

Chapter Four

Results and Discussion

In this chapter, the results of this study are presented and examined based on the research questions. First of all, the results of the pre-test were presented to see if there was any significant difference of the subjects' English proficiency between the two groups. Secondly, the performances between the two groups on the word quizzes including both the recognition and the production parts, i.e., Part A and Part B, were analyzed through Independent-Samples T-test. Thirdly, the responses from the interview with the subjects were discussed. Finally, both the quantitative and qualitative results were discussed based on the literature review in Chapter Two. Besides, the production parts of all the word quizzes, which asked the subjects to write down the missing words in the sentence contexts, were analyzed to examine the factors that made the spellings difficult and the mistakes that the learners made.

4.1 The Results of the Word Tests

In this section, the scores of all the tests, including the pre-test, the word quizzes, and the vocabulary section in the first periodical exam were analyzed separately to see if there were any significant differences between the two groups. The results will be presented in tables and figures.

4.1.1 The Results of the Pre-Test

The mean scores of the subjects in the pre-test are shown in Table 4.1.

Table 4.1**The Results of the Pre-Test**

Group	N	M	SD	T-value
A=Control	44	80.90	16.52	-0.15
B=Experimental	45	81.44	15.59	

$p > .05$

Seen from Table 4.1, the difference between the Control Group (Group A) and the Experimental Group (Group B) was not significant ($t = -0.15$; $p > .05$) even though the mean score of Group B showed slightly higher than that of Group A (80.90 vs. 81.44). Besides, the Standard Deviations of the two groups did not show much difference, either (16.52 vs. 15.59). Thus, it was clear that there was not much difference of the subjects' English proficiency between the two groups before the experimental treatment.

4.1.2 The Results of Four Immediate Word Quizzes (IWQ1, 2, 3, 4) and Four Delayed Word Quizzes (DWQ1, 2, 3, 4)

The results of all the word quizzes are presented in Table 4.2, and compared in Figure 4.1, 4.2, 4.3 and 4.4.

Table 4.2**The Subjects' Performance on IWQs and DWQs**

Word Quizzes	The Control Group			The Experimental Group			T-test	
	N	M	SD	N	M	SD	t-value	p-value
IWQ1-Part A	44	84.22	20.21	45	89.98	16.11	-1.49	p>0.05
IWQ1-Part B	44	65.59	17.81	45	68.77	22.88	-0.73	p>0.05
DWQ1-Part A	44	78.29	21.64	45	94.47	11.75	-4.39	***p<0.0001
DWQ1-Part B	44	60.52	20.37	45	78	19.3	-4.15	*p<0.05
IWQ2-Part A	44	79.75	17.11	45	86.64	18.54	-1.82	p>0.05
IWQ2-Part B	44	73.54	17.29	45	79.2	19.23	-1.45	p>0.05
DWQ2-Part A	44	63.61	23.16	45	85.42	16.69	-5.1	***p<0.0001
DWQ2-Part B	44	57.77	23.52	45	72	20.7	-3.03	*p<0.05
IWQ3-Part A	44	56	32.3	45	82.17	22.31	-4.45	***p<0.0001
IWQ3-Part B	44	51.04	27.85	45	70.48	26.27	-3.38	*p<0.05
DWQ3-Part A	44	63.63	25.9	45	84.84	22.2	-4.15	***p<0.0001
DWQ3-Part B	44	51.84	25.95	45	72.02	24.51	-3.77	**p<0.001
IWQ4-Part A	44	63.88	24.39	45	85.26	17.4	-4.76	***p<0.0001
IWQ4-Part B	44	50.86	21.7	45	65.62	24.84	-2.98	*p<0.05
DWQ4-Part A	44	62.93	23.02	45	82.22	20.6	-4.16	***p<0.0001
DWQ4-Part B	44	42.43	27.03	45	61.75	27.8	-3.32	*p<0.05

Figure 4.1
The Comparison of Average Scores
of the Two Groups in Part A

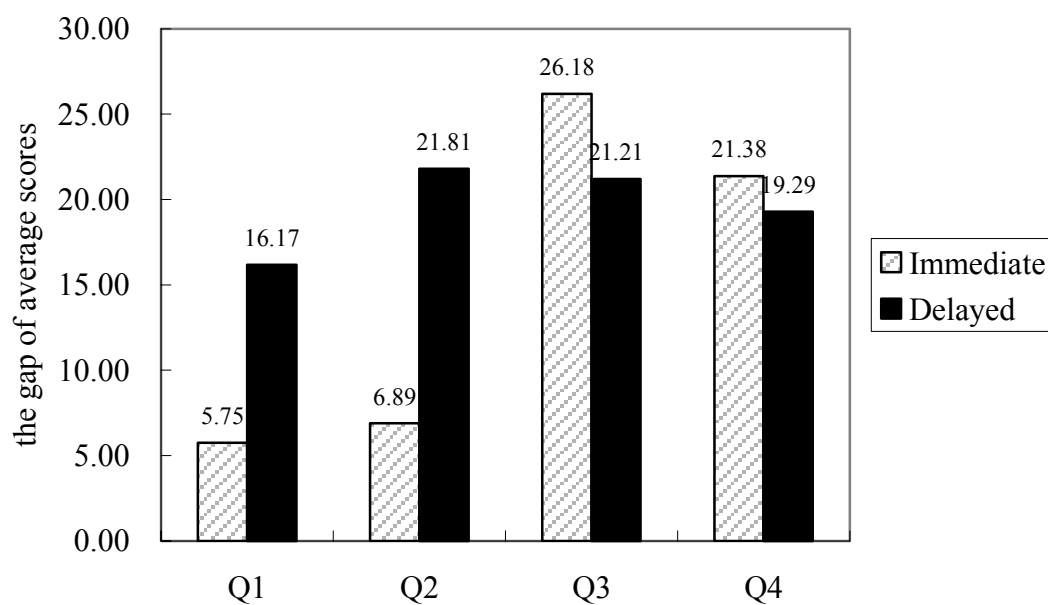


Figure 4.2
The Comparison of Average Scores
of the Two Groups in Part B

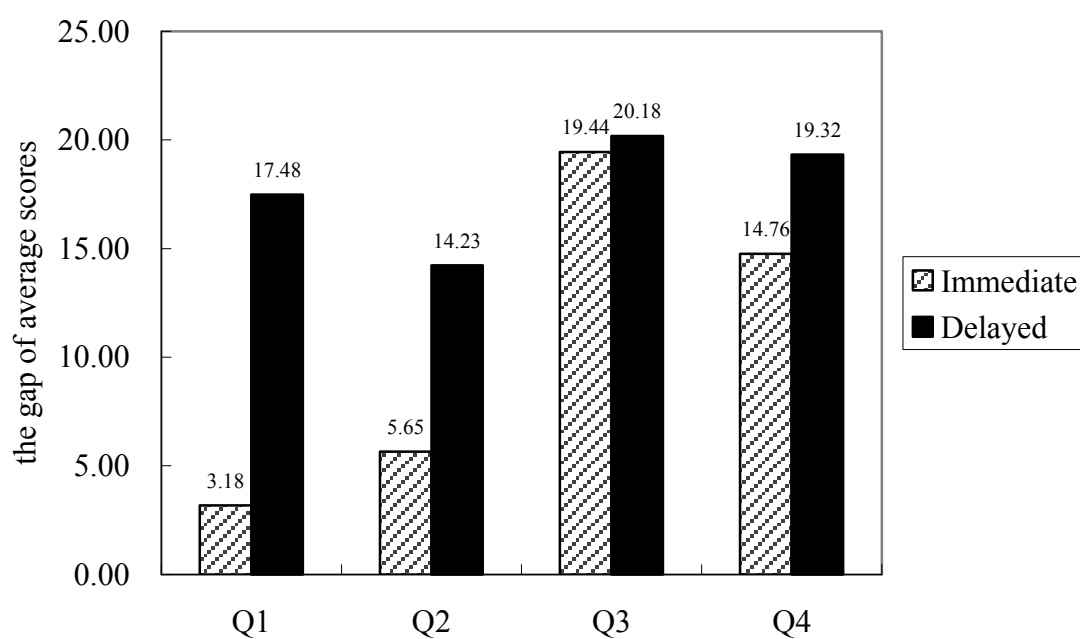


Figure 4.3
The Comparison of Average Scores Between
Part A and Part B in Group A

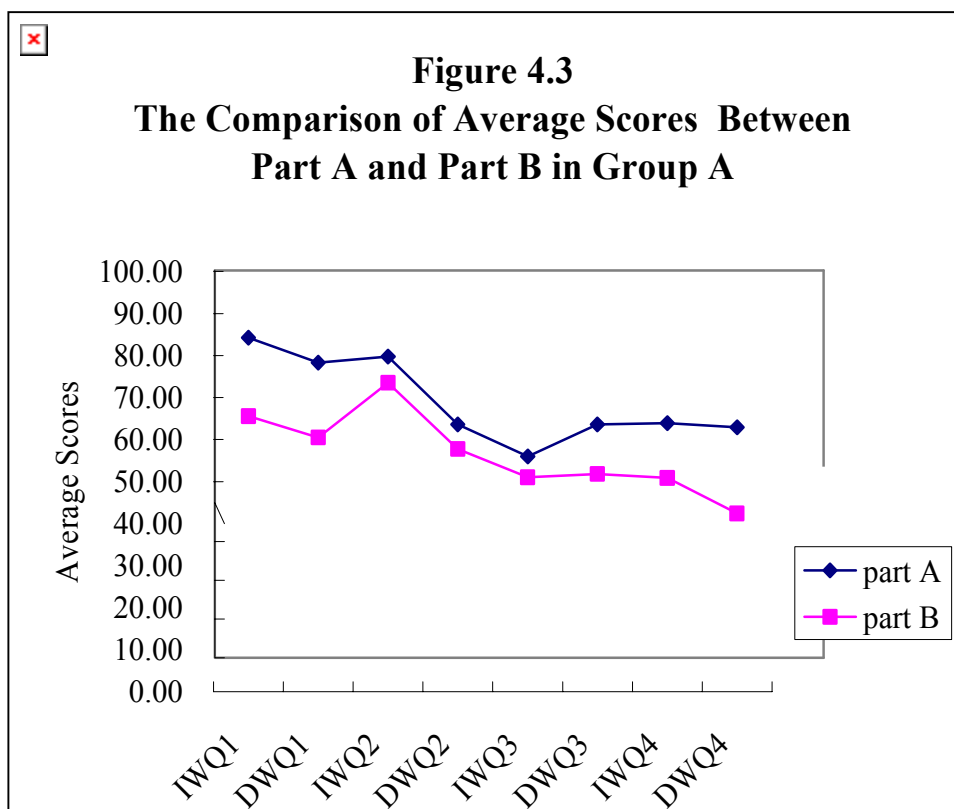
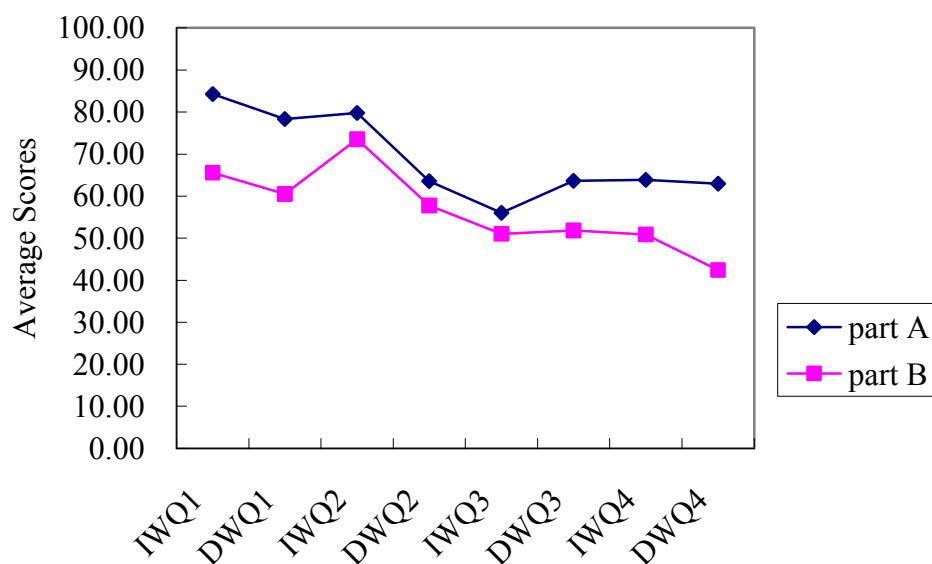


Table 4.2 indicates that Group B performed better than Group A on all the word quizzes. IWQ1 was an immediate word quiz for Lesson One. The difference of the

mean scores of IWQ1, including Part A and Part B, between the two groups did not reach the significant level ($t = -0.73$; $p > .05$), but Group B (Part A: 89.98 vs. Part B: 68.77) still performed better than Group A (Part A: 84.22 vs. Part B: 65.59) on both parts of IWQ1. The gap of the average scores of IWQ1 between two groups in both parts were 5.75 (Part A) and 3.18 (Part B) respectively (See Figure 4.1 and 4.2).

DWQ1 was a delayed test for IWQ1. Seen from the mean scores of the two parts shown in Table 4.2, Group B (Part A: 94.47; Part B: 78) performed much better than Group A (Part A: 78.29; Part B: 60.52) on both parts. The difference of the mean scores in Part A between the two groups reached very high significant level and that of the mean scores in Part B between the two groups also reached significant level (Part A: $t = -4.39$, $***p < 0.0001$; Part B: $t = -4.15$, $*p < 0.05$). Besides, both groups performed better on Part A than on Part B in IWQ1 and DWQ1.

IWQ2 was an immediate word quiz for Lesson Two. As we can see from Table 4.2 and Figure 4.1 and 4.2, the difference of the mean scores of IWQ2 between the two groups still did not reach the significant level (Part A: $t = -1.82$, $p > 0.05$; Part B: $t = -1.45$, $p > 0.05$) just like IWQ1. However, the gap of the mean scores of IWQ2 between the two groups was higher than that of IWQ1 (IWQ2: Part A: **6.89**; Part B: **5.66**; IWQ1: Part A: **5.76**; Part B: **3.18**).

In addition, DWQ2 was a delayed test for IWQ2. As can be seen from Table 4.2 and Figure 4.1, and 4.2, unlike IWQ2, the difference of the mean scores between the two groups reached the level of very high significance in Part A and the level of significance in Part B (Part A: $t = -5.10$, $***p < 0.0001$; Part B: $t = -3.03$, $*p < 0.05$). Besides, Group B performed much better on the recognition part, i.e., Part A than on the production part, i.e., Part B, and so did Group A (See Figure 4.3 and 4.4). Moreover, in DWQ2, the difference of the mean scores of Part A between the two groups reached a far more significant level than that of Part B (Part A: $***p < 0.0001$;

Part B: $*p<0.05$) (see Table 4.2, Figure 4.1, and 4.2).

IWQ3 tested vocabulary recognition and production of Lesson Three. Unlike IWQ1 and IWQ2, the difference of the mean scores of IWQ3 (see Table 4.2 and Figure 4.1 and 4.2) between the two groups reached very high significant level in Part A and significant level in Part B (Part A: $t = -4.45$, $***p<0.0001$; Part B: $t = -3.38$, $*p<0.05$). DWQ3 was a delayed test for IWQ3. Even though it was held after the periodical exam with a much longer delay (a one-week-delayed test) than DWQ1 (a three-day-delayed test) and DWQ2 (a three-day-delayed test), the difference of the mean scores between the two groups reached very high significant level in Part A and high significant level in Part B (Part A: $t = -4.15$, $***p<0.0001$; Part B: $t = -3.77$, $**p<0.001$).

IWQ4 tested vocabulary recognition and production of Lesson 4. Like IWQ3, the difference of the mean scores of IWQ4 between the two groups in Part A (see Table 4.2 and Figure 4.1 and 4.2) reached very high significant level and that in Part B also reached significant level (Part A: $t = -4.76$, $***p<0.0001$; Part B: $t = -2.98$, $*p<0.05$). Similarly, Group B performed far better than Group A in DWQ4. The difference of the mean scores between the two groups in Part A also reached very high significant level and that of the mean scores between the two groups in Part B reached significant level (Part A: $t = -4.16$, $***p<0.0001$; Part B: $t = -3.32$, $*p<0.05$) despite the fact that it was also given after the periodical exam like DWQ3.

4.1.3 The Results of the Vocabulary Section in the Periodical Exam

The periodical exam was given after the instructor finished teaching the four lessons. The words taught in the four lessons were selected to test the students in the vocabulary section of the exam. In order to see if drawing had a positive effect on vocabulary retrieval when there was a larger range of lexical items, the scores of the

vocabulary section between the two groups were compared, too. From Table 4.3 and Figure 4.5, it was amazing to find that the subjects in the experimental group still performed much better than those in the control group and the difference of the two groups' performance on the vocabulary section reached significant level ($*p < .05$).

Table 4.3

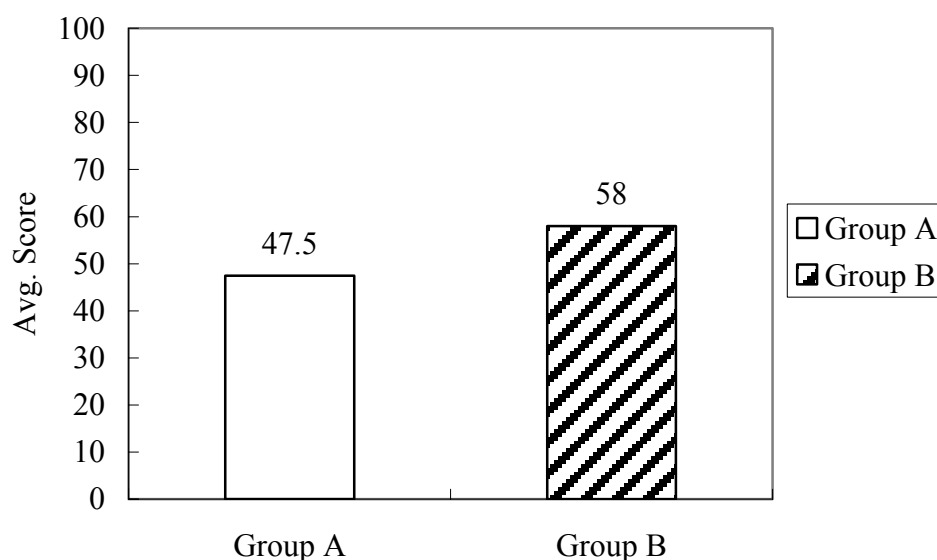
The Results of the Vocabulary Section in the Periodical Exam

Group	N	M	SD	T-value
A=Control	44	47.5	23.14	-2.15
B=Experimental	45	58	22.72	

* $p < .05$

Figure 4.5

The Results of the Vocabulary Section in the Periodical Exam between the Two Groups



4.1.4 Summary of the Quantitative Study

To sum up, when we compared the results of all the word quizzes including Part

A and Part B between the two groups, and the vocabulary section, in the periodical exam, some points are derived from the results. First, the experimental group performed better than the control group on all the immediate word quizzes. Moreover, the differences of IWQ3 and IWQ4 between the two groups were even larger than that of IWQ1 and IWQ2 and reached very high significant or significant level. However, the difference of IWQ3 between the two groups was a little larger than that of IWQ4. Secondly, Group B still performed far better than Group A on all the delayed quizzes. Besides, the differences of DWQ1, 2, 3, and 4 between two groups reached very high significant or significant level even though there was a three-day or a one-week interval between each IWQ and DWQ. Thirdly, in all the word quizzes, both groups performed much better on Part A, i.e., the recognition part than on Part B, i.e., the production part (See figure 4.3 and 4.4).

4.2 Interview Responses from the Subjects in the Experimental Group

As the last step of the study, to find out the students' attitudes toward the study, the researcher interviewed nine students in the experimental group. The interview were recorded and transcribed by the researcher. The result shows that most of the students interviewed took positive attitude toward the experiment and also proposed some suggestions for the researcher to improve the current study. The responses and suggestions were analyzed as follows:

1. Seven out nine students thought that drawing helped them acquire vocabulary very greatly; the other two students thought that drawing only provided a little help for them in learning vocabulary. Moreover, most students felt that they could easily associate the pictures they drew with the lexical items they were going to be tested. One student belonging to high achievement level said,

In the past, I only tried to do rote learning and neglected understanding the meanings of the words; therefore, I usually forgot the words I had learned easily. Now, drawing helps me to decode the meaning of the word naturally and my English has improved. Besides, I have gained more scores in English than before. I think it is a good and useful learning activity.

However, one student also from high achievement level thought that she could not associate the pictures with the target words. She said, “Sometimes, when I was asked to write down the missing word, I could only thought about the picture, but I still had no idea of what the word looked like and couldn’t spell it.”

2. Some of the students with high, middle or low level English proficiency thought that drawing provided much more help for the recognition part than for the production part of the word quizzes. They said,

Even though drawing could help us to recall the meaning of the word, we still could not pronounce some words, and thus could not spell the correct forms of the words. However, when the printed words were listed on the paper, i.e., the recognition part, pictures we drew did help us to recall the meanings of the words.

3. The time spent on drawing decreases when the students were getting familiar with the treatment. At the beginning of the experimental treatment, most students felt it was difficult and time-consuming to draw according to the meaning of the word; however, some students with different levels of English proficiency interviewed felt that they were getting used to this treatment; besides, the time they spent in drawing was from one or two hours to thirty minutes or so.

4. It was not easy to draw the pictures of the words with abstract concepts. One

student with low level English proficiency said,

Some concrete words like *balance* or *power* were easy for me to draw; nevertheless, some words with abstract concepts were more difficult for me to draw; besides, even though I could finally draw a picture according to an abstract word, the meaning of the abstract word still could not make a deep impression on me. As a consequence, I tended to forget the word quickly.

5. Even though drawing was a good way to enhance vocabulary learning, pronunciation still played an important role in vocabulary learning. Despite the effectiveness of drawing on vocabulary learning, according to almost all the students interviewed, pronunciation and its relations to vocabulary learning was an influential factor to successful vocabulary acquisition. Thus, they felt that teachers should spend more time guiding the students to read the vocabulary in class more frequently.

6. Drawing might not be helpful to acquire derivatives with the same core meaning. Two students interviewed with middle or low level English proficiency said, “Some words with different suffixes but have the same core meaning were not easy for us to tell apart by pictures since the pictures were drawn by its core meaning. Therefore, when we were asked to write down the derivatives, we often failed to do it.” In other words, drawing might not be so useful in acquiring derivatives of the target words successfully.

7. Some students interviewed thought that drawing should be finished at home before the teacher started to teach the target words instead of drawing partly in class and partly at home after the instruction on vocabulary, i.e., the process of the current study. If they had done so as they suggested, they would have had deeper impression of the target words because they would understand the words’ meanings more by looking at the pictures they draw as well as listening to the teacher’s instruction on vocabulary at

the same time.

4.2.1 Summary of the Qualitative Study

According to the interview, most students felt that this experimental treatment was successful and interesting in general. Besides, drawing is more effective on word recognition than word production. However, the students thought that pronunciation should also be emphasized besides drawing and that drawing had better be finished before the precise instruction to reinforce their vocabulary learning. In a word, different opinions from the students showed that drawing did help most of them to acquire vocabulary and they indeed benefited from it greatly.

4.3 Discussions on the Major Findings

In section 4.1 and 4.2, the major findings are presented both in quantitative and qualitative ways. It has been proved that dual coding through drawing as well as the text provides another effective alternative to vocabulary learning. In this section, we would provide reasonable explanations to further discuss the major findings we presented in the previous sections.

4.3.1 Learning Strategies and Vocabulary Acquisition

After conducting the vocabulary strategy, i.e., drawing plus reading the text in the experimental group, the quantitative findings showed that the experimental group performed better than the control group on all immediate word quizzes. Moreover, the difference of the mean scores between the two groups mostly reached significant level except IWQ1 and IWQ2. In addition, from the responses of the subjects interviewed, with high or low level English proficiency, the vocabulary strategy adopted in the

study was indeed an interesting and effective one, which facilitates their vocabulary learning very much.

The findings presented above have proved that under the guidance and instruction of the instructor, the subjects in the experimental group could utilize well the vocabulary learning strategy, i.e., drawing plus reading the text, to help them acquire vocabulary more effectively. According to the findings, we could come to the conclusion that the students could acquire vocabulary more successfully once they are in the habit of using proper learning strategies.

Learning strategies are steps for students to take to enhance their learning. Therefore, both Oxford (1990) and Schmitt (1997) have tried to propose classifications about language and vocabulary learning strategies to help language learners to acquire vocabulary successfully. Moreover, based on the strategy classifications, Schmitt (1997) and Kudo (1999) surveyed the frequency of vocabulary learning strategy use in Japan. It has been found that the Cognitive Strategies, e.g., a bilingual dictionary, verbal repetition, and written repetition were the most used and the most helpful strategies to the learners surveyed.

Besides Oxford (1990), Schmitt (1997), and Kudo (1999), there are many other researchers interested in the field of vocabulary learning strategies and in finding out whether vocabulary learning strategies have played a positive role in successful vocabulary acquisition, including Wang and Thomas (1992), Jiang (2001), Huang (2001), Wang and Yeh (2001), Lu (2002), and the present author, etc. In Lu's study (2002), before and after the vocabulary learning strategy instruction (VLSI), the Cognitive Strategies such as rote learning and phonological analysis were also most frequently used by the subjects. However, after the strategy instruction, the subjects also benefited from using various Memory Strategies such as Imagery and the Keyword Method, which enabled them to do meaningful practice with the new words

and to retain the meaning longer.

One of the weak points in Lu's (2002) study was that various strategies were introduced in the same period for the subjects to choose from. As for the subjects with low level English proficiency, they tended to choose the strategies that they were familiar with, e.g., rote learning or the phonological analysis. Therefore, they were not stimulated to make use of other strategies and did not know the effectiveness of other vocabulary learning strategies and thus could not choose the strategy, which is most suitable for them to apply.

In the experimental treatment, we wanted to examine the effectiveness of one strategy, which combined drawing, a kind of Imagery with reading the text for the subjects to practice in the process of learning vocabulary for a longer time. It has been found that both the subjects with either high or low English proficiency level could all utilize the strategy after practicing it for some time. However, the subjects in the experimental group seemed not to be quite accustomed to the experimental treatment and were unfamiliar with how to interpret the meaning of words by drawing in the beginning. Therefore, they did not know exactly how to make use of the strategy to acquire vocabulary effectively in the first two treatments and thus the gap of IWQ1 and that of IWQ2 between the two groups did not reach significant difference.

However, the gap of IWQ2 was still a little larger than that of IWQ1 between the two groups, which might mean that students in Group B were much more getting used to the treatment after practicing the strategy once more. Moreover, according to the interview data, at first they were not used to employing the experimental treatment to memorize words and spent more time drawing; however, when they were increasingly getting accustomed to it, they spent less time and performed better than before. In a word, it is worth taking a much longer time to examine the effectiveness of each vocabulary learning strategy.

Furthermore, the results of IWQ3 and IWQ4 show that the experimental group performed much better than did the control group and the difference between the two groups even reached the level of significance in both parts. We may say that the subjects in Group B were much more used to the experimental activity and were able to take advantage of the self-drawn pictures to enhance vocabulary learning. The more they got used to the experimental treatment, the better they performed on word quizzes. In a word, besides rote learning, other vocabulary learning strategies can also provide greatly positive effect on vocabulary learning when the instructor could conduct each strategy for a longer period of time. Therefore, it is necessary and worthwhile for the teachers to conduct vocabulary strategy training for the students to utilize the strategies fully in learning vocabulary.

4.3.2 Cognitive Theories and Vocabulary Acquisition

The findings listed above also show that the experimental group gained much higher mean scores than did the control group in all the delayed word quizzes and the difference of the two parts in DWQ1, 2, 3, 4 between two groups all reached significance. One possible explanation might be that by integrating the Cognitive Strategy, i.e., reading the text with the Memory Strategy, i.e., drawing, the subjects could encode the meaning of words deeper than those who only use the Cognitive Strategy, e.g., the rote learning. Thus, the words can stay longer in the memories of the subjects in the experimental group.

According to Schmitt (1997), the learners process the Memory Strategy by relating new materials to the existing knowledge, e.g., Imagery. Therefore, when the students were asked to draw according to the meaning of the words, they had tried to imagine the words' meanings and process one of Memory Strategies. On the other hand, verbal or written repetition belongs to Cognitive Strategies. Thus, when the

students read the text and did some verbal or written repetition, they were trying to manipulate or transform the target language and process one of Cognitive Strategies. Cognitive Strategies are the most often-used strategies and most students are in the habit and in favor of using them to learn vocabulary. However, seen from the results of the experimental study, drawing, i.e., one of the Memory Strategies, also provides positive effects on vocabulary acquisition.

In the memory system, whether the information in the short-term memory could lead to long-term depends on how much work the learner does on the new information. According to Craik and Lockhart (1972), a memory trace can persist in long-term memory if it involves a deep level of processing. They feel that “trace persistence is a function of depth of analysis, with deeper levels of analysis associated with more elaborate, longer lasting, and stronger traces” (p. 675). For example, when we see the word *flower*, we may try to remember the word by thinking of other words such as *rose*, *lily*, and *sunflower*, etc. associating with it or find out some pictures or images about the word ‘flower.’ By associating the meaning of the word with other words or pictures, the learners are processing deeper level of analysis of the words’ meaning. In this way, they can remember the word longer and deeper.

Levels of processing, a cognitive theory, has been found to apply elaborate and deepen semantic processing in vocabulary learning. For example, vocabulary learning strategies such as word association, the keyword method, and the current experiment apply this theory with a view to helping the students memorize the words deeper and longer. To ask the students to draw pictures as well as to read the text is effective for long-term retention because the students can analyze the words’ meaning deeper through both drawing and reading. The more deeply the meaning of the information is processed, the longer it will stay in long-term memory.

When the learners drew pictures according to the meaning of the target words or

the meaning of the sentences the target words occurred, they deepened their impression on the words' meanings through dual coding, i.e., drawing as well as the text (Paivio, 1986). Therefore, the subjects in the experimental group could recall the meanings of the words more easily, performing better than those who only adopt the Cognitive Strategy even after a three-day or one-week interval. To sum up, it has been proved that the experimental treatment based on the cognitive theories, e.g., the dual coding theory and levels of processing, helps the learners to keep new lexical items in their memory longer and deeper. In other words, cognitive theories play an important role in designing effective vocabulary strategies.

4.3.3 Lexical Knowledge and Vocabulary Acquisition

The difference of IWQ3, a word quiz for Lesson Three, between the two groups was larger than that of IWQ4. The most likely explanation is that Lesson Three was designed in the school syllabus for the students to study by themselves. Therefore, there would be no lexical instruction in both groups. However, the subjects in Group B (the experimental group) were still asked to draw pictures according to the meaning of each word. In other words, the instructor did not provide any depth of lexical knowledge for both groups in Lesson Three, but Group B still could encode the meaning of each word through drawing as well as reading the text by themselves, while the students in Group A (the control group) could only encode the meaning of the words by reading the text on their own. Therefore, Group B could perform much better than Group A on IWQ3.

Unlike Lesson Three, the instructor conducted the same experimental treatment in Lesson Four as in Lesson One and Lesson Two, providing the two groups with some lexical knowledge to make them understand better the meaning of the words as usual. Moreover, the subjects in Group B were also required to draw pictures as they

did in Lesson One and Lesson Two. The results indicated that Group B still performed better than Group A on IWQ4; however, the difference of the average score between the two groups in IWQ 4 is smaller than that of IWQ3. It might be that different instruction in Lesson Three and Lesson Four lead to this phenomenon. Since the subjects in Group A were provided enough lexical knowledge, they could have much better and deeper understanding of the words and shorten the difference of the average score between two groups in IWQ3 and IWQ4.

On the other hand, the subjects interviewed expressed that when they could pronounce the target words, they had less difficulties memorizing the words because they could make use of the correspondence between sounds and letters. Otherwise, even though they know the rough forms of the words, they still could not spell it exactly.

Therefore, it is not exaggerated to assume that language learners need to know more about various dimensions of words in learning vocabulary. Besides pronunciation, other dimensions of lexical knowledge such as collocations, and part of speech, etc., also help the students to understand the meaning and the usage of the words in a sentence or a reading context, which might lead to successful language learning (Fromkin & Rodman, 1974; Nation, 1990; McLaughlin, 2002).

For instance, when the learners know which part of speech a word belongs to, they would have some idea where to put the word in a sentence. This is important for the students when they are asked to fill in the missing words in the sentences (e.g., Part B of the word quizzes) or when they try to make a grammatically correct sentence. Besides, if the students could know more about the collocations of the word, they could distinguish which word the target word could collocate with and understand the meaning of the phrases. This might help the students to fill in the missing words in the sentences (e.g., Part B of the word quizzes) or make them enable

to comprehend a larger context where the collocations appear. In a word, as much lexical knowledge about a word should also be introduced as possible in helping the learners to acquire vocabulary well and deeply.

The importance of providing enough lexical knowledge could also be seen from the comparison between the recognition part (Part A) and the production part (Part B). The results show that the students in both groups performed better on the recognition part than on the production part. One reason might be that the recognition part only required the subjects to write down the Chinese equivalents of the target words, but the production part required the subjects to spell the missing words in the sentence contexts exactly. In other words, the students were only asked to know the meaning of the words in Part A; however, in Part B, they needed to know the word's meaning as well as its orthography. Therefore, it was natural that the students were faced with less difficulty in Part A than in Part B and they performed better on Part A than on Part B. Moreover, from the responses of the subjects interviewed, we were aware that even if the students could know which word to write down, they might also have difficulty spelling it correctly due to their inability to pronounce a word exactly, i.e., their insufficient lexical knowledge. To put it in another way, Part B required the students to have much more lexical knowledge, e.g., pronunciation, and part of speech etc. (Richards, 1976; Nation, 1990) than did Part A. Consequently, the students performed better on Part A than on Part B in all the word quizzes.

In sum, the role of traditional vocabulary teaching couldn't be neglected because it provided the learners with different dimensions of lexical knowledge inclusive of pronunciation, the correspondence between sounds and letters, and part of speech, etc. (Hsin, 2000; McLaughlin, 2002). According to the subjects interviewed, they encountered more difficulties when they tried to spell the missing words in the sentences due to the fact that they had difficulties in pronunciation. Even if they could

recall the meaning of the words, they still could not successfully spell the word correctly. Moreover, from the results of IWQ3 and IWQ4 or the differences between Part A and Part B, we find out that to provide enough lexical knowledge about a word is important in helping the learners to acquire vocabulary well and deeply.

4.3.4 Factors That Made the Subjects Fail to Spell or Misspell the Words

According to Nation (1990), knowing a word involves receptive word knowledge and productive word knowledge. Receptive knowledge refers to knowing the proper collocation of the word, knowing whether it is a frequently occurring one or a rare one and recalling the meaning when the learner sees it. Productive word knowledge includes the receptive knowledge and the extension of it. It refers to knowing how to pronounce it, how to use it in correct grammatical patterns as well as the words it usually collocates with.

In the experimental treatment, the subjects were required to write down the Chinese equivalents of the English words tested in Part A. What the subjects needed was only the receptive knowledge of the word; however, the subjects were required to write down the exact orthography of the missing word in a sentence context in Part B. In this way, the subjects needed to have not only the receptive word knowledge but also the productive word knowledge of the target word. To learn a word productively was about 50 to 100 percent more difficult than to learn it receptively (Nation, 1990). Therefore, both groups performed much better on Part A, i.e., translating English words into Chinese than on Part B, i.e., spelling the missing words in the sentences. Moreover, it seemed that both groups must have some difficulties making use of productive word knowledge to spell the correct forms of the words and there might be some reasons for this phenomenon.

4.3.4.1 Pronounceability and Orthography

When the learners have difficulty pronouncing words correctly, they have trouble in perceiving, saying and remembering the words. Conversely, if they are familiar with the phonological features or the words learned are pronounceable, they can perceive and spell the words more accurately (Laufer, 1997; Hsin, 2000; Chein & Chen, 2002). What's more, whether or not a word provides clues to its pronunciation, i.e., sound-script correspondence in a word and whether or not the students are aware of the alphabetic principles are important factors (Read, 1986; Laufer, 1997) for vocabulary learning.

From the errors of Part B of the four word quizzes, i.e., spelling the missing words in the sentences, we find that some students in both groups couldn't correctly spell the words partly because they are not sensitive to sounds or could not blend, segment or manipulate sounds in other ways (Chien & Chen, 2002); therefore, they couldn't completely make use of the sound-script correspondence to spell words correctly. Some of them could only spell a rough form of the word. Examples are listed as follows:

Table 4.4
Misspelled Words- I

Target Words	Misspelled Words
<i>insist</i>	<i>insint, inisit, instant, isists, instis</i>
<i>ordinary</i>	<i>oidionary, ordistnary, ordiary</i>
<i>long-distance</i>	<i>long-contance, long-latance, long-distande, long-distent</i>
<i>worth</i>	<i>wroth</i>
<i>frown</i>	<i>fworn</i>
<i>grammar</i>	<i>gammar, garmmer, and grmmar</i>
<i>reunited</i>	<i>reunieted renited, reuionted, and reunsited</i>
<i>field</i>	<i>fiald, fiold, fild</i>
<i>actually</i>	<i>acturally, acturllly, actarlly, and actully</i>
<i>automatically</i>	<i>automactally, automacally, autotically, automacally</i>
<i>misunderstanding</i>	<i>misanderstanding, misunditanceing, and misunderstang</i>

Obviously, the students could only grasp some phonemes of the words and were not able to pronounce the words exactly and thus failed to make use of the sound-script correspondence in a word, especially when the words are more than three syllables long (Hsin, 2000). For example, words such as *ordinary*, *long-distance*, *grammar*, *reunited*, *actually*, *automatically*, and *misunderstanding* seemed to be such longer words that the students could not succeed in spelling them correctly. For L1 learners or L2 learners, shorter words are much easier than longer words to learn (Coles, 1982; Philips, 1981, as cited in Schmitt, 1997).

In addition, words are made up of one or more syllables. A syllable is a phonological unit composed of one or more phonemes. Every syllable has a nucleus, usually a vowel and the nucleus may be preceded by one or more phonemes called the syllable onset and followed by one or more segments called the coda. The Misspelled word such as *reuionted* seemed to violate this rule because the second syllable of *reuionted* happened to have three vowels followed by the phoneme [n]. Besides, some arrangements of the phonemes are permissible, and others are not. The students might

be unable to take notice of phonotactic constraints and thus misspelled some of the target words. For instance, according to the phonotactics of the language, no more than three sequential consonants can take place at the beginning of a word and these three are restricted to /s/ + /p, t, k/ + /l, r, w, y/. Since the students were likely to neglect syllable phonotactics, they misspelled *grammar* as *grmmar*. Sometimes, even though the students could spell ‘possible words’, whose phonemes obey the phonotactic constraints of the language, they are only words with no meaning at all (e.g., the misspelled word *misanderstanding*, an accidental gap).

Moreover, Chinese characters are monosyllabic and each Chinese character has at most one consonant at the onset position of a syllable, but many English words such as *automatically*, *society*, *actually*, etc., are polysyllabic words; in addition, even in a single syllable in English the consonant cluster can be composed of two or three consonants, e.g., *camps*, *cramped*, or *strands*, etc. Thus, it may safely be assumed that the differences of syllable structure and phonological rules between Chinese and English make the subjects in the treatment encounter difficulties in pronouncing the words, which leads to unsuccessful spelling.

Furthermore, there is usually an approximate correspondence between phonemes and graphemes; however, most Chinese learners feel uncertain about the vowel sounds and their corresponding scripts. For instance, in stressed syllables, vowels must be long and tense if the syllable ends in a vowel without a consonant, i.e., an open syllable; otherwise, vowels are usually short if the syllable ends in a consonant, i.e., a closed syllable. Some occurrences are listed below as examples.

(i) in open syllables: ta-ble; si-lent; cu-cum-ber (long vowels and tense)

(ii) in closed syllables: tab; fem-i-ni-sm; sin-gle; top; cub (short vowels)

Moreover, in unstressed syllables, vowels are usually changed into a [ə] sound, i.e., a schwa, in open syllables (Fromkin & Rodman, 1974; Hsin, 2000). As shown in

the following pairs of words:

Table 4.5

Vowels in Unstressed Syllables

compete	[i]	competition	[ə]
medicinal	[ɪ]	medicine	[ə]
maintain	[e]	maintenance	[ə]
telegraph	[ɛ]	telegraphy	[ə]
analysis	[æ]	analytic	[ə]
solid	[ɑ]	solidity	[ə]
phone	[o]	phonetic	[ə]
Talmudic	[u]	Talmud	[ə]

Due to the vowel change mentioned here, the letters *a, e, i, o, and u*, all represent the schwa, [ə] in unstressed syllables. Thus, the students would get confused and have much trouble in spelling the exact letters because different letters represent the same vowel. As a result, they misspelled the words as listed below:

Table 4.6

Misspelled Words II

Target words	Misspelled words
<i>long-distance</i>	<i>long-distince</i>
<i>candle</i>	<i>candel, candal, candol</i>
<i>development</i>	<i>developmant</i>
<i>servant</i>	<i>servent</i>
<i>field</i>	<i>fiald, fiold</i>

Even though there are general rules for the pronunciation for the vowels, the students are still confused with the rough correspondence between vowels and letters. The short vowels are usually represented by the single letter *a, e, i, o, u*, and long vowels or diphthongs are often represented by two letters such as *ee, ea*, etc., as

illustrated below (Hsin, 2000):

- (i) [i]: ee, ea, ie, ei vs. [ɪ]: i
peak/pick; seat/sit; steel/still; receive/civic; Neil/nil
- (ii) [u]: oo, ou vs. [ʊ] or [ʌ]: u, ou
food/put; pool/pull; route/ru
- (iii) [e] : ai, ay, ei vs. [ɛ]: e or [æ]: a
bait/bat; say/set; sleight/sled;
- (iv) [o]: ou, ow, oa vs. [ɑ] or [ɔ]: o
soul/sob; bow/bot; sow/sock; goat/got; coat/cot

It seems that the correspondences between vowels and letters are more complicated than that between consonants and letters. Even if the students could pronounce a word correctly, they would also have difficulty distinguishing different letters represented by the same or similar phonemes or the same morphemes with different pronunciation in different words. Therefore, the students would get confused and create similar spellings for similar sounds or for the same sounds (Read, 1986) as listed below:

Table 4.7

Misspelled Words III

Target words	Misspelled words
<i>reunited</i>	<i>reunieted</i>
<i>society</i>	<i>soceity, socieite</i>
<i>misunderstanding</i>	<i>misanderstanding</i>
<i>custom</i>	<i>coustom, costom</i>
<i>long-distance</i>	<i>long-distance, long-distanse</i>
<i>grammar</i>	<i>grammer</i>
<i>tower</i>	<i>towar, towor</i>
<i>message</i>	<i>massage, messege</i>
<i>corrected</i>	<i>corrected</i>
<i>contrast</i>	<i>contrest</i>

From the misspelled words listed above, we would further discuss some aspects about the errors the students have made in spelling. First, the students misspelled

long-distance as *long-distanse* because *ce* in *distance* are pronounced the same as *se* in *goose*, or *loose*. Besides, *c* would be also pronounced as [k], e.g., *cat*, *cattle*, and *indication*, etc., so the students would misspell *long-distance* as *long-distanse*.

Second, the students misspelled *grammar* as *grammer*; *tower* as *towar*, or *towor* because *ar* in *grammar*, *er* in *tower* and *or* in *doctor* were all pronounced as [ə], i.e., an unstressed vowel. However, *ar*, *er*, and *or* would be pronounced differently when they occur in the stressed phoneme, or in a free root (Stockwell & Minkova, 2001). For instance, *ar* would be pronounced as [ar] in *target*, *march*, and *bar*; *er* pronounced as [ir] in *era*, *eraser*, *eradicate*; *or* pronounced as [ɔr] in *oral*, *oracle*, *orange*. If the students did not take notice of the complex phonological rules in those words, they certainly would get confused and misspell the words.

In addition, many students would misspell the words containing *e* pronounced as [ɛ] with *a*. For instance, the students misspelled *message* and *corrected* as *massage*, and *corracted* in Part B of the four word quizzes. On the other hand, some students also misspelled *a* with *e*. For example, they misspelled *contrast* as *contrest*; *message* as *mesege* (Gates, 1937; Read, 1986).

One possible explanation for this phenomenon might be that the letter name of *a*, (i.e., [ei]) was similar to the phoneme [æ] or [ɛ] and *e* represents the vowel [ɛ] in *message*; therefore, when the students tried to pronounce and spell *message*, they would create *massage* instead of *message*. On the other hand, the letter name of *e* ([i]) was similar to the phoneme [ɪ]. Since *a* in the word *message* was pronounced as [ɪ], it was natural for some students to write down *mesege* instead of *message*. Besides, *A* represents the vowel, [æ], in the word *contrast*, while *e* represents the vowel [ɛ] in the words such as *bed*, *letter*, *met*, etc. Both [æ] and [ɛ] are vowels sharing the same

physical dimensions such as frontness (front), lip rounding (spread), and tenseness (lax). The only difference is tongue height: [ɛ] is pronounced with the tongue mid in the mouth, while [æ] is pronounced with the tongue low in the mouth. Therefore, some students got confused with the two vowels and would misspell *contrast* with *contrest* (Read, 1986; Parker & Riley, 1994).

4.3.4.2 Synformy (similarity of lexical forms)

Similar lexical forms were called “synforms.” When learners try to acquire new lexical items, synforms that were previously learned would confuse the learners both in recognition and in production (Laufer, 1997). The most problematic synforms were those with different suffixes (e.g., *industrious/industrial*; *comprehensive/comprehensible*) and synforms identical in consonants but different in vowels (e.g., *adopt/adapt*; *conceal/cancel*). Therefore, some students wrote down *communication* instead of *communicate* because they could not distinguish the part of speech of the words. Besides, some students got confused with the words such as *contact*, *communicate*, *contrast* and *correct* since the phonemes of the four words all started with the [k] sound and ended with the [t] sound. The four words occurred at the same time in the four word lists in the study as it happened, so many students could not write down the exact word they wanted and missed the score.

4.3.4.3 Abstractness

Both the old and the young have no difficulty in learning such concrete words as numbers, days of the week, colors, names of objects and so on, but they have much more trouble in learning abstract words (Allen and Vallette, 1972). Even though English learners have already developed abstract concept in their L1, they still have more trouble in understanding and remembering an abstract L2 word like *love* than a

concrete word like *book*. In the experiment, students indeed had more difficulty in remembering abstract words than concrete words. For example, in word quiz 1, 2, 3, 4, the words which students in both groups could not spell completely were words with abstract concepts such as *benefit, long-distance, communicate, misunderstanding, comment, offensive, actually, community, society, reunite, contrast, harvest, warmth, imagine, automatically, therefore, development, precious, increase, etc.*

Section 4.3 has examined and analyzed some factors that might affect vocabulary learning such as pronounceability and orthography, synformy, and abstractness. For EFL students, to acquire vocabulary is a complex process. They may come across some difficulties that make them unable to perceive or remember the target words. In helping EFL students to overcome the difficulties and successfully acquire vocabulary, both teachers and students should try to find out those factors, which would become obstacles to the students in learning English. In this way, the students could avoid making the same mistakes in learning vocabulary.

4.4 Summary

In Chapter Four, quantitatively, the results of all the tests between the two groups were represented by tables, figures, and words. Qualitatively, responses from the subjects were also analyzed. It was found that vocabulary learning strategies, lexical knowledge, and the cognitive theories all provided positive effects on vocabulary learning in this experiment. Besides, we found out some factors, which caused the students to misspell the target words. In sum, this experiment has proved that drawing plus reading the text, i.e., the word lists is an effective vocabulary learning strategy.