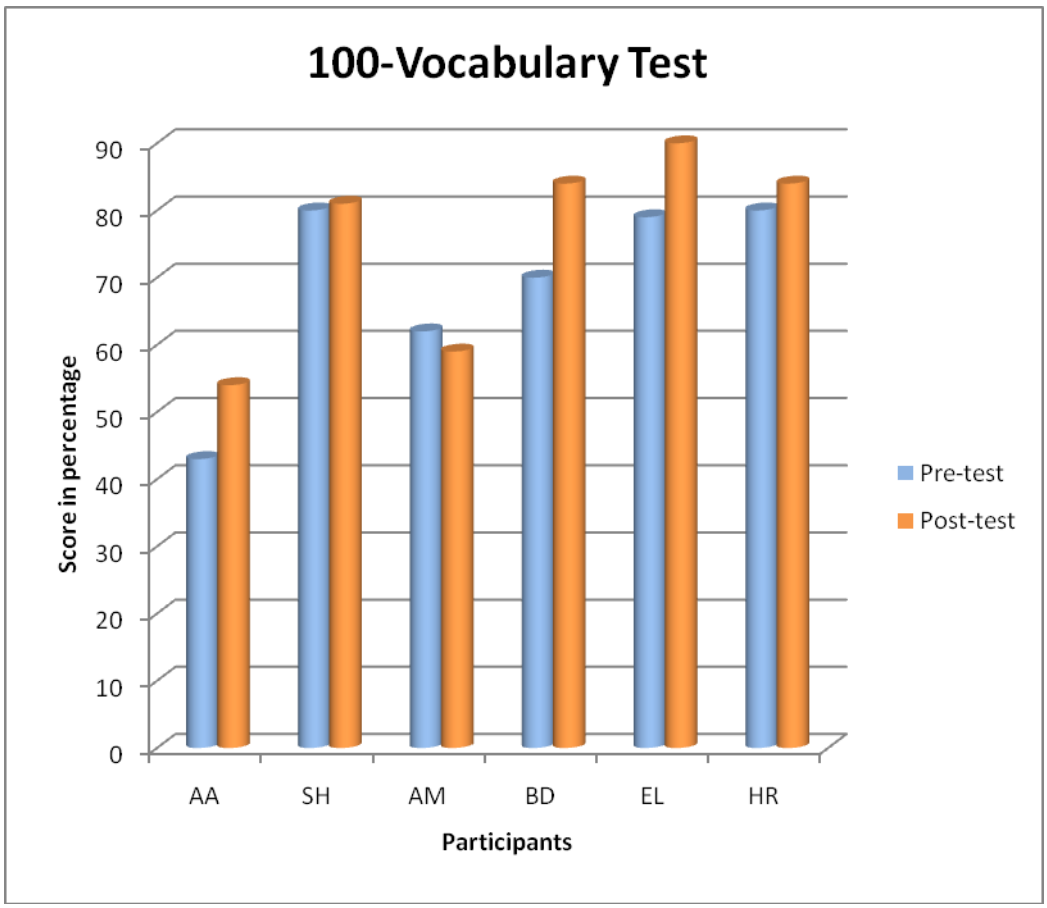

Figure 4.1
Bar Graph of Results of Pre- and Post-Tests of the 100-vocabulary

Over the course of four months of learning the vocabularies through the awareness of the phonological and morphological characteristics of the Chinese characters, it is anticipated that the participants would remember most of the 100-vocabulary. If the anticipation is correct, then the scores of the post-test of the 100-vocabulary should be higher than the pre-test.

Referring to Figure 4.1, it can be seen that participants AA, SH, BD, EL, HR except participant AM, have obtained higher scores in their post-tests. An in-depth study of this atypical case was conducted by looking at the number of correct and wrong answers in the pre- and post-tests of the 100-vocabulary as shown in Appendix D. Table 4.2 is constructed by recording the total number of correct and incorrect answers in pre- and post-test of the 100-vocabulary from the data found in Appendix D.

Table 4.2

Total Number of Correct and Wrong Answers in the 100-vocabulary Tests

Number of Vocabulary / Participants		Pre-& post-tests correct	Pre-test correct, post-test wrong	Pre- & post-tests wrong	Pre-test wrong, post-test correct	Total wrongs in pre-test	Total correct in pre-test	Total wrongs in post-test	Total correct in post-test
		I	II	III	IV	V	VI	VII	VIII
1	AM	47	15	26	12	38	62	41	59
2	AA	34	9	37	20	57	43	46	54
3	SH	72	8	11	9	20	80	19	81
4	BD	61	9	7	23	30	70	16	84
5	EL	78	1	9	12	21	79	10	90
6	HR	75	5	11	9	20	80	16	84

4.3.1 Participant AM

By referring to Table 4.2, the 100-vocabulary scores for participant AM had declined from 62 in the pre-test to 59 in the post-test. Of the total of 38 errors identified in the pre-test, participant was able to get 12 of them correct in the post-test. These 12 vocabularies include 建设, **推翻**, 清朝, 奔忙, 港币, **抽奖**, 共渡, 得意, 纯, 分类, 直卖, 购物天堂. Some common radicals such as 手 (扌) and 水 (氵) are found in characters like 推 and 抽, and in characters like 清, 港 and 渡. Although these 5 characters belong

to the pictophonetic category, when they are compounded with other characters as in **推**翻 and **抽**奖; and as in 清朝, 港币 and 共渡 respectively, the vocabularies may not depict the semantic component directly as for 清朝 and 港币. However, participant AM seemed to have guessed the meanings correctly as shown in the post-test.

Correspondingly, it also appeared that participant AM had not learnt the rest of the 26 vocabularies (refer to Table 4.2, column III). The presumed unknown vocabularies consisted of 放弃, 展览, 安定, 宣传, 优惠, 星座, 意外, 获得, 度过, **摇晃**, 到处, 往回倒流, 类, 瘦, 天然, 恒心, **摆满**, 充满, 属于, 水平, 保存, 满足, 应征, 条件, 申请, 事业集团. According to participant AM, the radical knowledge of 手 (扌) had not helped her to decipher the meanings of **摇**晃 and **摆**满 as in the 100-vocabulary tests. Referring to Yang and Zhu's etymological dictionary *Xiàndài Shu*ōwén *Jiězì* (现代说文解字), 晃 belongs to the pictophonetic category and is classified as the infrequently used character. In other words, lexical items which contained useful radicals may not be helpful to learners who have only acquired limited number of characters and vocabularies.

In addition, 15 answers that had been correct in the pre-test were found to be errors in the post-test. This situation suggests that participant AM may not have learnt those 15 vocabularies. The 15 vocabularies are: **体验**, 从没, 土族, 行程, 及时, 心情, 治疗, 疲劳, 痒痒, 无比, 锻炼, 节食, 管不住, 完全, and 全球.

Combining those new 15 errors with the 26 errors that appeared in both the pre- and post-tests, participant AM had made a total of 41 errors in the post-test. Through individual interviews, participant AM stated that she found it easier to remember the

vocabulary in context. She was confused when faced with characters that appeared to have regular forms of radicals but did not carry the obvious semantic component. For example, 体验 is made up of 体, which is a logical aggregate and she could make it out as “body”. However, 验 is originally referred to as a name of a horse but in modern Chinese, it means “to experiment”. Thus, 体验 does not mean “body-horse”. Instead 体验 means “to experience”. Character 验 is categorized as a loan homonym. This type of characters can be confusing to learners as discovered in this study.

This finding matches with one of the outcomes that Ku and Anderson (2001, p. 249) revealed in their study, i.e. “radical helpfulness and phonetic regularity did not contribute to character learning. Characters were easier to learn when contextual support was strong”. Therefore, participant AM had difficulty in making guesses when faced with too many unknown vocabularies in the 100-vocabulary test.

Despite that, referring to the figures in Table 4.3, participant AM has made an improvement of 32%, in getting 12 errors correct after the four months of treatment exercises. During most of the tests and treatment exercises, participant AM was observed to be very enthusiastic in all the tests and the treatment exercises. She had been keeping a comprehensive notebook for new vocabulary entry after each test and treatment exercise. Through individual interviews, participant AM mentioned that she would probably do better in the post-test if she had the time to review her notebook regularly. The main barrier for L2 learners is the lack of opportunity and the environment to practice newly learnt vocabulary.

Table 4.3
Percentages of Rectified Errors in Pre-Test

Number of Vocabulary / Participants		Pre-test wrong, post- test correct	Total wrongs in pre-test	New vocabularies learnt in %
		(A)	(B)	(A)/(B)x100
1	AM	12	38	32
2	AA	20	57	35
3	SH	9	20	45
4	BD	23	30	77
5	EL	12	21	57
6	HR	9	20	45

4.3.2 Participants AA, SH, BD, EL and HR

Participants AA, SH, HR and EL had improved between 35 to 57% in recognising and remembering the new characters after the four months of treatment exercises (refer to Table 4.3). Participant BD seemed to have made the greatest improvement, which is 77%, in the 100-vocabulary post-test. From the responses recorded in Table 4.1, participant BD wanted extra tutoring to help her achieve a better grade in the Chinese language course although she took the Chinese language course upon her father's decision, not hers. Further interview revealed that participant BD demonstrates the extrinsic motivational characteristics as described by Brown (2000). She has mentioned repeatedly that she needed to score well in the Chinese language course so that she can apply for the Ivy League universities.

Referring to column II titled "pre-test correct, post-test wrong" in Table 4.2 (p.60), participant EL made one error which was item number 62. Referring to Appendix B, item number 62 is a single Chinese character "类" which means "type". After reviewing participant EL's post-test paper, item 61 was used twice but item 62 was left

out. This maybe assumed that the error was a careless mistake. Similarly, the errors made by participants AA, SH and HR in column II (Table 4.2) were possibly due to carelessness, as well as their uncertainty in identifying meanings of those vocabularies (see Appendix D). A separate study might be needed to investigate further such irregularities.

Further analysis of the 100 vocabulary in Appendix D reveals that all participants had obtained 18 vocabularies correctly, in both pre- and post-tests such as 一生, 政府, 难忘, 过去, 海底, 冰河, 墙上, 完美, 衣柜, 招生, 良好, 飞跑, 书刊, 心上人, 摩托车, 好印象, 百科全书, 恐龙化石. Most of these vocabularies possess either one or two characters which are classified as basic or common characters. For example, the character 难 in 难忘, is a frequently used word that means "difficult". The character 忘 which means "to forget" is also commonly used by students when they forget to do their homework. When the participants put the two characters 难 and 忘 together, they would most likely guess that the vocabulary carries the combined meaning of "difficult to forget".

Another example, characters with radical such as (氵) as in 海, indicates water; and radical (冫) as in 冰, indicates ice. Referring to the 100-vocabulary list in Appendix B, all participants had matched 海底 with bottom of the sea, and 冰河 with glacier respectively. These results seem to indicate that participants might have already mastered those vocabularies before the study. However, through feedback from the participants during the interview at the conclusion of the post-test, vocabularies such as 冰河, 心上人, 好印象, and 恐龙化石 were new to them. They were able to guess the meanings by linking known characters like 冰 (ice) as in 冰河 which carries the meaning of "glacier". The vocabulary 心上人 which can be translated as (heart-on-

person), actually gives the meaning “loved ones”. The phrase 好印象 appears as (“good”+ unknown?) to the participants, and they match it with the meaning that contained “good impression”. Since participants knew the characters 龙 (dragon) and 石 (rock), they guessed 恐龙化石 contain the meaning of “dinosaur fossil”. It seemed that the participants had managed to use the little character knowledge they acquired to make rather intelligent guesses for the 100-vocabulary tests.

On the contrary, there are also vocabularies which had been answered wrongly by the participants, for example 行程, 展览, 宣传, 赢得, 优惠, 意外, 得意, 保存, 摇晃, 摆满, 条件, 应征, 申请. From the features of the characters 行 and 程, according to Yang and Zhu’s etymology dictionary, 行 was originally a pictogram which depicts a cross road. Today, 行 is grouped as a pictophonetic and its radical 彳, can be used in the same way as semantic or phonetic components. Likewise, 程 is also a pictophonetic which can be decomposed into radical 禾, which is the stalk of grain and was used as a ruler, and 呈 is the phonetic component. When the 2 characters are combined, 行程 is formed and it means itinerary or journey. According to participants AA, AM, EL and HR, they would have been able to make such connections if they had remembered the information contained in those characters.

Another perceived difficult vocabulary, 展览, is defined in the similar manner. Character 展 belongs to the semantic category, while 览 can be used as both pictophonetic and local aggregate character. According to Yang and Zhu’s (1997) etymology dictionary, vocabulary like 展览, 宣传, 赢得 and so on, are from the higher level of the 2500 frequently used word list.

In addition, many of those vocabularies which had appeared in the texts were new to the participants. For instance, the vocabularies 宣传, 优惠 and 赢得, were extracted from the text about the "Credit card & prizes" (refer to Table 3.2, p.47). Topics like the "Royal museum", "Fitness centre" and "Classified advertisement" (refer to Table 3.2) contained vocabularies such as 展览, 摆满, 条件, 申请, 应征, 保存, are deemed new vocabularies to the participants. Perhaps as recommended by some participants, more practice and regular use of the new vocabularies would help them remember the characters better.

4.3.3 Summary

In this study, a higher score in the post-test of the 100-vocabulary is perceived to be an indication of favourable progress. A bar graph, Figure 4.1, shows clearly that participants AA, SH, BD, EL and HR had improved in the vocabulary test. This trend seems to suggest that the participants were able to recall some of the vocabulary. From the feedback of these five participants, they had mentioned that the radicals of the characters in the vocabulary had helped them in recalling the meanings, as found in the studies conducted by Jin (2006). In Jin's study, the participants were university students from 3 orthographic backgrounds and they were L2 learners of Chinese language. They had to perform a recall task immediately after viewing 36 characters presented in 3 different ways: radical, pinyin and stroke order. Jin (2006) claims that the participant performed best using the radical presentation. In the current study, participants had to match the meanings of 100 vocabularies which contained more than 200 characters. They seemed to be able to decode the meanings of characters which fall into the categories of pictophonetic, logical aggregate, and pictogram as shown in Table 4.4.

Table 4.4
Examples of Chinese Characters with Helpful Radicals

Vocabulary	Characters	Radicals or strokes	Category	Semantic component	Phonetic component	Meaning of Vocabulary
1. 抽奖	抽	手 or (扌)	形声字	hand	由 yóu	抽奖 (draw for a prize)
	奖	大	形声字	big	将 jiāng	
2. 及时	及	丿 ㇇ 丶	笔画字	to catch up	及 jí 也作声旁	及时 (in time)
	时	日	会意字	time		
3. 心情	心	心	象形字	emotion/mind		心情 (state of mind)
	情	忄	形声字	emotion/mind	青 qīng	
4. 安定	安	宀	会意字	peace/safe		安定 (stable/settled)
	定	宀	会意字	stable		
5. 全球	全	人 or 玉 (王)	会意字	complete	used as quán	全球 (global)
	球	玉 (王)	假借字	round object	求 qiú 也作声旁	
6. 申请	申	曰 & 丨	部件字	to describe	申 shēn 也作声旁	申请 (to apply)
	请	讠	形声字	speech	青 qīng	

Furthermore, from the analysis of the pre- and post-tests of each participant, it seemed that some of the errors made in the pre-test were repeated in the post-test (see Appendix D and Table 4.2). This is probably because the participants had not learnt those

vocabularies (Ku and Anderson, 2001). Ku and Anderson (2001) reported that the radical helpfulness did not facilitate Taiwanese children to learn the unknown Chinese characters from reading texts which were above their grade level. Unlike the claims made in the study of the university students who were able to perform well in recognising and memorising the learnt Chinese characters after one year of learning (Liu, Wang, & Perfetti, 2005), participants in the current study seemed to have learnt between 32% to 77% of the 100-vocabulary in duration of four months (refer to Table 4.3).

4.4 Results of the Reading Comprehension Tests

The IB examination papers from May 2000 to May 2004, and from November 2000 to November 2004 were used in this study. There were four texts in each of these past year examination papers, but only the first text was utilized. This is based on the rationale that the initial part of the examination paper is usually relatively easier than the later part. Hence, it is assumed that by selecting the first text in all ten examination papers, consistency and validity may be maintained.

4.4.1 Raw Scores

The raw score of the reading comprehension tests results in Table 4.5 range from nine to thirteen marks.

Table 4.5
Raw Scores of Reading Comprehension Tests

Participants		Raw Score of Reading Comprehension Tests									
		M00	N00	M01	N01	M02	N02	M03	N03	M04	N04
1	AA	2/10	9/12	12/12	5/11	10/11	11/13	11/13	5/11	4/12	3/9
2	SH	7/10	9/12	10/12	9/11	10/11	11/13	7/13	7/11	9/12	3/9
3	AM	3/10	11/12	7/12	6/11	10/11	7/13	4/13	2/11	5/12	3/9
4	BD	9/10	12/12	8/12	10/11	10/11	11/13	10/13	7/11	8/12	4/9
5	EL	10/10	12/12	12/12	10/11	11/11	12/13	9/13	9/11	10/12	7/9
6	HR	6/10	11/12	10/12	8/11	9/11	9/13	9/13	9/11	11/12	7/9

Note: M denotes May examination paper , N denotes November examination paper.
For example: M00 denotes year 2000 May paper, N03 denotes year 2003November paper.

4.4.2 Raw Scores Converted into Percentage

For comparison purposes, the raw scores are converted into percentages as shown in Table 4.5a.

Table 4.5a
Results of Reading Comprehension Tests in Percentage (%)

Participants		Results of Reading Comprehension Tests in %									
		M00	N00	M01	N01	M02	N02	M03	N03	M04	N04
1	AA	20	75	100	45	91	85	85	45	33	33
2	SH	70	75	83	82	91	85	54	64	75	33
3	AM	30	92	58	55	91	54	31	18	42	33
4	BD	90	100	67	91	91	85	77	64	67	44
5	EL	100	100	100	91	100	92	69	82	83	78
6	HR	60	92	83	73	82	69	69	82	92	78

The results of the tests were anticipated to progress from May 2000 examination papers onwards if participants had remembered previously learnt vocabularies, but they turned out to be irregular and erratic, as shown in Tables 4.5 and 4.5a respectively. This erratic pattern is more prominent when the results in Table 4.5a is converted into a line graph as in Figure 4.2.

4.4.3 Line graph

A line graph of different colours indicating the performance of the participants over a series of ten tests is generated in Figure 4.2. Each coloured-line represents a participant.

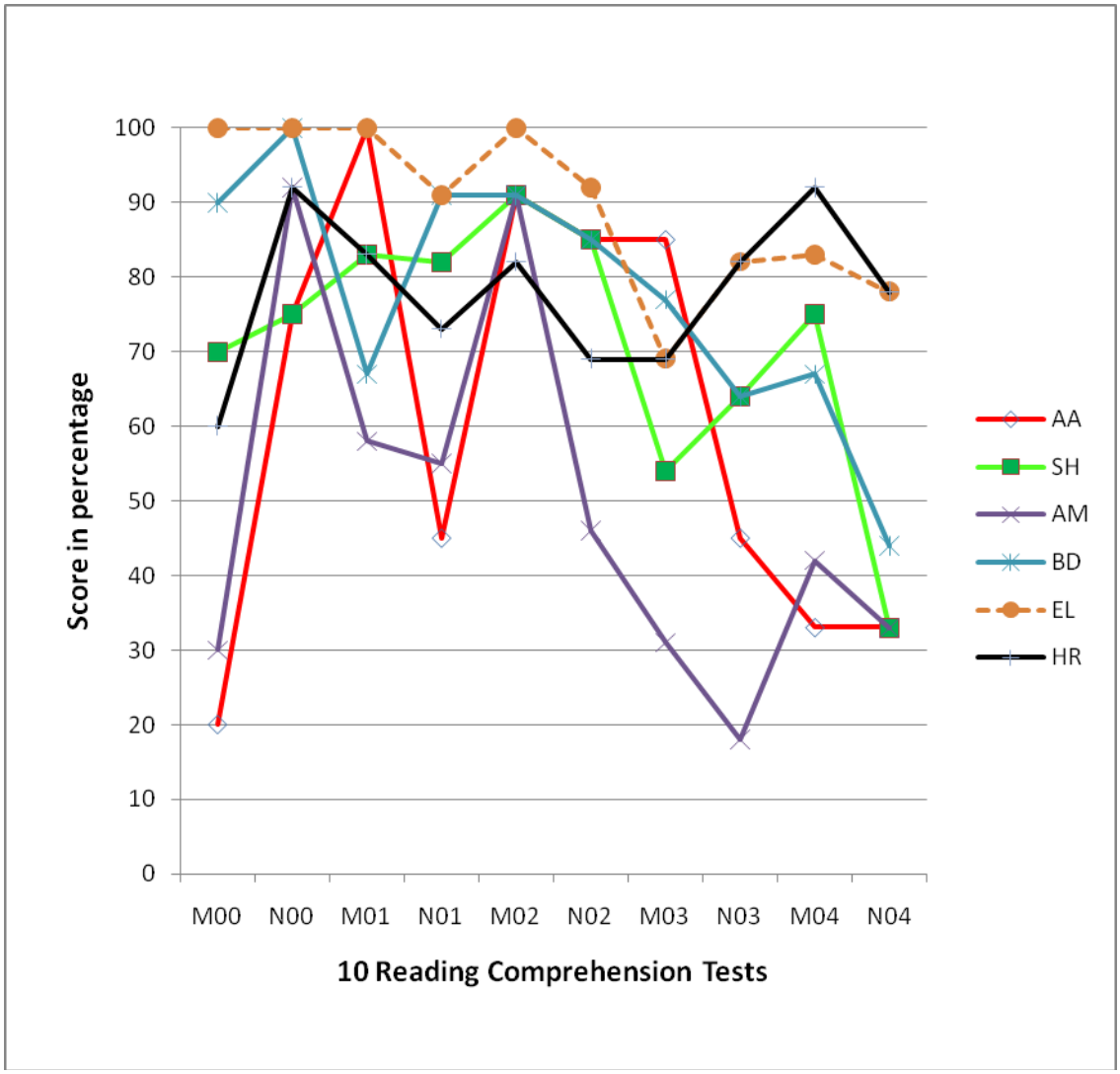

Figure 4.2
Line Graph for Reading Comprehension Tests.

It is anticipated that the line graph would show progressive improvement over the ten tests. However, the line graph had shown an inconsistent progress for each participant. Further analysis of the line graphs reveals a similar pattern. The undulating pattern in the line graph implies that the scores of the participants had increased and decreased from year 2000 to 2004. Such irregular pattern may be caused by many factors which will be dealt with in depth later in this section.

For the purpose of interpreting this line graph, it is sufficient to map the undulating pattern of the individual line with the high and low scores. In other words, the high or low scores indicated in the lines imply the level of difficulties in the tests. However, the level of difficulty in the test is probably dependent on the familiarity of the topics and the level of vocabulary used in the test. For instance, each participant's score had depended on his or her familiarity of each of the tests. If participant AA is very familiar with the topic of a historical figure such as Mr. Sun Yit Shen, he is expected to do well in the reading comprehension test for the May 2001 paper (refer to Table 3.2, p. 47 and Figure 4.2). A detailed discussion for each participant is provided in the next section.

Participant AA is represented by the red line. From the May 2000 test onwards, participant AA had scored 75% in the November 2000 test, and 100% in the May 2001 test respectively. But in the November 2001 test, participant AA's result plummeted to 45% as shown in the graph. After the decline, participant AA had made an improvement in the score in the next test (May2002). From then on, the results for the following tests declined to 33% in the last test (November 2004). The results produced an undulating pattern in the line graph. Discussion of one of the rising and falling score followed as below.

The highest score for participant AA in the ten tests was traced to the May 2001 paper. The first text for this paper was a comic strip about Mr. Sun Yit Shen (see Appendix E). In the comic strip, there were pictures of Sun Yit Shen with some short paragraphs, and some blank speech bubbles. There were two types of questions in the question booklet. The first type of question was the common wh-questions (wh-questions are questions which contain question words such as what, where, when, why and how). The second type of question requires participants to match the dialogues with the speech bubbles. Participant AA stated that he had learnt about Sun Yit Shen in the history class. It was presumed that such prior knowledge had helped participant AA to guess the precise meanings of the unfamiliar vocabularies, and thus, in understanding the comics.

The lowest score for participant AA was the May 2000 test. The topic for May 2000 test was about "My bedroom" (refer to Table 3.2). This text contained two paragraphs of description of "my bedroom" with the conclusion paragraph intentionally left out. In the text, some of the connecting words had been deliberately left blanks. The blanks were meant to be filled with the appropriate conjunctions which were provided in the question booklet. The last paragraph or the conclusion paragraph was provided in the question booklet (see Appendix A). Participant AA had not scored any mark in the section of the conjunctions, but had only managed to get two correct for the sequencing of the sentences in the last paragraph. According to participant AA, he did not know three of the seven conjunctions which were provided in the question. The three conjunctions 总之, 然而, 尚且 are normally found in the advanced second language learner textbooks. Further analysis of the other participants' test papers, it was detected that all but participant EL, had made two or more errors in the same question. This result may be used as a teaching point for the participants. Future study on pedagogy in teaching and learning of conjunctions may be beneficial to L2 learners.

Participant SH is represented by the green solid line. His highest score shown in Figure 4.2 was elicited from the May 2002 test. This text was about constellation. Most participants had scored 10 out of 11 correct answers. The only error which participant SH had made was in the wh-question, which required a straightforward answer. A check indicates that the question had not been answered completely. Hence, a score of 91% is shown in the line graph (Figure 4.2, p.70). Participant SH also said that if it was not because of his carelessness, he would probably have scored 11 out of 11.

The lowest score which participant SH had attained was from the November 2004 test. According to participant SH, this particular test was difficult for him as the text was about an advertisement looking for a fitness trainer. Moreover, the synonyms contained in the question was also new to him. He was unable to make sense of the new vocabulary although he tried to retrieve the morphological information found in some of the characters.

Other participants had, however, managed to match two synonyms out of four correctly in the same test. They unanimously claimed that they had guessed the synonyms by looking at the common characters 求 as in the pair of 需求 and 要求, and 力 as in the pair of 活力 and 精力 respectively. Because they know the meanings of 需 and 要, it was not difficult for them to guess the meanings of 需求 and 要求 as "needs and wants". Thus, prior knowledge of those characters had helped the participants select the synonyms correctly. More discussion of the November 2004 test paper will follow in the 4.4.3.2 section.

Participant AM is represented by the purple line in Figure 4.2. The highest score she had achieved was from the November 2000 paper which was about "Food in relieving

examination tension". From the answers provided in the test paper, it was noted that participant AM had self-corrected one question and she had circled the character 克 which means "grams". From an individual conference, participant AM was elated that she had managed to guess the meaning of 克 in the same question.

Referring to Figure 4.2, it could be seen that amongst all the participants, AM had scored the lowest in the November 2003 paper. The first text in this paper was about the "Royal Museum" and there were 11 comprehension questions. Participant AM had answered 2 out of 11 questions correctly. Apparently, this paper was also considered as one of the more challenging ones, due to the unfamiliarity of the topic. In addition to that, many of the vocabularies regarding museum and the history of ice age as well as the native Indians in Canada, were new to all the other participants.

The May 2000 paper was also considered difficult by participant AM, and the probable explanation is similar to that of participant AA (refer to the previous discussion in participant AA).

Participant BD is represented by the blue line in Figure 4.2. She had managed to score 12 out of 12 as correct answers in the November 2000 paper. The text was about "Food to relieve examination tension". Participant BD confessed that she understood the text better because she knew "enough" characters to make accurate guesses. Referring to the information shown in Table 4.1 and also through conversations, it is noted that participant BD is very competitve and is academically motivated. She had learnt most of the vocabulary in the November 2000 paper. In participant BD's test paper, only one vocabulary was underlined as an indication of unknown vocabulary to her. This is sufficient to explain that "enough" carries the connotation of "most or all" to

participant BD. Further discussion of participant BD's performance in this study is provided in section 4.4.3.5.

The lowest score for participant BD was detected in the November 2004 paper. Similar to participant SH, participant BD had also mentioned that she was unaware that the text was an advertisement recruiting a fitness trainer. It is noted in participant BD's test paper that she had underlined parts of some of the phrases and sentences in the first paragraph. The underlined characters were an indication of unfamiliar characters, thus unknown meanings. A more detailed discussion of the November 2004 test paper will follow in the 4.4.3.2 section.

Participant EL is represented by the orange dotted line in Figure 4.2. Out of the ten reading comprehension tests, participant EL had achieved perfect scores for May 2000, November 2000, May 2001, and May 2002. Besides making four errors in the May 2003 test, participant EL had only one error in the November 2001 and November 2002 tests, and two errors in the rest of the tests (refer to Table 4.5, p.69). This pattern suggests that participant EL had achieved the best performance amongst all of the participants.

Although participant EL had scored 69%, the lowest score, in the May 2003 paper, she had made only four errors in the test (refer to Tables 4.5a & 4.5, p.69). Three of the four errors were from the matching vocabulary with the definitions section. A detailed discussion is provided in section 4.4.4.3.

Participant HR is represented by the black line in Figure 4.2. Her performance in the ten reading comprehension tests seems to be moderately consistent. She may not have

attained perfect score in any of the ten reading comprehension tests, but her line-graph is not as erratic as the line-graphs for participants AA, SH, and AM. It appears that participant HR had made between one to four errors in the ten tests (refer to Table 4.5, p.69). This result implies that participant HR had performed reasonably well in the tests compared to the rest of the participants.

Referring to Table 4.5a (p.69), the lowest score for participant HR is identified in the May 2000 paper. She was observed to have completed the test in 10 minutes instead of 20 minutes. Through an individual conference at the end of the test, participant HR mentioned that the text was simple to understand. However, she had made mistakes in the second section of the question which had lowered her score in the test. She believed that her negligence in the punctuations had caused the errors made in the sequencing of the phrases into a paragraph (refer to previous discussion for participant AA).

In summary, the up-down and high-low score indicated in the line graph for each participant at first seemed arbitrary. A thorough analysis of such patterns reveals that the initial assumption of progressive improvement over the ten reading comprehension tests is unfounded. The reasons are believed to be varied and comprehensive. Some probable reasons include the material used, the format and the content (topic) of the texts, the types of questions, the level of proficiency of the participants, the emotional state of the participants while doing the tests, the individual learning strategies and styles, the related schema of the participants, and the motivation orientation of the participants.

In this study, the materials were selected from the IB Mandarin B past year examination papers. The scope of the topics for Mandarin B was wide and random, as

seen in the past year examination papers, as well as from the guide provided by the IBO. Moreover, the format and the questions that accompanied the texts were diverse. Additionally, the vocabularies used in the texts and the questions were identified to have derived from a mixture of intermediate and advanced levels of proficiency. Nevertheless, participants' schema and the prior knowledge of the Chinese characters were found to have contributed positively to the results of the tests. Above and beyond, the study had also provided opportunity for the participants to be familiarised with the IB examination format as well as learning more vocabularies.

In general, the participants felt that the test was getting harder from year 2003 to 2004. For instance, in May 2000 paper, the first text was about "My bedroom" while in November 2004 paper, the first text described about a fitness centre which was advertising for a fitness trainer. They had commented unanimously that not only the vocabulary were getting more difficult, the overall text was getting more challenging as well. Despite that, one of the participants felt that she was now more confident and more prepared in handling the IB past year examination papers.

The unpredictable pattern demonstrated in the line graph is further discussed in the following sub-sections.

4.4.3.1 Familiar topic

Referring to Table 3.2 (Chapter 3, p.47), the topics which had appeared in the reading comprehension tests covered various subject matter and issues. Through previous observation, it would seem that the basic topics for learners of the beginning level are normally about oneself, numbers, colours, food and beverages, animals, family and friends, school, hobbies, transportation and so on. As the learners become more

comfortable with the linguistics characteristics of the Chinese language, more details and more advanced vocabulary are then introduced to help the learners expand sentence structures within the familiar topics range. Hence, it was anticipated that for learners of the beginning level, they were more likely to achieve good results in topics which are related to food. From Table 4.5a (p.69), it could be seen that the highest score among the ten tests for the four participants AM, BD, EL and HR, is in the November 2000 examination paper. Feedback from the participants regarding the high scores indicated that "familiar topic, well-formatted text in the form of tables, and relatively easy to understand questions", were the reasons (see Appendix F).

Nonetheless, participants AA and SH, did not perform equally well as compared with the rest as shown in Table 4.5a. From the analysis of the test papers and the interviews with the participants, results suggest that both participants AA and SH had made careless mistakes. It was disclosed that they had not read the instructions carefully, and that they had not paid attention to the units of measurement indicated in the text and in the questions. All other participants seemed to be aware that they should pay attention to the fine prints and details indicated in the texts and questions.

4.4.3.2 Unfamiliar topic

"Dieting tea" in the May 2003 test was predicted as a familiar topic for all of the participants. However, the results in Table 4.5a showed that all participants scored less than 78% except participant AA. Through conferences with all the participants after the test, they had claimed that although "tea" had been taught within the food unit, 'dieting and its related vocabulary' were totally unknown to them.

In spite of this, participant AA commented that having prior knowledge of dieting in his first language had helped him to guess the answers to the questions in the test. For instance, in questions 2 to 5, participants were supposed to match the definitions in the right column with the vocabulary from the left column (see Appendix G). According to participant AA, he looked at the characters in the vocabulary, decoded the components of the characters individually and in pair, and guessed the meanings of the vocabulary in context. For instance, the four vocabularies that appeared in the left column were (2) 痛苦 (3) 恒心 (4) 轻松 and (5) 节食. Participant AA was able to match 痛苦 with (E) 感到非常不好受 since he knew the meanings of 痛 and 非常不好. Likewise, 恒心 which appeared in line 6 of the text which described about methods of dieting, participant AA was able to decipher the meanings expressed in the definitions contained in the right column in the question booklet, and matched it with (A) 长期坚持下去的决心. In doing so, participant AA was able to get a perfect score for that section of the questions while the other participants could not. It also showed that in this particular test, participant AA managed to get a total of 11 out of 13 questions correct, which gave him the highest score among all of the participants (refer to Table 4.5, p.69).

The November 2004 text had described about a fitness centre in California. Although the participants of this study have learnt about topics such as sports and leisure activities in their first year, the vocabulary which appeared in this examination text was found to be beyond their comprehension. For example, the participants had highlighted unknown vocabularies such as 事业集团，满足，需求，活力，寻找，行列，提供，应征，申请，奖金，一展长才 in the text. These highlighted vocabularies are normally found in texts which are for more advanced readers.

In addition to that, the participants commented that the format and the content of the text were confusing for them. The text was supposed to be an advertisement recruiting for a fitness trainer (see Appendix H). According to all the participants except EL and HR, they were not aware that the text was an advertisement. From the title of the text and the picture of a woman doing yoga exercise, the participants had deduced that the text was probably about a fitness centre. The layout of the text that included numbering of paragraphing, underlined subtitles and different arrangement of the content added complexity to the format of the entire text.

The participants also reckoned that the high frequencies of the unknown vocabularies made the reading comprehension task harder. Furthermore, the type of questions may help or hinder the comprehension of the text. For examples, the questions that accompanied the text for the November 2004 paper required the participants to (1) match meanings with phrases, (2) find the synonyms and, (3) to select the most appropriate answer from the multiple choice questions. Referring to the question booklet in Appendix H, all three types of questions were provided with extra choices in the answers which could make the matching more challenging. In other words, these types of questions required the participants to have full understanding of the phrases or vocabularies in order to make the correct matches in the questions. Participants had indicated that too many new characters and unfamiliar vocabularies were the reasons they performed unsatisfactorily in completing the reading test. The breakdown of the November 2004 test results are reflected in Table 4.6.

Table 4.6

Questions in November 2004 First Text (Fitness Centres in California)

Participants / Questions		1	2	3	4	5	6
		AA	SH	AM	BD	EL	HR
Matching Phrases	1	x	x	x	x	√	√
	2	x	x	x	x	√	√
	3	√	√	√	√	√	√
Matching Synonyms	4	x	x	x	x	x	√
	5	√	x	√	√	√	x
	6	√	√	√	√	√	√
	7	x	x	x	x	x	x
Multiple Choice	8	x	x	x	√	√	√
	9	x	√	x	x	√	√

In the November 2004 test, both participants EL and HR had scored 7 correct answers out of 9, which is the highest score amongst all the participants. They had both scored two correct answers out of four synonyms question. According to participant EL, she had guessed the synonyms by making connections between the phrases before and after the unknown vocabulary, whereas participant HR had relied on her Korean language to guess the meanings of the unknown vocabulary (refer to Table 4.6). They had guessed the synonyms by looking at the common character 力 as in the pair of 活力 and 精力. Because they know the meaning of 力 which means “strength” from the character 男, they were able to make the right match. Participants EL and HR were also able to answer questions 1, 2, 3, 8 and 9 correctly. Through the conferences after the test, both participants EL and HR had said that because they knew the meanings of 私人教练 and 申请人, they were able to answer question 1 and 8 without much effort.

The rest of the four participants stated that they were not aware that the text was about an advertisement. The related vocabularies were new to them and they could not make sense of them with the limited linguistic knowledge that they had. This may means that these participants would have to learn and to memorise more advanced vocabularies that are associated with such topic.

4.4.3.3 Schema transfer from other languages

As commented by all the participants, the topic (English constellation) for May 2002 paper was relatively easier. Constellation is a familiar topic for most people, whether in their native languages or Chinese language. With this prior knowledge, participants were able to make connections with what they already know in their native language with what appears in the Chinese text. Hence, all the participants performed well in this particular test. Although several vocabularies were highlighted as new vocabularies in the text in some of the participants' text booklets, they believed that they could guess the meanings of the unknown vocabularies by utilizing their related schema. Referring to Appendix D, 度过, 获得, 得意 were identified as difficult or unknown vocabulary in the 100-vocabulary tests. However, participants were able to answer questions 4 and 10 correctly in the reading comprehension test (see Appendix I). Although 获得, 度过, and 得意 had appeared in the text under the heading of 狮子座, the character 钱 which appeared in questions 4 and 10 had given away the answers. Participants believed that although the terminologies for the constellation were new to them, they chose to ignore those unknown vocabularies, a lexical processing strategy reported in Fraser's (1999) study, but knew that they needed to match the contents for each constellation appeared in the questions.

One participant scored 100%, five scored 91% and one scored 82% as displayed in Table 4.5a. Even participant AM who is weak in recognising characters scored very high (91%) in this particular test. According to participant AM, besides knowing more vocabularies, how the text is organized also helped her understand the text. She mentioned that as the text was organized by subtitles in short paragraphs, she was able to match the questions with the short paragraphs. She further commented that she found it easier to understand the texts organized in such format. Referring to Appendix I, the wh-questions were seen as straight forward. The sequence of the questions matched with the paragraphs, i.e. answer for question one was found in paragraph one, question two in paragraph two and so on. This type of format was considered easy to follow and may be used as a strategy in reading, according to participant AM.

4.4.3.4 Format of the text

If participant AM found that the format of a text had helped her in understanding the comprehension test, perhaps other formats may have posed some difficulties. For the May 2004 paper, the classified advertisement was organized into subtitles and in table forms, and yet participant AM did not score well. For participant AM, this particular text had contained too many unfamiliar vocabularies. She then found it confusing to answer the true/false questions which included justification statements. Participant AA also shared the same view. They both believed that if there were too many unknown characters, it would be too difficult to make intelligent guesses via the morphology approach of identifying meanings. The results in Tables 4.5 and 4.5a reveal that both participants AM and AA had scored the lowest among their fellow classmates in this test.

4.4.3.5 Contextual cues

Contextual cues such as pictures, illustrations, and nouns that had been underlined were thought to be useful in doing comprehension exercises. However, participant BD did not pay attention to the pictures in any of the texts. In an individual conference, she revealed that she had to know all the Chinese characters in order to understand the text. During the first few testing sessions, it was observed that participant BD would linger on the same characters when she had problem getting the meanings. She said she had found it frustrating to make guesses and was thus unable to continue with the text.

By Brown's (2000) definition, participant BD fitted the profile of a learner who was field independent where she needed to understand every character or vocabulary before feeling comfortable to make guesses. She seemed to be a low risk taker where the learning of Chinese language is concerned. Participant BD was aware of her "problem" and hence, she had tried to apply one of the LPSs, "ignore", so that she could continue reading for the gist of the text. She was then seen attempting to guess the meanings of the unknown vocabularies by looking at the morphological and phonological characteristics.

Through observation and interviews with participants EL and HR, it seemed that both EL and HR had constantly made use of contextual cues in the reading comprehension tests in addition to using the morphological characteristics of the Chinese characters. Besides high-lighted vocabularies, it could be seen that notes which were written in English were found next to some vocabularies in participant EL's text booklets and question booklets. Similarly, it was observed that participant HR had made notes in Korean scripts in her texts. She had also high-lighted some vocabularies, scribbled and sketched in the reading texts.

According to both participants EL and HR, they found it easier to understand the text by using the contextual cues as well as looking at the morphological features of the new vocabularies. Referring to Appendix D, participant EL had made mistakes on 礼卷 and 抽奖 in the pre-test but had correct answers in the post-test. She had also answered questions 1, 2 and 9 correctly in the November 2001 test (see Appendix J). Hence, it may be suggested that she had learnt those vocabularies whilst the November 2001 test was administered. Likewise, although participant HR had not known 宣传 and 赢得 as indicated in Appendix D, she was still able to answer question 1 and 9 in the November 2001 test. Participant HR confessed that it was difficult to decode the meanings of 宣传 and 赢得 in isolation. She found it easier to guess the meanings of the vocabularies in context as reported in the study of incidental learning by Ku and Anderson (2001).

4.4.4 Individual Conferences and Interviews

Individual conferences with individual participants were conducted after each comprehension tests. The purpose of such a conference was to document the strategies adopted by the participants in managing the comprehension tests as well as providing one-on-one tutoring if needed. After all the ten comprehension tests and the post-test of the 100-vocabulary were completed, individual interviews were then administered. The interviews aimed to gauge the effectiveness of the use of phonology and morphology of the Chinese characters in reading.

4.4.4.1 Feedback from participant AA

The researcher had taught all the participants for three years prior to the commencement of this study. Participant AA was perceived to posse better language abilities to perform well in the November 2000 paper but he did not (refer to Table 4.5a, p. 69).

During the study period, participant AA had exhibited reluctance in doing the tests on Day 4. It seemed that he had not benefited from the study. However, during the individual interview at the end of the study, participant AA had acknowledged that the study was a great help in learning the Chinese language in general. Besides learning the Chinese characters by paying more attention to the morphological and the phonological information, participant AA also thought that he must read the questions carefully before he decided on the answers. Although he confessed that he sometimes did not put much effort in the comprehension tests, he seemed pleased to have participated in the study. In his own words, participant AA had implied that the morphological information sometimes make learning new vocabulary easier. He had used the pictures in the texts in the comprehension tests. Nevertheless, he believed that too many unknown vocabulary would make understanding of the text difficult, especially when he did not have enough character knowledge on the vocabulary which were classified as the less frequently used items.

4.4.4.2 Feedback from participants SH and BD

Participants SH and BD are from Korea and they had learned some Chinese characters while they were attended schools in Korea prior to their arrival in Malaysia.

Participant SH had commented that the title of the text was important in understanding the text besides using the contextual cues. The phonology and morphology of the Chinese characters helped in recognising the characters, but he felt that reviewing the vocabulary 30 minutes each day was “the only way to know the meaning of the vocabulary”. Understanding participant SH and his style of learning, he seemed to be more comfortable with rote learning and memorisation. However, his recommendation

of 30 minutes daily practice on reviewing vocabulary may possibly be a good strategy to master the newly learnt vocabulary, especially for second language learners.

Participant BD is a model student who is observed to be highly motivated and is always working meticulously in class. In participant BD's comments, she is more confident facing the IB examination papers now than before. Her initial strategies were looking at the whole text, and then individual characters. After several treatment exercises and constant reminders about taking risks, participant BD has found it easier to guess meaning in groups of characters. Nonetheless, she prefers to rely on dictionary to build on her vocabulary bank. Participant BD has indicated that she has accumulated a substantial amount of vocabulary after four months of treatment exercises. This suggests that the phonological and morphological information of the Chinese characters are helpful to her. The LPSs were also deemed useful to participant BD because she had learnt more vocabulary. In her closing remarks, participant BD has also said that she would attempt the top-down strategy in future reading tasks. In other words, since she has acquired more vocabulary, she intends to adopt the top-down reading strategy which was claimed useful by Kong (2006).

4.4.4.3 Feedback from participant EL

Participant EL is recognised as a conscientious and a highly motivated student at school. She is fondly known by all of her teachers as one of the star students who models academic excellence in all her courses. Hence, her results are selected as a 'control' to make comparisons and 'generalisations' if any.

Referring to Figure 4.2, the two lowest scores for participant EL are papers May 2003 and November 2004. The topic in May 2003 paper was about "Dieting tea", and the

text contained many vocabularies which were new to participant EL. From the questions and the answers that participant EL had provided in the test paper, she performed poorly in the section for matching the relevant phrases with the vocabulary that conveys emotions (see Appendix G). However, through an individual conference, participant EL confessed that although there was too many unknown vocabulary, she was able to use the contextual cues such as the picture provided, and her background knowledge of dieting to answer the other types of questions correctly.

Nevertheless, participant EL had commented that she could not retrieve the actual meanings of some unknown characters despite the fact that she tried processing those characters using the radical and the phonetic components information. For instance, the four vocabularies that EL had difficulties in guessing the meanings were (2) 痛苦 (3) 恒心 (4) 轻松 and (5) 节食 (see Appendix G). The matching phrases were (A) 长期坚持下去的决心, (D) 不吃太多的东西, (E) 感到非常不好受, (G) 心情觉得很愉快. Participant EL managed to match (D) with (5) correctly because she knew the Chinese character 食 which means food or eat. Although participant EL selected the correct three phrases such as (A), (E) and (G) out of the six options, she did not match them with the related vocabularies. This may be due to the reason that participant EL did not know characters which carry the meanings of emotion and feelings that appear in the phrases and in the vocabularies.

Referring to Figure 4.2, participant EL had done very well in most of the tests. The most errors she made were the May 2003 paper. She had made only one or two mistakes in the other five tests. As indicated in Table 4.5 (p.69), participant EL had perfect score in the tests from 2000 to 2002 except November 2001. Although participant EL had constantly used the phonological and morphological features of the

Chinese characters in reading, she felt that the IB examination was getting more difficult as years went by. This assumption is yet to be investigated and perhaps future studies in this area may shed some light.

4.4.4.4 Feedback from participant HR

Checking through all of participant HR's test papers, it was noted that there were lots of circled characters, underlined characters, high-lighted phrases, and sometimes some Korean scripts too. During an interview, participant HR proudly shared her experiences of learning Chinese characters when she was attending grade four in Korea. She recalled how her teachers made her and her classmates write hundred times of the same Chinese characters every morning before school started. Besides writing the characters, they also had to write the Korean pronunciation and the meanings in Korean language. It was a pilot project that the Korean Ministry of Education trialled for teaching primary school aged students Chinese characters.

Participant HR believed that the memorisation method helped her in the understanding of Chinese texts. However, she had acknowledged that her Chinese pronunciation was hindered by her native language. She believed that the morphological information from the characters was a powerful tool in reading, in addition to using her own text-handling strategies. One of the strategies that she fondly shared with her classmates was to read the question and tried to locate the answer in the text. She had tried to look for answers systematically from the first paragraph for question one, second paragraph for question two and so on. This examination-answer technique usually works well with wh- questions.

4.4.4.5 Feedback from participant AM

Having lived in Beijing for seven years before moving back to Malaysia, participant AM has a near native pronunciation of the Putonghua. However, her weakness lies in recognising the characters. The two tests that participant AM had scored well were November 2000 and May 2002 papers. In the two texts, many vocabularies which belonged to the proper nouns related to vegetables, food, and constellation terminologies, may have been considered new vocabularies. However, according to participant AM, the vocabulary appeared in those two texts were relatively easier since she had learnt about food and stress caused by examination, and constellation. Participant AM added that she had "guessed" some of the proper nouns as names of food, which she had chosen to "ignore". She had also "ignored" the terms for the constellation. Such strategy is similar to Fraser's (1999) lexical processing strategies, and it seemed helpful for participant AM when she did those two tests.

In addition to that, participant AM had found the well-organized structure of the format in both the texts easy to comprehend. Moreover, the questions accompanied those two tests were composed of wh-questions, fill in the blanks and true/false statements. Such types of questions were considered straight forward and easy for participant AM.

Participant AM confessed that if there were too many new vocabularies and if the given texts were unfamiliar to her, she found it difficult to comprehend. She wished she had more time to study and practice all the new vocabulary after each of the treatment exercise.

Regular practice enhances retention of newly learnt vocabulary, and opportunity to practice orally becomes a challenge when L2 learners do not have the home

environment to do so. Thus, L2 learners of the Chinese language are inclined to engage extra tutoring as in the case of the participants of this study (refer to Table 4.1, p.58).

4.4.4.6 General feedback

This section illustrates the precise extract of the description by the participants in the interviews at the end of the study:

> "We should do this again next year, lots of practice, learn more vocabulary with it…..,"
> "First time was hard, second time was easier……'
> "help a lot for reading comprehension, but not in writing….."
> "…get to know where you are right now….."

Those were some of the comments documented from the participants when asked if they found the study beneficial to them. All the participants thought that the study was a definite help in learning and memorising the vocabulary in reading. Two participants reckoned that if the newly learnt vocabulary was also used in writing, they believed they could remember the vocabulary better.

One of the suggestions from the participants was to go through the lexical items obtained from the dictionary during the treatment exercises. The lexicon generated from the treatment exercise had provided a wealth of vocabulary bank for the participants. However, in order for the participants to remember the newly learnt characters and vocabulary, they have to practice reading, writing and using those vocabulary regularly.

4.5 Conclusion

Although this empirical study is based on six case studies, the findings seemed to suggest that the second language learners of the Chinese language found the information retrieved from the phonology and the morphology of the Chinese characters helpful in reading Chinese texts. If Yang and Zhu (1997)'s method of teaching the Chinese characters according to the ten categories in the etymological dictionary Xiandai Shuowen Jiezi (现代说文解字) was considered useful in memorising the newly learnt Chinese characters, it can be seen clearly from the data collected for participant BD (refer to Table 4.3, p.63). Participant BD appeared to have learnt 77% new vocabulary in the 100-vocabulary, the highest score amongst the participants.

Through the individual conferences during the study and the end-of study interviews with all the participants, coupling with the analysis of the obtained data, it is reasonable to believe that the awareness of phonology and morphology of the Chinese characters does enable non-native learners to decode the meanings of the Chinese characters in reading. For instance, participant AA seems to be able to decode and to memorise the characters 痛苦 in both the comprehension and the 100-vocabulary tests. This result appears to be consistent with the findings of a report about similar approach on the acquisition of literacy by first and fourth-grade children in China (Nagy, Kuo-Kealoha, Wu, Li, Anderson, & Chen, 2002). The report reveals the positive effects on the role of the morphological awareness in reading the Chinese characters. The researchers in the report claim that the year-long morphological awareness instruction in the classroom increased the children's performance at the character-level reading and writing tasks (ibid).

However, some of the participants in the current study had maintained that it was near impossible to comprehend a Chinese text when there was too many unknown vocabulary or characters. Such remark is consistent with the findings from the works done on lexical access by Coltheart (1978). Coltheart argues in his article that the orthographic scripts like the Chinese characters function differently from the English words. When learners encounter characters that are made up of unknown radicals and irregular phonetic components as in the current study, they will most likely be unable to figure out the semantic part of the characters. Furthermore, if second language learners encounter Chinese characters which do not belong to the pictophonetic category, the probability for them to decode the meanings would be minimised. Hence, they may have to rely on other strategies to understand Chinese texts.

Participants EL and HR in this study had employed strategies such as the titles, contextual cues, types of questions, schema, format and the genres of the texts in completing the reading comprehension tasks even if there were too many new vocabularies in the unfamiliar texts. Such strategies suggest that decoding Chinese characters alone may not be sufficient in reading for comprehension. As stated by Parry (1996) cited in Kong (2006, p.36), participants with "different language backgrounds and different experiences with literacy may be an important factor in influencing one's strategy use in the sense-making process of written texts." This may well explain the irregular pattern appears in the line-graph in Figure 4.2. Another probable explanation of such unpredictability could be contributed by the year-end final examinations as well as the other coursework deadlines.

Feedback from participants AM and BD indicated that the lexical processing strategies were helpful for them especially in learning more vocabulary. Conversely, all the

participants had claimed that they were unable to master the newly learnt vocabulary due to the constraint of time and the commitment in the other course work. In the mean time, participant HR appears to have acquired more characters than other participants. Her success is probably due to her reading strategies of both top-down and bottom-up method, in addition to her morphological background on Chinese character and her learning style.