CHAPTER 4

RESULTS

Contained in this chapter are results derived from existing data and answers to the research questions presented in Chapter One. The first section of the chapter examines the functions of CLL. Descriptive statistical data in the forms of sample sizes, means, and standard deviations will be presented, which are to be followed by analyses of the independent-samples *t*-test. The second section looks at the differences between the pretest and posttest of the experimental group and the control group respectively. Besides sample sizes, means and standard deviations, the statistical paired-sample *t*-test will be delineated. In the third section, we concentrate on the analysis of the questionnaire among high/ low achievers and average students, the differences in whose attitudes toward and responses to CLL will be presented. In the final section of the chapter, we focus on the comparison of the reading strategies adopted between the experimental group and the control group. Within this section, a quantitative analysis will be used.

Each section is illustrated with tables, drawn from the statistical results. Besides, some brief discussion of the results is also given.

4.1 The Effectiveness of the CLL During and After the Experiment

Table 4.1

The Comparison of the Pretest of GEPT Between the Experimental Group And the Control Group

Group/Number	Mean	SD	*t*-value	Sig.	95% Confidence Interval of the Difference Lower	Upper
Exp./39	82.90	17.73	.85	.399	-4.412	10.97
Ctrl./40	79.63	16.56				

Note. SD = standard deviation; Sig. = significant statistical difference

Exp.: Experimental Group; Ctrl.: Control Group

**p<.05. **p<.01.*

Before implementation of this study, with a view to comparing the English reading proficiency between the experimental group and the control group, the researcher tested all of the participants by using one of the reading comprehension tests of GEPT. Table 4.1 displays the comparison of the independent-samples *t*-test between the experimental and control groups. The results indicate that the *t* value is at .85 and p=.399>.05. Therefore, there is no significant statistical difference between the two groups. That is, the reading comprehension ability of the two groups was similar before the study.

Table 4.2

The Comparison of the Three Posttests on Reading Comprehension Test Between the Experimental and the Control Groups During the Experiment

Test	Group/ Number	Mean	SD	*t*-value	Sig.	95% Confidence Interval of the Difference	
						Lower	Upper
1st Posttest	Exp/39	53.03	14.79	.78	.44	-3.82	8.75
	Ctrl/40	50.58	13.14				
2nd Posttest	Exp/39	58.77	16.47	.34	.75	-6.03	8.36
	Ctrl/40	57.60	15.02				
3rd Posttest	Exp/39	65.90	14.92	2.28	.026*	.97	14.57
	Ctrl/40	58.13	15.43				

Note. SD = standard deviation; Sig. = significant statistical difference
Exp.: Experimental Group; Ctrl.: Control Group
**p<.05. **p<.01.*

To investigate whether the experimental group scores significantly higher than the control group on the reading comprehension tests during the study, the mean scores of the three posttests during the study were analyzed by using an independent-samples *t*-test. Table 4.2 presents a *t*-test analysis of the three mean scores between the two groups. The results on Test 1 and Test 2 (p=.44; p=.75>.05) indicate that after more than two months of CLL instruction, there is still no significant difference between the two groups' reading tests. However, Test 3 shows that there is significant difference between the two groups' reading comprehension tests (p=.026<.05). Such situation reveals that when the participants got more and more familiar with each other and their cooperation skills became more and more improved, their reading scores were increased as well. The overall results suggest that through the CLL, the experimental group gradually, though not immediately, outscores the control group on the reading comprehension test.

Table 4.3

The Comparison of the Posttest of GEPT Between the Experimental and Control Groups

					95% Confidence Interval of the Difference	
Group/Number	Mean	SD	*t*-value	Sig.	Lower	Upper
Exp./39	93.59	18.50				
			2.16	.034*	.74	18.04
Ctrl. /40	84.20	20.09				

Note. SD = standard deviation; Sig. = significant statistical difference

Exp.: Experimental Group; Ctrl.: Control Group

**p<.05. **p<.01.*

For further investigating whether the experimental group scores significantly higher than the control group on the reading comprehension tests after the study, the mean scores of the posttest of GEPT were analyzed by using another independent-samples *t*-test. Table 4.3 presents a *t*-test analysis of the mean scores between the two groups. The result shows that there is significant difference between the two groups' reading comprehension tests (p=.034<.05). Clearly, the results indicate that after one semester of CLL instruction, the participants in the experimental group scored significantly much higher than the control group on the reading comprehension part of GEPT. Thus, our findings lend support for the hypothesis that the effect of the CLL may be better than that of the individual learning in the big class on senior high school reading instruction.

4.2 The Effectiveness of the Interactive Reading Approach

Table 4.4

The Distribution of Scores in the Pretest and Posttest of GEPT in the Experimental And the Control Groups

Exp. (n = 39)			Ctrl. (n = 40)		
Class No.	Pretest.	Posttest	Class No.	Pretest.	Posttest
1	103	103	1	69	72
2	110	120	2	72	93
3	93	110	3	82	86
4	93	103	4	86	86
5	110	113	5	89	89
6	103	103	6	89	99
7	89	103	7	79	75
8	79	99	8	117	120
9	93	89	9	89	96
10	72	99	10	72	75
11	96	103	11	86	89
12	79	103	12	82	75
13	93	103	13	99	89
14	99	106	14	79	86
15	96	110	15	89	86
16	93	96	16	93	96
17	82	99	17	51	51
18	86	86	18	62	99
19	75	99	19	106	113
20	65	86	20	79	103
21	65	93	21	27	17
22	41	51	22	96	79
23	75	62	23	75	72
24	68	58	24	75	55
25	86	106	25	69	99

Table 4.4 (continued).

The Distribution of Scores in the Pretest and Posttest of GEPT in the Experimental And the Control Groups

Exp. (n = 39)			Ctrl. (n = 40)		
Class No.	Pretest.	Posttest	Class No.	Pretest.	Posttest
26	96	99	26	69	75
27	72	82	27	82	93
28	82	89	28	96	99
29	51	89	29	79	86
30	72	103	30	62	93
31	75	75	31	82	62
32	89	103	32	58	38
33	96	110	33	103	99
34	82	96	34	89	89
35	86	96	35	89	99
36	106	120	36	79	89
37	41	86	37	62	89
38	96	65	38	69	79
39	45	34	39	96	116
			40	58	62

Note. Maximum score = 120.

For investigating the effects of interactive reading instruction, the comparisons of the pretest and the posttest of the GEPT in the experimental group and control group are analyzed with statistical paired-sample *t*-test to examine whether the participants in the two groups have revealed distinct effects on their reading comprehension ability. As Table 4.4 has shown, the distribution of scores in the pretest and the posttest in the experimental group is from 110 to 41 and from 120 to 34; the control group is from 117 to 27 and from 120 to 17. Table 4.5 displays the outcome of the comparison between the pretest and the

posttest in the control group. Obviously, it has reached statistically significant level (p=.039<.05). Also, according to Table 4.6, the comparison of the pretest and the posttest of GEPT in the experimental group shows that the participants in the experimental group made great improvement after a semester of interactive reading instruction(p=.002<.01). To be specific, the results reveal that not only in the experimental group but also in the control group was the participants' reading comprehension ability much improved after the implementation of interactive reading approach.

Table 4.5

The Comparison of the Pretest and the Posttest of GEPT in the Control Group

					95% Confidence Interval of the Difference	
Test/Number	Mean	SD	*t*-value	Sig.	Lower	Upper
Pretest /40	79.63	16.56	-2.14	.039*	-8.91	-.24
Posttest/40	84.20	20.09				

Note. SD = standard deviation; Sig. = significant statistical difference

**p<.05. **p<.01.*

Table 4.6

The Comparison of the Pretest and the Posttest of GEPT in the Experimental Group

					95% Confidence Interval of the Difference	
Test/Number	Mean	SD	*t*-value	Sig.	Lower	Upper
Pretest/39	82.90	17.73	-4.50	.002**	-15.50	-5.88
Posttest/39	93.59	18.50				

Note. SD = standard deviation; Sig. = significant statistical difference

**p<.05. **p<.01.*

4.3 The Results of the Participants' Response Toward CLL Methods in the Experimental Group

Table 4.7

The Perceptions of CLL Methods Among the High/ Low Achievers and Average Students in the Experimental Group

Question	Participants' Level/Number	SA	A	UC	DA	SDA
1. I like the CLL in English class.	HA/ 11	2 (18.18)	5 (45.45)	2 (18.18)	0 (0.00)	2 (18.18)
	AS /18	5 (27.78)	7 (38.90)	3 (16.67)	3 (16.67)	0 (0.00)
	LA/10	3 (30.00)	3 (30.00)	3 (30.00)	0 (0.00)	1 (10.0)
2. I actively participated in every CLL activity in English class.	HA/ 11	2 (18.18)	5 (45.45)	3 (27.27)	1 (9.09)	0 (0.00)
	AS /18	3 (16.67)	10 (55.55)	4 (22.22)	1 (5.56)	0 (0.00)
	LA/10	2 (20.00)	5 (50.00)	2 (20.00)	1 (10.00)	0 (0.00)
3. I feel more anxious when learning English in the group.	HA/ 11	2 (18.18)	2 (18.18)	2 (18.18)	2 (18.18)	3 (27.27)
	AS /18	0 (0.00)	1 (5.56)	6 (33.33)	6 (33.33)	5 (27.78)
	LA/10	0 (0.00)	1 (10.00)	0 (0.00)	5 (50.00)	4 (40.00)
4. CLL is more efficient than individual learning.	HA/ 11	3 (27.27)	3 (27.27)	2 (18.18)	1 (9.09)	2 (18.18)
	AS /18	3(16.67)	6 (33.33)	4 (22.22)	4 (22.22)	1 (5.56)
	LA/10	3 (30.00)	5 (50.00)	0 (0.00)	1 (10.00)	1 (10.00)
5.CLL benefits reading.	HA/11	1 (9.09)	5 (45.45)	4 (36.64)	0(0.00)	1 (9.09)
	AS/18	1(5.56)	8 (44.44)	8 (44.44)	0(0.00)	1(5.56)
	LA/10	0 (0.00)	5 (50.00)	3 (30.00)	0(0.00)	2(0.00)

Table 4.7 (continued).

The Perceptions of CLL Methods Among the High/ Low Achievers and Average Students in the Experimental Group

Question	Participants' Level/Number	SA	A	UC	DA	SDA
6. I feel my communication skills have improved after one semester of CLL activities.	HA/ 11	2 (18.18)	5 (45.45)	2 (18.18)	1 (9.09)	1 (9.09)
	AS /18	2 (11.11)	8 (44.44)	5 (27.78)	1 (5.56)	2 (11.11)
	LA/10	0 (0.00)	6 (60.00)	3 (30.00)	1(10.00)	0 (0.00)
7. I think I played an important role in my group.	HA/ 11	2 (18.18)	4 (36.64)	3 (27.27)	1 (9.09)	1 (9.09)
	AS /18	3(16.67)	7 (38.89)	4 (22.22)	2 (11.11)	2 (11.11)
	LA/10	1(10.00)	3 (30.00)	2 (20.00)	2 (20.00)	2 (20.00)

Note. Values enclosed in parentheses represent the percentages.

HA: High achiever (scores above 96 in the pretest)

LA: Low achiever (scores below 72 in the pretest)

AS: Average student (scores between 96 and 72 in the pretest)

SA =strongly agree; A = agree; UC = uncertain; DA = disagree; SDA = strongly disagree.

Questions 1 to 3 aim to investigate whether there is any difference in the attitude toward CLL and its activities among the high/ low achievers and average students in the experimental group. Based on Table 4.7, regarding the question whether they like the CLL in English class, totally 25, or 64.10% of the, participants (7, or 63.63% high achievers; 12, or 66.68% average students; 6, or 60.00% low achievers) choose the items S*trongly agree* or *Agree*, while participants 6, or 15.38% of them, (2, or 18.18% high

achievers; 3, or 16.67% average students; 1, or 10.00% low achievers) choose *Strongly disagree* or *Disagree*. Then, as for the second question with regard to whether they actively participated in every CLL activity in English class, totally 27, or 69.23%, of the participants (7, or 63.63% high achievers; 13, or 72.22% average students; 7, or 70% low achievers) choose *Strongly agree* or *Agree*. Yet 3, or 7.69% of the, participants (1, or 9.09% high achievers; 1, or 5.56% average students; 1, or 10.00% low achievers) choose *Strongly disagree* and *Disagree*. Judging from the above, it appears that a majority of the participants irrespective of high/low achievers or the average students, like the CLL. In fact, most of them actively participated in every activity in class. When asked whether the participants feel more anxious when learning English in the group, totally 25, or 64.10% of the participants (5, or 45.45% high achievers; 11, or 61.11% average students; 9, or 90.00% low achievers) choose *Strongly disagree* or *Disagree*. On the contrary, a total of 6, or 15.38%, of the participants (4, or 36.36% high achievers; 1, or 5.56% average students; 1, or 10.00% low achievers) choose *Strongly agree* or *Agree*. The results suggest that most of the average students and low achievers were less stressful studying English in the group. Some high achievers who were often leaders, however, showed more anxiety studying in the group.

Questions 4 and 5 of the questionnaire aim to probe whether there is any difference in the CLL influence on reading comprehension among the high/low achievers and average students in the experimental group. When responding to the question on whether they think CLL is more efficient than individual learning, totally 23 or 58.97% of the participants (6, or 54.54% high achievers; 9, or 50.00% average students; 8, or 80.00% low achievers) choose *Strongly agree* or *Agree*, while totally 10, or 25.64 % of them (3, or 27.27% high achievers; 5, or 27.78% average students; 2, or 20.00% low achievers)

choose *Strongly disagree* or *Disagree*. When responding to the next question on whether they think CLL benefits reading, totally 20, or 51.28% of the, participants (6, or 54.54% high achievers; 9, or 50.00% average students; 5, or 50.00% low achievers) choose *Strongly agree* or *Agree*. In contrast, a total of 4 or 10.26% of them (1, or 9.09% high achievers; 1, or 5.55% average students; 2, or 20.00% low achievers) choose *Strongly disagree* or *Disagree*. The results show that more than half of the participants in each ability group--- especially low achievers who could receive immediate feedback and timely help from other group members--- thought CLL was more efficient than individual learning and therefore was beneficial to reading. However, totally 15, or 38.46% of the, participants (4, or 36.64% high achievers; 8, or 44.44% average students; 3, or 30.00% low achievers) choose *Uncertainty*. Compared with the above four questions (the 1st 8, or 20.51%; the 2nd 9, or 23.07%; the 3rd 8, or 20.51%, and the 4th 8, or 20.51%), the percentage of not knowing whether CLL is beneficial to reading is substantially higher.

Questions 6 and 7 aim to investigate whether there is any significant transformation in the communication skills and self-esteem among the high/low achievers and average students in the experimental group. When responding to the question on whether they feel their communication skills have improved after one semester of CLL activities, totally 24 or 61.54% of the participants (7, or 63.63% high achievers; 10, or 55.56% average students; 6, or 15.38% low achievers) choose *Strongly agree* or *Agree*. On the other hand, a total of 6 or 15.38% of them (2, or 18.18% high achievers; 3, or 16.67% average students; 1, or 10.00% low achievers) choose *Strongly disagree* or *Disagree*. When it comes to the last question about whether the participant thinks he/she plays an important role in his/her group, totally 20 or 53.84% of the participants (7, or 63.63% high achievers; 10, or 55.56% average students; 4, or 40.00% low achievers) choose *Strongly*

agree or *Agree*. Contrarily, 2 or 18.18% of the high achievers; 4 or 22.22% of the average students; 4 or 40.00% of the low achievers choose *Strongly disagree* or *Disagree*. It seems that more than half of the participants--- especially high achievers--- thought their communication skills have improved after the study. Besides, in this study group, not only 6 or 63.63% of the high achievers, but also 4 or 40.00% of the low achievers think they play important roles in the group. Thus, the results indicate that CLL may be a way to boost students' sense of self-esteem in studying English, especially for some low achievers whose self-confidence suffered in their previously unhappy English learning experiences.

4.4 The Results of Reading Strategies Adopted by the Control Group and the Experimental Group After the Implementation of Semester-long CLL Teaching

Table 4.8

The Comparison of the Reading Strategies Adopted by the Experimental and the Control Groups

Question	Groups	SA	A	UC	DA	SDA
1. When encountering a new word, I usually identify the root of the new word and guess the meaning.	Exp.	3(7.69)	5(1.28)	23(58.97)	7(17.94)	1(2.56)
	Ctrl.	2(5.00)	15(37.50)	10(25.00)	6(15.00)	7(17.50)
2. When encountering a new word, I usually use contextual clues to guess the meaning.	Exp.	17(43. 58)	15(38.46)	5(12.82)	2(5.12)	0(0.00)
	Ctrl.	19(47.50)	8(20.00)	5(12.50)	8(20.00)	0(0.00)
3. When reading an article written in English, I usually analyze the structures of every sentence.	Exp.	5(12.82)	6(15.38)	11(28.20)	13(33.33)	4(10.25)
	Ctrl.	4(8.00)	5(12.80)	10(25.00)	13(32.50)	8(20.00)
4. When reading an article written in English, I usually pay attention to grammar.	Exp.	4(10.25)	7(17.94)	10(2.64)	12(30.76)	6(15.38)
	Ctrl.	2(5.00)	6(15.00)	9(22.50)	12(30.00)	11(27.50)
5. When reading an article written in English, I usually translate every sentence into Chinese.	Exp.	14(35.89)	10(25.64)	5(12.82)	7(17.94)	3(7.69)
	Ctrl.	15(37.50)	9(22.50)	9(22.50)	4(8.00)	3(7.50)

Table 4.8 (continued).

The Comparison of the Reading Strategies Adopted by the Experimental and the Control Groups

Question	Groups	SA	A	UC	DA	SDA
6. When reading an article written in English, I usually pay attention to the textual patterns.	Exp.	2(5.12)	6(15.38)	12(30. 76)	14(35.89)	5(12.82)
	Ctrl.	2(5.00)	8(20.00)	12(30.00)	12(30.00)	6(15.00)
7. When reading an article written in English, I usually examine the title or pictures.	Exp.	6(15.38)	16(42.02)	3(7.69)	6(15.38)	8(20.51)
	Ctrl.	7(17.50)	7(17.50)	7(17.50)	12(30.50)	7(17.50)
8.When reading an article written in English, I usually skim for the main ideas.	Exp.	13(33.33)	15(38.46)	8(20.51)	3(7.69)	0(0.00)
	Ctrl.	8(20.00)	16(40.00)	6(15.00)	8(20.00)	2(5.00)
9. When reading an article written in English, I usually scan for the specific information.	Exp.	11(28.20)	17(43.58)	4(10.25)	6(15.38)	1(2.56)
	Ctrl.	5(12.50)	9(22.50)	13(32.50)	9(22.50)	4(8.00)
10 When reading an article written in English, I sually anticipate and predict what will come next.	Exp.	6(15.38)	16(42.02)	3(7.69)	6(15.38)	8(20.51)
	Ctrl.	7(17.50)	7(17.50)	7(17.50)	12(30.50)	7(17.50)

Note. Values enclosed in parentheses represent the percentages.
Exp.: Experimental Group; Ctrl.: Control Group
sample size in the experimental group = 39
sample size in the control group =40

To investigate whether the participants in the experimental group and the control group prefer certain reading strategies after one-semester of interactive reading

instruction, the results are presented in Table 4.8.

When responding to whether the participants usually identify the root of the new word and guess the meaning when encountering a new word, a total of 8 or 20.51% of the participants in the experimental group choose *Strongly agree* or *Agree*, while there are 17 or 42.50% of their control peers choose the same items. However, totally 23, or 58.97% of the participants in the experimental group choose *Uncertainty*, while 10 or 25.00% of their counterparts in the control group are uncertain about the answer. A total of 32, or 82.05% of the participants in the experimental group and 27 or 67.50% of their control peers used contextual clues to guess the meaning when encountering a new word. These findings show that more than half of the participants in the experimental group and in the control group adopted this method in solving their vocabulary problems---especially those in the experimental group.

Questions 3 to 4 regarding whether the participants usually analyze the structures of every sentence and whether they pay attention to grammar, a total of 17 or 43.58% of the participants in the experimental group and 21 or 52.50% of their control peers without the habit of analyzing the structures of every sentence. Also, 18 or 46.14% of the participants in the experimental group and 23 or 57.50% of the participants in the control group pay no attention to grammar. Almost one-fourth of the participants in both groups choose *Uncertainty*. These results seem to contradict the traditional assumption that students in Taiwan learn too much grammar and pay too much attention to bottom-up reading skills since over half of the participants neglect such reading strategies in either the experimental group or the control group.

When responding to question 5 on whether the participants usually translate every sentence into Chinese, totally 24 or 61.53% of the participants in the experimental group

and 24 or 60.00% of the participants in the control group were in the habit of doing so. The percentage is far greater than those without the habit (10 or 25.63% in the experimental group; 7 or 15.50% in the control group). The findings suggest that in either study group, most participants tended to rely on their first language when reading English, even with the CLL group participants, who were required to discuss in English most of the time.

Questions 6 to 10 center on the analyses of the participants' top-down reading strategies. When asked to whether the participants pay attention to the textual patterns, regardless of types of study group, less than one-fourth of the students (8 or 20% in the experimental group; 10 or 25% in the control group) responded positively; most of the participants were either not sure or disagree with the question. The high percentage of negative responses seems to point to the fact that in either study group, when reading in English, most of the participants neglect the importance of text organization or connectors. Such results may be explained by the conclusion gained from question 5. That is, instead of understanding the given passages directly in English, most of them translated it into Chinese. The results of questions 7 and 8 indicate that more than half of the participants in both groups tended to examine the title or pictures as well as skim for the main idea. However, the participants in the experimental group outnumbered their control peers in their response to whether they usually scan for the specific information (28 or 71.19% of the participants in the experimental group; 14 or 35.00% of the participants in the control group) and whether they usually anticipate and predict what will come next (22 or 57.40% of the participants in the experimental group; 14 or 35.00% of the participants in the control group).