合作学习对提升二语学习者阅读理解能力的有效性研究

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THE EFFECT OF COOPERATIVE LEARNING ON SECOND LANGUAGE LEARNERS' READING COMPREHENSION ABILITY

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Abstract: The article explores the following research questions: First, is cooperative learning effective in improving students' second language reading comprehension? Second, if there is a positive effect, what cooperative learning strategies can the teacher adopt to improve students' reading comprehension ability? If cooperative learning has a negative effect on students' reading comprehension, what are the reasons? Through comparison and analysis of the results of reading tests, questionnaires and interviews before and after the experiment, the following conclusions are drawn: first, compared with traditional reading classes, cooperative learning can improve the reading comprehension ability of top students in Grade 9 in junior high schools. Second, through Group Investigation and Team Game Tournament, teachers can effectively promote interaction between students, foster their learning enthusiasm, and improve their cognitive processing, which in turn helps to improve their reading comprehension ability.

Keywords: cooperative learning; reading comprehension; reading strategies; team game tournament; group investigation

I. Introduction

Based on the new curriculum reform, a new type of classroom with teachers as the leading role and students as the main body is advocated, which gives full play to students' subjective initiative and establishes a cooperative, friendly, democratic and equal relationship between teachers and students. Cooperative learning is a new learning method and a teaching strategy in the background of new curriculum reform. In the form of groups, students discuss problems

and complete task together, which increases the interaction between students and promotes the deep understanding of what they have learned. At the same time, students work together for a group goal, which improves their personal responsibility, cultivating social skills, increasing interest in learning, and thus improves their academic performance. The purpose of this study is to construct a platform for promoting cognitive and social interaction among students through cooperative learning in the English classroom, and to improve students' thinking level and cooperative ability. This not only helps to improve students' reading comprehension ability, but also helps students to develop their lifelong learning. At the same time, this study provides some feasible teaching strategies and research references for teachers who teach the second language and researchers in this field.

II. Literature Review

1.1 Definition of Cooperative Learning

Cooperative learning is the classroom teaching technique that enables students to engage in learning activities in groups and obtain awards or recognition based on their overall group performance Slavin (1982). Cooperative learning is the use of groups in teaching so that students can work together to maximize their own and others' learning Johnson Brothers (1991). Cooperative learning is a kind of teaching strategy and learning method. It emphasizes how teachers organize students to cooperate and help each other within groups and compete with other groups through group form to achieve all-members' interaction. It also emphasizes students' active participation and interaction that students help each other after thinking independently, exchanging ideas, analyzing and synthesizing different viewpoints, to accomplish group tasks together.

Teams-Games-Tournaments (TGT) is one of the earliest cooperative learning approaches created by Johns Hopkins University. Students compete with members from other groups to win points for their own groups. The groups with excellent performance are awarded points or other forms of rewards.

Group Investigation (GI) is a method for classroom instruction in which students work collaboratively in small groups to examine, experience, and understand the topic. Students select subtopics within a general area selected by the teacher and then organize themselves into small groups of two to six members. These groups further divide their topic into individual tasks, which performed by group members and prepare for a group presentation to the total class in the end. The presentation of a group is then evaluated by the other groups and by the teacher. Thus, GI emphasizes student autonomy and task interdependence because of the assignment of students to special tasks within the group.

1.2 Definition of Reading Comprehension and Reading Strategy

Reading is one of the skills that must be taught as it is central to the learning processes. It is an active process requiring skills, knowledge, and experience. Grabe and Stoller (2002) define reading as the ability to draw meaning from the printed page and to interpret the information appropriately.

Reading comprehension means a psychologic process in which students apply knowledge in the aspects of grammar, vocabulary, function, topic, life experience, and so on to make inference and judgment to understand the deeper meaning of text and author's opinion and intention.

Reading strategies are the strategies that learners use to help themselves understand the text. Research indicated that the use of appropriate strategies may improve reading comprehension (Zhang Zhicheng, 1993).

1.3. Theoretical Basis

As cooperative learning is just a concept, it is necessary to make certain that how cooperative learning operates effectively to result in enhanced learning. A simple path model of cooperative learning, adapted from Slavin (1995), is diagrammed in Figure 1. It depicts the functional relationships among the major theoretical approaches to cooperative learning.
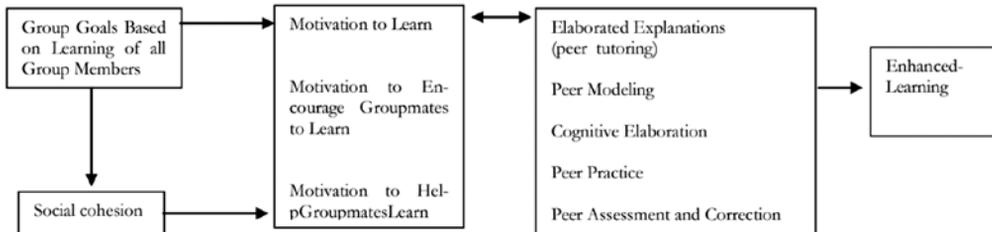

Figure1: A path model of cooperative learning

The diagram of the interdependent relationships among each of the components in the Figure begins with a focus on group goals or incentives based on the learning of all group members, which leads to social cohesion and both task motivation and motivation to interact in the group. The motivation of learning, encouraging and helping others to learn activates cooperative behaviors, including elaborated explanation, peer modeling, cognitive elaboration, peer practice, peer assessment, and correction, which will result in enhanced learning and academic achievement. The relationship is conceived to be reciprocal, and the cognitive processes may become intrinsically rewarding and lead to increased task motivation and group cohesion.

1.4 Research Gap

By reviewing previous studies and literature, many studies have proved the effectiveness of cooperative learning techniques, which can effectively improve students' performance, learning interest, learning motivation, the classroom atmosphere, and interaction among students or between the teacher and students. However, the author found some deficiencies in this field. In terms of research methods: On the one hand, the former research subjects are generally students of low, middle, high-level ability in public or private schools, which is difficult to control the variance. On the other hand, studies on cooperative learning were mainly based on quantitative research, which is always an empirical study comparing the results of the experimental group and the control group. However, there are too many influencing factors and it is difficult to control variables, so the research results are superficial. Even if it is about the study of reading class, the results only prove that the students' scores have improved, but there is no specific aspect. Therefore, this study adds qualitative research, which can better grasp the students' performance and their real attitude towards the effect of cooperative learning in improving their reading comprehension ability. Therefore, this study combines qualitative research with quantitative research. The research object is the top students in grade nine. It explores the effect of cooperative learning applied in the reading class of the extra-curricular class.

III. Research Design

3.1 Research Questions

This study aims at exploring the effectiveness of using cooperative learning in improving the English reading comprehension ability of top students in ninth grade. There are two questions to explore in the study:

Firstly, is cooperative learning effective in promoting students' English reading comprehension ability in the reading class? Secondly, if there is a positive effect, what are the strategies adopted in cooperative learning to promote students' reading comprehension ability? If not, what are the causes of the negative effect of cooperative learning in promoting students' reading comprehension ability?

3.2 Participants

The participants are 64 students from four Hongzhi classes in grade nine of TAL Education Group, teacher A, and the author who is teacher A's assistant. Checking students' homework and tests, observing students' behaviors and per-

formance in the class is the author's duty as a teacher's assistant. Both of the experimental groups and the control group are in the charge of teacher A, who has taught students for nine years. The role of the teacher in the classroom includes teaching students reading strategies, organizing the group activities, resolving students' difficulties, and managing the classroom discipline.

The information of experimental and control group, and interviewees were shown in Table 1.

Table 1: Information of participants

Type of group	Number of classes	Number of girls	Number of boys	Age of students	Teacher	Teacher's assistant
Experimental group	2	22	10	14 – 15	Teacher A	the author
Control group	2	20	12			
Interviewees						
Students	Age	Gender	Personality	Reading ability		
Student 1	14	Girl	Introvert	A+		
Student 2	15	Boy	Introvert	A		
Student 3	14	Girl	Introvert	A+		
Student A	14	Girl	Extrovert	A		
Student B	14	Boy	Extrovert	A		
Student C	15	Boy	Extrovert	A+		

The reading ability of students in the table is measured by the comprehensive test and students' daily exercise in the reading comprehension part. The reason for choosing ninth graders is that few researchers regarded ninth-grader as research objects, and ninth graders are more sociable than students in grade seven or eight, which is convenient for interviews. Besides, all of them are top students, so they are more suitable to do group investigation. They need to systematically learn reading strategies and are urgent to improve their reading comprehension ability. Moreover, the reading comprehension ability of the ninth-grader could be measured by the entrance examination for senior high schools in January, of which the scores are more persuasive than the seventh or eighth graders'.

3.3 Research Measures

3.3.1 Tests

There are three kinds of tests. The first one is the test of comprehensive diagnosis in September 2019, which is used to make sure these students of the

four Hongzhi classes are in the same English level. The second one is the test in October 2019 in Wuhan for middle school students, which is used as the pretest of the intervention. The third one is the test in January 2020 in Wuhan for middle school students, which is used as the post-test of the intervention. The reading comprehension parts of these tests were used to measure the change in students' reading comprehension ability. These tests were described in the following paragraphs.

Both the test in October 2019 and that in January 2020 for middle school students are authoritative examination in Wuhan, as important as the entrance examination for senior high schools. The reading part of the tests has three passages, each of which has five questions and each question values two points, hence a total of 15 questions with 30 points. These questions mainly evaluate students' abilities to infer the main idea of the paragraph, guessing the words or sentences, comprehending the details of the text, or finding the main source of the material. Holding the pretest and posttest aims at analyzing the improvement of students' reading comprehension ability. The distribution of the question types, number, and the total value is shown in Table 2.

Table 2: Questions in the reading part of pre-test and post-tests

Question Type	Number	Total Value
Detail	6	12
Inference	4	8
Main gist	1	2
Guessing words	1	2
Source of topic	2	4
Best title	1	2
Total	15	30

Students' reading comprehension ability could be measured by pretest before the intervention and posttest after students had studied for a time in the classroom with influence exerted by cooperative learning techniques.

3.3.2 Questionnaires

The questionnaire the author used was developed by Mohammed S. Alhaidari in 2006 to measure the attitudes of students in the experimental group towards cooperative learning in reading classes before and after the experiment. This questionnaire includes 12 items from three dimensions, including social cohesion, motivation to cooperate and read, and cognitive elaboration.

These dimensions are based on the functional relationships among the major theoretical approaches to cooperative learning proposed by Slavin (1995). The questionnaire adopted a four-level scale, and each item has four choices from strongly agree, agree, disagree, to strongly disagree. The researcher estimated the reliability of this measure using Cronbach's Alpha. For the pretest, the reliability coefficient was .78, and for the posttest it was .80. The questionnaire results supposedly display the change of students towards cooperative learning and the effect of cooperative learning in promoting students' English reading comprehension ability. However, the results are superficial. To test the hypothesis, subsequent interviews were introduced into the study.

3.3.3 Interviews

The interviews with six students and the teacher A before and after the intervention are an essential part of the study, aimed at finding out the effect of cooperative learning in improving students' reading comprehension ability by asking students' attitude towards cooperative learning in promoting their reading comprehension ability. Results of the interviews are supplemental to the questionnaires, and were analyzed from the perspectives of cognition elaboration.

Interview questions for students were cited from Wang Ying (2018), which aims at exploring the effect of cooperative learning in improving students' reading comprehension ability, by exploring students' views towards cooperative learning and group discussion in the reading class and reading strategies they learn in the reading classes. The detailed questions were displayed in Appendix III. Since the original questions could not be implemented as the author expected, questions were added or reduced according to the situation of the interview.

Besides, questions as cited in Sharan & Sharan (1992) and Wang Ying (2018) were used for teacher interview, aimed at understanding the teachers' views and evaluation of cooperative learning activities in the reading class. These questions were also displayed in Appendix III.

3.4 Research Procedure

The study was conducted from early September to the end of December 2019, a total of 15 weeks. Each week had a session and each session lasted for three hours, in which students had a 20 minutes rest after an hour and a half, and 10 minutes rest between 90 minutes. Before getting the permission of entering the class, students experienced the test of a comprehensive diagnosis of TAL Education Group in September, to make sure those in the Hongzhi classes

have the same ability of reading. The same amount of time was allocated to the reading instruction in both the experimental and control groups for 15 weeks. The control group was taught under traditional teaching approach with group discussion while the experimental group adopted cooperative learning techniques, with Group Investigation, and Team-Games-Tournaments. The schedule of conducting the intervention of the experimental group is shown in Appendix V.

The teacher improves students' reading comprehension ability through teaching students the reading strategies with explicit direct instruction at first, including analyzing the structure of the text, activating the prior knowledge, guessing the meaning of unknown words, summarizing the topic sentence or different opinions, locating the details of the text, and making the prediction according to the text type. Then students practiced the reading strategies with group investigation. When practicing the reading strategies, with group of 4 – 6 people, the students were to finish the graphic organizers in the form of GI, and TGT was conducted throughout the whole of teaching steps. The graphic organizers were shown in the Appendix IV.

3.5 Analysis Methods

Firstly, students' reading comprehension ability was measured by three tests. The first one held in September 2019 is a comprehensive diagnosis to make sure that students of the four Hongzhi classes are in the same English level. The second test held in October 2019 is regarded as the pretest of the intervention. Results of the pretest and the posttest in January 2020 were compared to explore the improvement of students' reading comprehension ability. Reading achievements of the two groups were compared by using the pair sample t-test, with the help of SPSS20.0. While the posttests results of the experimental group and control group were contrasted by the independent sample t-test. Secondly, change of students' attitudes toward the cooperative learning and reading was measured by pre- and post-questionnaires from the perspectives of social cohesion, motivation to cooperate and read, and cognitive elaboration, which were measured by the mean value of each question with the help of SPSS20.0. Finally, results of interviews were classified by content analysis, which were mainly analyzed from the perspectives of cognitive elaboration, to find out specific reading strategies and reading experience students got in the reading class with cooperative learning techniques. This is considered to be a supplement to the results of the questionnaires.

IV. Results and Discussion

4.1 Comparative Analysis of the Tests

4.1.1 Tests Results of the Control Group

Table 3: Results of paired sample t-test of CG

		Mean value	N	Standard Deviation	Standard Error of the Mean
	Paired sample statistics				
CG	Pretest	25.44	32	3.262	.577
	Posttest	26.25	32	1.884	.333

		N	Correlation coefficient	Sig.
	Paired sample correlation coefficient			
CG	Pretest & Posttest	32	.570	.001

		Mean Value	Standard Deviation	Standard Error of the Mean	Lower Limit	Upper Limit	t	df	Sig. (2-tailed)
			Paired sample test						
			Difference in Pairs		95 % Confidence Interval				
CG	Pretest Posttest	-.813	2.681	.474	-1.779	.154	-1.714	31	.096

According to Table 3 above, the information of paired sample statistics shows that the mean value of the posttest of the control group improved.813, compared with that of the pretest. The information of the paired sample correlation coefficient shows that the sig value is .001, less than .05, which means that the pretest and posttest are significantly correlated. The information of the paired sample test shows that the P-value is .096, more than .05, which means there is no significant difference between pretest and posttest. Therefore, there is no great improvement in the control group in the reading comprehension tests.

4.1.2 Tests Results of the Experimental Group

Table 4: Results of paired sample t-test of EG

		Paired sample statistics			
		Mean value	N	Standard Deviation	Standard Error of the Mean
EG	Pretest-	25.44	32	3.262	.577
	Posttest	28.75	32	1.414	.250

		Paired sample correlation coefficient		
		N	Correlation coefficient	Sig.
EG	Pretest & Posttest	32	.626	.000

		Paired sample test								
		Difference in Pairs					t	df	Sig. (2-tailed)
		Mean Value	Standard Deviation	Standard Error of the Mean	95% Confidence Interval				
					Lower Limit	Upper Limit			
EG	Pretest-Posttest	-3.313	2.620	.463	-4.257	-2.368	-7.151	31	.000

According to Table 4, the paired sample statistics shows that the mean value of the posttest of the control group improved 3.313, compared with that of the pretest. The paired sample correlation coefficient shows that the sig value is .000, less than .05, which means that the pretest and posttest are significantly correlated. The paired sample test shows that the P-value is .000, less than .05, which means there is a significant difference between pretest and posttest. Therefore, there is a great improvement in reading comprehension tests of the experimental group after the intervention.

4.1.3 Results of Post-tests of Two Groups

The results of a single sample nonparametric test showed that the distribution of the results in the experimental group was normal, with an average value of 28.75, a standard deviation of 1.414, and a sig value of .013. The distribution in the control group was also normal, with an average value of 26.25, a standard deviation of 1.884, and a sig value of .050.

Table 5: Results of independent sample t-test of CG and EG

Group statistics

	Group	N	Mean	Standard Deviation	Standard deviation of the Mean
posttest	EG	32	28.75	1.414	.250
	CG	32	26.25	1.884	.333

Independent sample test

		Levene test of covariance equation		T-test of mean equation					95% Confidence Interval	
		F	Sig.	t	df	Sig. (2-tailed)	Deviation of mean value	Standard deviation	Lower Limit	Upper Limit
posttest	Equal variance assumed	1.481	.228	6.004	62	.000	2.500	.416	1.668	3.332
	not assumed			6.004	57.520	.000	2.500	.416	1.666	3.334

According to Table 5, the result of group statistics shows that the mean value of the posttest of the experimental group is 28.75; 2.50 higher than that of the control group. The result of the independent sample test shows that the F value is 1.481, more than .05, so the variance is homogeneous. And the P-value is .000, less than .05, which means there is significant difference in the posttest's scores between the experimental group and the control group. This suggests that cooperative learning techniques used in the experimental group is more effective than the traditional teaching in improving the reading comprehension ability of top students in grade nine.

4.2 Comparative Analysis of Questionnaires

Table 6: Results of questionnaires on social cohesion of CL

Dimensionality	Questions	Means of pre-questionnaire	Means of post-questionnaire
Social cohesion	2. I do not like asking other students for help in reading class.	2.84	3.44
	5. Working with other students helps me stay on task.	2.94	3.78
	6. I help others stay on task when we are reading together.	2.25	2.53
	11. Other students encourage me to express my ideas.	2.25	2.69
	Mean Value	2.57	3.11

As shown in Table 6, the result of the comparative analysis of question-naires on cooperative learning from a social cohesion perspective before and after the intervention indicates that cooperative learning has greatly promoted social cohesion among group members. The mean value increased from 2.57 in the pre-questionnaire to 3.11 in the post-questionnaire. After the intervention, students agree that they like asking other students for help than before in read-ing classes; working with other students helps them stay on task; and because of members' encouragement, they are more willing to express their opinions.

Table 7: Results of questionnaires on motivation of cooperating and reading of CL

Dimensionality	Questions	Means of pre-questionnaire	Means of post-questionnaire
Motivation of cooperating and reading	1. I like working together with other students in reading class.	2.81	3.72
	3. I would rather work alone in reading class.	2.75	3.56
	4. I like participating in reading class discussion.	2.78	3.69
	9. I like it when other students participate in a discussion about reading.	2.75	3.56
	12. I feel more like asking questions when working in a small group.	2.44	3.72
	Mean Value	2.706	3.65

As shown in table 7, the result of the comparative analysis of questionnaires on cooperative learning from the perspective of motivation of cooperating and reading before and after the intervention indicates that students like working together with other students in reading class than before, rather than working alone. The mean value increased from 2.706 in the pre-questionnaire to 3.65 in the post-questionnaire. After the intervention, they like participating in and enjoying others participating in reading class discussions, and they like asking questions than before when working in a small group. Moreover, the author found that, by observing the class during the intervention, most students stay on task longer than before, and they ask teachers to give them more time to discuss. Even during the short break after class, more than half of the students remained at task to discuss the reading questions with their group members or did other reading exercises. By contrast, before the intervention, most of the students chatted with their desk mates or go out to buy snacks during the short break. Thus, the implementation of cooperative learning has greatly motivated students to cooperate with others and read. Based on the common sense, the more time students spent on reading, the higher possibility of improvement in students' reading comprehension ability.

Table 8: Results of questionnaires on cognitive elaboration of CL

Dimensionality	Questions	Means of pre-questionnaire	Means of post-questionnaire
Cognitive elaboration	7. In reading class I like explaining things to other students.	2.87	3.53
	8. When I discuss what we read with other students, I understand it better.	2.78	3.53
	10. Discussing reading with other students helps me learn.	2.78	3.72
	Mean Value	2.81	3.593

As shown in table 8, the result of comparative analysis of questionnaires on cooperative learning from the perspective of cognitive elaboration before and after the intervention indicates that students became more willing to explain their thoughts to other students after the intervention. The mean value increased from 2.81 in the pre-questionnaire to 3.593 in the post-questionnaire. Moreover, after the intervention, students strongly agree or agree that they understand the reading material better, and learn more when doing group investigation and discussing with other group members.

Therefore, as students have more enthusiasm in expressing their ideas and ask questions about the reading texts in the small group, they improve their cognitive level in reading, reading skills, creative ideas and critical thinking, which results in the improvement of their reading comprehension ability. Inference from the questionnaires part will be further supplemented by results of the interviews.

4.3 Comparative Analysis of Interviews

4.3.1 Results from Interviewing Students

Results of the interviews before and after the intervention show that attitudes of top students in grade nine towards cooperative learning changed a lot, and they benefitted from cooperative learning and learned a lot of reading strategies in group cooperative learning.

Before the intervention, the result of pre-interviews indicate that students did not show much positive feedback toward explicit direct teaching and group discussion. When answering the first question of the interview that "Do you like working together with other students in reading class? Why?" student 3 who is an introvert girl said that "just so so". While student 2 who is an introvert boy

said "I don't like it. Sometimes I don't like group discussion and I like thinking by myself because I like personal activities. I don't like communicating with others very much." Student 1 said "I don't mind, but it's ok if we don't have group discussion, because sometimes I don't want to discuss." Thus, quite a few introvert students somewhat refused cooperative learning in a group.

By contrast, after several weeks' intervention in the reading class, results of post-interviews showed that all of the student interviewees expressed their interest in doing cooperative learning activities. When answering the first question of the interview that "Do you like working together with other students in reading class? Why?" student B who is an extrovert boy said that "I like it very much. The activity is very interesting, as I can interact with my group members. It's better than the teacher's lecture all the time. Teachers in the school only talk about knowledge points and questions of tests, which is boring and makes us sleepy. Almost nobody listens to the lecture."

Therefore, cooperative learning activates students' motivation to learn and cooperate with others, which contributes to the improvement of students' reading comprehension ability.

In terms of the improvement of students' reading comprehension ability, results of comparative analysis of pre- and post-interviews show that when students practice reading strategies by using the cooperative learning techniques, Group Investigation (GI) and Team-Games-Tournaments (TGT), their ability to implement reading strategies could be improved, including their logical thinking, analyzing the structure of the text, activating the prior knowledge, summarizing the topic sentence or different opinions, locating the details of the text, and making prediction according to the text type.

In the pre-interview, when answering the second question of the interview that "What did you get when you discuss reading with other students?" student 1, who is an introvert girl, said that "I don't know what I get. I just told the deskmate my opinions and she told me hers in turn. But I cannot remember what she said after the discussion."

In the post-interview, when answering the same question, student 1 said that "During the group cooperation, I'm able to find comprehensive information of the text. At the same time, I can locate the information more accurately. Sometimes I'm prone to subjective assumptions, but after discussion I find my fault. I learn that combining questions with the articles is very important". Thus, she learned the reading strategy to locate details of the text in-group cooperation.

Student B who is an extrovert boy, said "the cooperation and discussion among my classmates have exercised my logical thinking ability because if I don't think question logically, and my opinion would be contradicted by students of

other groups, hence a loss of my group points. Besides, I recognize the importance of a test strategy. For example, by reading the questions first helps search for the answer in the article, so we may do better next time when we encounter similar problems. I will read the article more carefully in the future. We need to deal with more questions to cultivate the sense of questions." He also said that "when I discuss with my partners, I practice my oral English. Our teacher asked us to discuss in English. I organize the language in my mind first and then express my ideas. If I become a group representative to show on the platform, I would integrate the views of other group members, which exercises my ability of integrating and restating the views." Thus, cooperative learning trained the student to think about the questions logically and summarize different opinions in English.

Student A who is an extrovert girl said that "It is my biggest gain that I can determine the text type according to the title, and get the main idea from the first and last sentences of the paragraphs and the keywords. The text types mainly include expository, narrative, and argumentative texts. And, there are different writing tasks for different text types according to the teachers' schedule, which enables us to predict the development of the article. I enjoy predicting the subsequent development of the narrative with my partners because predicting the plot is very interesting." Thus, cooperative learning promotes the students ability of prediction according to the text type.

Students experienced a meaningful process and improved their cognitive level when they took efforts to collect various ideas for finding the right answer. Student 1 who is an introvert girl said that "During the group cooperation, I felt that the opinions of other classmates are just what I have thought, and I felt that we have resonance. At the same time, I could get more ideas from other perspectives." She also told the author her feeling when she did a presentation as a representative of her group, "I expressed what I want to say. When members of other groups contradicted my opinions, I was confused. I thought their opinions are reasonable, so I tried to think from their point of view, and finally teacher A told us they are right. Actually, before the presentation, our group discussed this question again and again, but we were wrong, as the results were not the standard answer." Thus, students learned the social skills to find resonance, and think from other's point of view. All of these social skills promote interaction among students, and improve their cognitive level and English reading comprehension ability.

Besides, students learned how to resolve the trouble of summarizing the main idea and analyzing the structure of the text with the help of their group members and the teacher. When answering the third question of the interview that "What difficulties did you meet when you do cooperative learning activity

in reading class?" Student 3 who is an introvert girl said that "the teacher asked us to summarize the main idea. The teacher said that the topic sentences we wrote were too complicated and long. The topic sentences were written by my partner. I provided ideas to her and told her which sentences could be used in the article, and then she wrote them. She copied the topic sentence directly without summarizing it. The following sentences of the poster are the theme sentences she wrote, which are also directly copied from the textbooks." But she knew how to solve the problem after the teacher's evaluation. She continued that "the teacher said that group A and group C were right. It would be perfect to combine the posters made by these two groups. Then, because we referenced other groups' posters, we did better in analyzing and summarizing the structure of the article according to the text content." Thus, cooperation within-group and mutual study among groups help students analyze the structure of the text and summarize the topic sentence.

In a word, results of the interviews confirm that cooperative learning promotes interaction among students, providing students with the chance of practicing the reading strategies, which enhances their cognitive level and their English comprehension ability.

4.3.2 Results from Interviewing Teachers

In the pre-interview before the intervention, when answering the question of the interview that "Do the students learn to cooperate, maintain friendly relations, and help one another?", teacher A said that "Most students do, but sometimes some students don't participate in activities and they express themselves negatively, which makes me a little upset."

In the post-interview, when answering the same question, teacher A said that "Of course, through the empathy among students, they can reflect their real thoughts. And I found that when one of my classmates was speaking on the platform, other students listened very carefully. So I found that cooperative learning technique is very good. As they are going to show on the platform, they would like to talk about what they know in the process of discussion. They are learning from each other." Thus, students have improved their social skills in cooperative learning, including listening to others carefully and expressing their own opinions actively. And they learn a lot about reading when they discuss.

In the post-interview, when answering the question that "what is the effect of applying cooperative learning techniques on reading class? Has it met your expectations?", teacher A said that "everyone is very active in expressing their opinions. It's always the teacher's thinking when the teacher talks all the time. I think students' thoughts are better than teachers'. Everyone puts forward

their views and their understanding of that sentence, and the analysis is quite profound." And she continued "I was surprised at the creativity of the students. For the same question that this student answered, I thought the next student had nothing to say. But to my surprise, they always can offer new points." Thus, cooperative learning greatly promotes students' cognitive level and creativity.

V. Conclusion

5.1 Major Findings

To answer the first research question that "Is cooperative learning effective in promoting students' English reading comprehensive ability in the reading class?", a comparative analysis of the experimental group and control group on tests, with questionnaires followed by interviews, was conducted, which gave a positive answer. Cooperative learning improved the reading comprehension ability of top students in grade nine, including the ability of implementing reading strategies and discourse comprehension.

The first finding is consistent with that of Abdul Gani Asyik & Zaiyana Putri (2016), who investigated the effect of the Group Investigation Technique (GIT) in teaching reading to 68 students in the second grade of private high school in Pidie Jaya. Their research concluded that the students taught with GIT got better results in reading than those who were taught with the standard individual reading activity method. It also conforms with Sharan & Sharan (1992), who confirmed that the implementation of Group Investigation has positive effects on students' academic achievement.

Moreover, the results of questionnaires and interviews show that cooperative learning improved interaction, motivation of cooperating and reading, and enhanced cognitive elaboration of top students in grade nine, contributing to their English reading comprehension ability. The second finding conforms with the theory of Slavin (1995) that social cohesion, intrinsic motivation to cooperate and learn and cognitive elaboration leads to improvement of students' achievement.

The second question is "What are the strategies adopted in cooperative learning to promote students' reading comprehension ability?"

The teaching plan and tests showed that the teacher used GI and TGT as cooperative learning techniques to practice reading strategies, which did improve students' ability for discourse comprehension. The third finding conforms to that of Gina. M. Lencioni (2013), in whose research, students were taught the reading strategies of generating questions, making connections with real life, summarizing, vocabulary building, and visualizing through explicit direct

instruction. These strategies were practiced either independently or in a cooperative learning group. Her result suggests that Explicit Direct Instruction with Cooperative Learning was favored more highly overall by higher ability students to practice reading comprehension strategies, as higher ability students were reported a more frequent usage of reading comprehension strategies. Besides, Amanda Hollingsworth, B.A. Jennifer Sherman, B.A. & Cynthia Zaugra, B. A (2007) argued that cooperative learning as a method of teaching turned out to be a valuable tool to help students learn strategies while encouraging positive interactions among peers.

5.2 Pedagogical Implications

According to the research results and problems met in the experiment, some implications can be drawn for teachers about applying cooperative learning to teaching practice.

First of all, it doesn't mean that cooperative learning techniques are suitable for all teaching modules. Teaching method which is more efficient and interesting should be used for different part of teaching. For example, the teacher may use explicit direct instruction while teaching students reading strategies.

Secondly, social skill is one of the most important principles of cooperative learning theory, and it is important for teachers to train social skills for students. A sense of teamwork is essential, which would be invaluable when students go job hunting in the future in interview with leaderless discussion. So, the teacher should give students autonomy and encourage them to speak more, and give guidance only when necessary.

Thirdly, teachers should predict all situations which are likely to occur and make rules according to the teaching objectives before class. For example, the allocation of time, the way for reward and punishment, etc. should all be specified in advance if the cooperative learning activities are to be conducted. Besides, every team member should be assigned with relevant tasks or roles to avoid sneaking off in the activity.

Fourthly, teachers should make clear the evaluation criteria of students' individual performance and group performance, which is often ignored in the classroom. To make the evaluation result fair and objective, the teacher may adopt various evaluation methods, including teacher evaluation, inter-group evaluation, students' self-evaluation, and peer evaluation. Besides, the evaluation should be a combination of formative evaluation and summative evaluation. It is advisable to use positive words for evaluation of students' performance during and after the activity.

Finally, other second language learners may draw some experience from this study. Using cooperative learning techniques to improve students English reading comprehension ability may well be applied to other SLA situations, for example, teaching foreigners Chinese.

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Appendices

Appendix I: Pretest and Posttest for Students in the Two Groups

Pretest

A
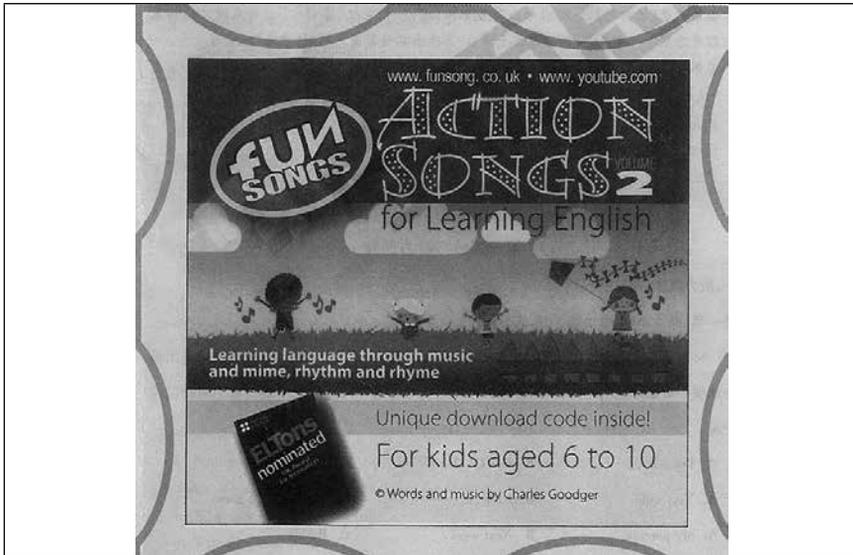
56. The material above most probably is___.
A. an article about language learning
B. a picture of English learners
C. an introduction to Charles Goodger
D. an advertisement of a CD

57. It is clear that "fun songs" should be___.
A. a music company
B. a book of download codes
C. the name of a music teacher
D. a web site

58. According to the material, you can learn English____.
A. at the age of 5
B. by singing songs
C. by buying Eltons
D. with the help of actions

59. We learn that there are at least_____ "Action songs" that have come out.
A. 8
B. 6
C. 4
D. 2

60. The material above should be from_____.
A. China
B. USA
C. England
D. Canada

B

Here comes the good news for students who have too much work to do after school. On March 5, Premier Li Keqiang gave the speech in this year's Government Work Report. Education is one of the highlights.

"We will give attention to the problem of heavy extracurricular burdens (课业负担) on primary and secondary school students," Li said during his speech.

Chinese parents often spare no effort or money to further their children's education. Many spend their children to after-school classes. In 2016, China had about 180 million school-aged students, according to a reporter by the Chinese Society of Education. More than 137 million of them took part in extracurricular classes or off-campus training.

To deal with this problem, the Ministry of Education (MOE, 教育部), drew up guidelines on Feb 26 that call for actions to be taken. Their targets are private training schools that create additional workloads and pressure for students.

The actions will be aimed at training schools that have no professional qualifications or cause safety risks, said Lu Yugang, an official from the MOE. He also said reducing the workloads for students should be a *priority*. It is a must-do, for children to study happily and grow healthily and sleep an additional half-hour or an hour.

61. According to the passage, _____ took after-school classes.
A. at least 180 million school-aged students
B. more than 137 million school-aged students
C. all school-aged students who study well
D. school-aged students who are poor at studies

62. We learn that_____.
A. parents spend no time or money to further their children's education
B. students will not have any homework in their free time
C. all training schools will soon be closed by the government
D. the problem of additional workloads is very common and serious

63. The underlined word "priority" in the passage means_____.
A. the thing that should be reduced
B. the thing that is worth spending money on
C. the thing that is the most important
D. the thing that must be put off

64. The government calls for actions to_____.
A. cut down the training schools
B. help teacher teach happily
C. offer more good training school
D. let students play for more time

65. The best title for the passage should be_____.
A. More Time for Relaxing
B. Less Homework Coming
C. No More After-school Classes
D. Training Schools Disappearing

C

Since I was a boy, I have always looked down open manholes with curiosity, so I welcomed the opportunity to explore and write about the world beneath New York City. With a group of 11 "sandhogs"-the nickname (别名) for the workers who build New York's underground-I boarded a slow, shaky elevator (升降机) lit by a single light. Slowly we went down deeper through 200 meters of rock. The sandhogs were building a new tunnel (隧道) to bring water into the city. The present tunnel system carries more than 5. 6 billion liters of water every day. That's enough water to fill more than 2, 200 Olympic-sized swimming pools.

As we got down, it got dark and the air got cool. I looked up into the darkness and down into deeper blackness, then the elevator stopped, and everyone got out. Then came the hard part, climbing another 10 meters down a long, slippery metal ladder. At the bottom was a dark tunnel filled with dust and smoke. Sandhogs were using a special machine to cut through the hard rock. The tunnel

goes forwards slowly-only four meters a day-and with each day come new dangers. Sandhogs live in great fear of being hurt by sharp pieces of explored (爆炸) rock. Their bodies are covered in such scars.

"Why do this work?" I asked Brian Gallagher, a sandhog for 16 years, Brian's father was a sandhog, too, but it is not a tradition that brought him here. "It's the money," he said. An experienced sandhog earns over $100, 000 a year. The rewards are well deserved (奖金丰厚). A sandhog's chances of dying on the job are far greater than those of an above-ground construction worker, or even a New York City police officer. "Everything down here can kill you," one sandhog said. They know many more workers will die before the tunnel is completed."

66. The passage is mainly about_____.
A. a tunnel system
B. making tunnels
C. a high pay
D. a dangerous job

67. Brain Gallagher works as a sandhog because_____.
A. it is his family tradition
B. it pays well
C. very few people do it
D. he doesn't fear danger

68. The 'danger' that is not mentioned in the passage is_____.
A. dust and smoke
B. a slippery ladder
C. being hurt by rock
D. elevators falling

69. According to the passage, the writer_____.
A. was interested in what the tunnel job was like
B. took tourists into New York City's tunnels
C. reported on the advantages of working underground
D. had a dream of being a tunnel worker

70. We learn that_____.
A. Brain Gallagher and his father worked together
B. the police have more chances of dying than sandhogs
C. the sandhogs were working for the new tunnel
D. the city tunnel would be used as the city subway

Posttest

A

NEWS BITE

Student writes creative paper

Would your teacher get upset if you handed in a blank piece of paper for your homework? A student in Japan did just that - and got top marks for her work.

Eimi Haga, 19, is a student studying *ninja* (忍者) history. Her professor said that high marks would go to students who wrote creative papers. So she used a ninja technique called *aburidashi*(烤墨纸), which means to write with *invisible*(隐形的) ink. She spent hours *crushing* (捣碎) soybeans and mixing them with water to make the ink.

Her professor didn't understand it at first. But he soon figured it out and gave her a high grade for the creative idea.

Eimi and her "blank paper", CHINA DAILY

56. The news Eimi and her "blank paper" was reported in _____.
A. Teens
B. China Daily
C. creative papers
D. the professor's class

57. The reporter's purpose in writing to _____.
A. show an example of a hard-working student
B. encourage students' creative work
C. praise the professor for his decision
D. tell how to make the invisible ink

58. In which section can we read the news?
A. HISTORY
B. GREAT CREATION
C. EDUCATION
D. NEWS BITE

59. Eimi got top marks for_____.
A. the special ink
B. her hard work in history
C. a ninja technique
D. her "blank paper"

60. What is special for the ink?
A. It takes hours to be made.
B. It makes professors think hard.
C. It cannot be seen on the paper.
D. It can only be used by Eimi.

B

Can one paper bag change the world? Sarah Murphy believes it can and she tries to do something about it.

The seventh-grader from Massachusetts, in the United States, decorates lunch bags for the homeless. She wants to bring hope to those people, The decorated bags, together with a lunch, will be given to homeless people in the town of Beverly, through a charity program.

To attract the help of more children, she reached out to a local library and made a program. They set up a coloring station in the library. Children may take the bag, draw, and write a message of hope and leave it on the front desk. They can also take it home and return it after coloring.

The program began on the first Saturday in August and has taken off since then. Murphy bought 100 brown lunch bags and put them in the library. Children at the library have colored them. Murphy is 50 happy that she is willing to get more.

Murphy first heard about the charity from her friends. She has a great interest in charity. She once donated money to charities and gift bags for seniors at her school. So she wanted to do something special.

A summer reading program she joined further inspired her its theme, "Build a better world." After that, Murphy got the idea of coloring lunch bags and feeding the poor to make the world a better place.

61. The passage is mainly about_____.
A. homeless people
B. helpful children
C. friends' reading program
D. Murphy's colorful bags

62. What does the word *more* in the passage refer to?
A. Help.
B. Lunch.
C. Children.
D. Bags.

63. Murphy set up a coloring station in the library to_____.
A. bring hope to the homeless
B. make more children help her
C. begin a reading program
D. meet and talk to her friends

64. The phrase *has taken off* in the passage is closest in meaning to_____.
A. has been put off
B. has risen into the air
C. has been successful
D. has been disappointing

65. We learn from the passage that Murphy_____.
A. likes to try everything special
B. has a great interest in charity
C. does very well in coloring things
D. enjoys helping small children at her school

C

Emily and George have lived next door as long as they can remember. When they were little, they used to play together. They were good friends, though sometimes fought over toys or quarreled about what game they would play. As they grew older, they played together less. Emily preferred to be with girls, and George, boys, of course. When they were about fifteen, they almost stopped speaking to each other, not because they had disagreed with each other about anything, but just because they belonged to different groups. On the one hand, Emily was developing into a good student, while George was more interested in sports. Emily had begun to study French, and she liked French so much that she began to write plays in French. She also liked TV programs, and for some reason, she enjoyed watching football games very much. Her mother used to say, "Emily, I've never heard of a girl who likes football as much as you do." Mrs. Mason simply did not approve (赞成) of her daughter's interest. Football,

she felt, was for men and boys. While Emily was working on her French lessons or watching football games on TV, George was working for his father in his store after school. He liked selling things to people. His father found him so helpful that he thought about offering him a higher pay. When George wasn't working at the store, he would like to be with a group of his boyfriends who were organizing a football team.

One day, when George was going home in the afternoon, he looked in the window of Emily's living room and he saw that she was watching a football game on TV. He walked up and knocked at the door. Emily was surprised to see him, but she asked him to come in, and they watched the rest of the game together. Emily and George are good friends again. They still have different ideas about things sometimes, but they agree with each other that football is the world's best game. Mrs. Mason doesn't seem to disapprove of her daughter's interest in football as much as she used to.

66. At about fifteen. Emily and George_____.
A. became neighbors next door
B. quarreled about what game they'd play
C. never spoke to each other anymore
D. didn't play together as much as they used to

67. Emily was surprised to see George at the door because_____.
A. they hadn't kept in touch for ages
B. she was quite lonely at home
C. they belonged to different groups
D. George got a higher pay

68. It is clear that Emily's mother_____.
A. has no interest in sports at all
B. is reasonable in Emily's growth
C. doesn't like George to play with Emily
D. is helpful in Emily's French studying

69. According to the passage, we can infer that_____.
A. Emily will join a football club
B. Emily's mother will let her keep her hobbies
C. George will organize a football team of his own
D. George's dad will stop him from playing football

70. Which is probably the best title of this passage?
A. Interest Matters
B. Sweet Memory
C. The Best Game
D. Good Neighbors

Appendix II: Questionnaires for Students in the Experimental Group

Directions: Please read each statement and then check the response that best shows your feeling toward working with other students (as cited in Mohammed S. Alhaidari, 2006) according to the following scale.

Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
SA	A	D	SD

1. I like working together with other students in reading class.

SA	A	D	SD

2. I do not like asking other students for help in reading class.

SA	A	D	SD

3. I would rather work alone in reading class.

SA	A	D	SD

4. I like participating in reading class discussions.

SA	A	D	SD

5. Working with other students helps me stay on task.

SA	A	D	SD

6. I help others stay on task when we are reading together.

SA	A	D	SD

7. In reading class I like explaining things to other students.

SA	A	D	SD

8. When I discuss what we read with other students, I understand it better.

SA	A	D	SD

9. I like it when other students participate in a discussion about reading.

       SA   A   D   SD

10. Discussing reading with other students helps me learn.

       SA   A   D   SD

11. Other students encourage me to express my ideas.

       SA   A   D   SD

12. I feel more like asking questions when working in a small group.

       SA   A   D   SD

Appendix III: Interviews for Students and Teachers in the Experimental Group

Pre-Interview for Students (as cited in Wang Ying, 2018)

1. Do you like working together with other students in reading class? Why?
2. What did you get when you discuss reading with other students?
3. What difficulties did you meet when you do cooperative learning activity in reading class? How did you solve these difficulties?

Pre-Interview for Teachers (as cited in Wang Ying, 2018)

1. Do the students learn to cooperate, maintain friendly relations, and help one another?
2. What is the effect of using cooperative learning in reading class? Has it met your expectations?

Post-Interview for Students (as cited in Wang Ying, 2018)

1. Do you like working together with other students in reading class? Why?
2. What did you get when you discuss reading with other students?
3. What difficulties did you meet when you do cooperative learning activity in reading class? How did you solve these difficulties?
4. What are the factors that promote your English reading comprehension ability when you do cooperative learning activity? Why do you think so?

Post-Interview for Teachers

1. Do the students learn to cooperate, maintain friendly relations, and help one another? (as cited in Sharan & Sharan, 1992).
2. What is the effect of using cooperative learning in reading class? Has it met your expectations? (as cited in Wang Ying, 2018).
3. What are the factors that promote students' English reading comprehension ability when they do cooperative learning activity? Why do you think so?

Appendix IV: Graphic Organizers for Reading in Groups

Content of predicting the text

Article Title	What did I predict?	What did I get from the other group members?	Is my prediction right or wrong?

Content of activating the background knowledge

| Content of article	
The content reminds me of the things or knowledge that happened to me or I learned before.	
The content reminds my group members of the things or knowledge that happened to them or they learned before.	

Content of guessing word's meaning
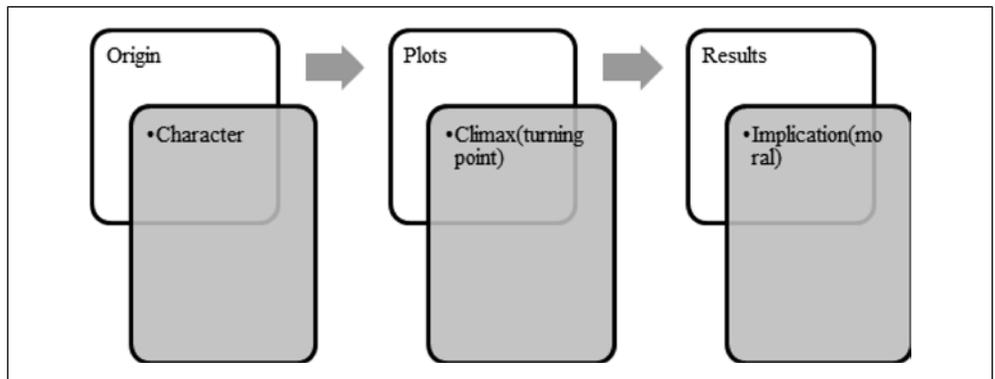
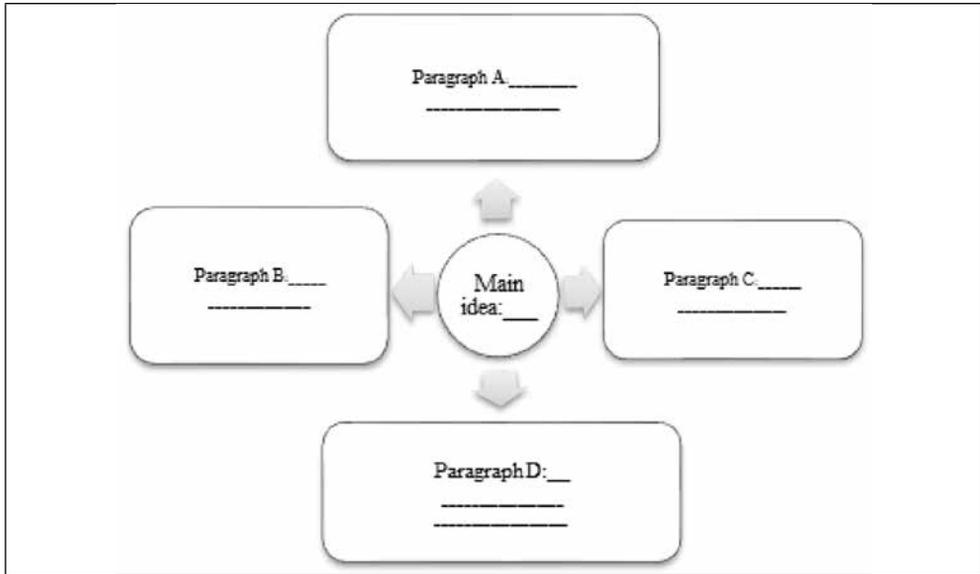| |
|---|
| Word_____ Paragraph_____
Copy the sentence this word was used in_____
_____
The definition of the word I guess_____
The definition of the word my partners guess_____
The definition of the word of the dictionary_____ |
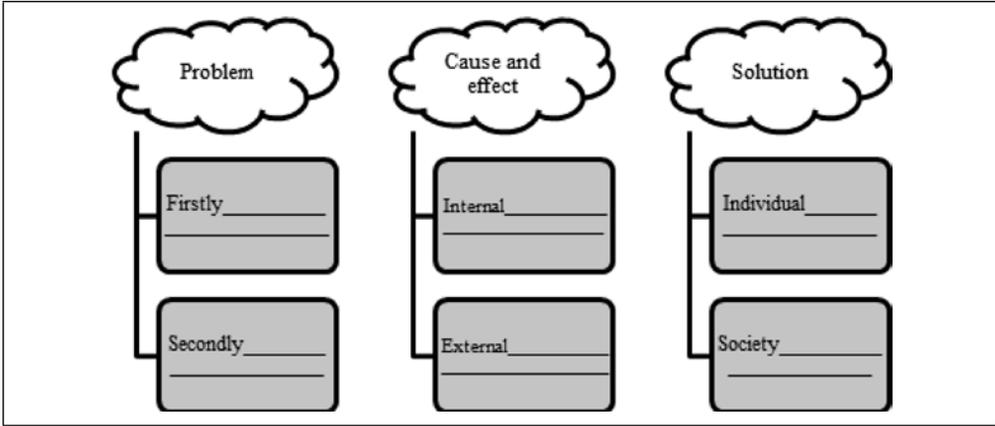
Structure of expository text
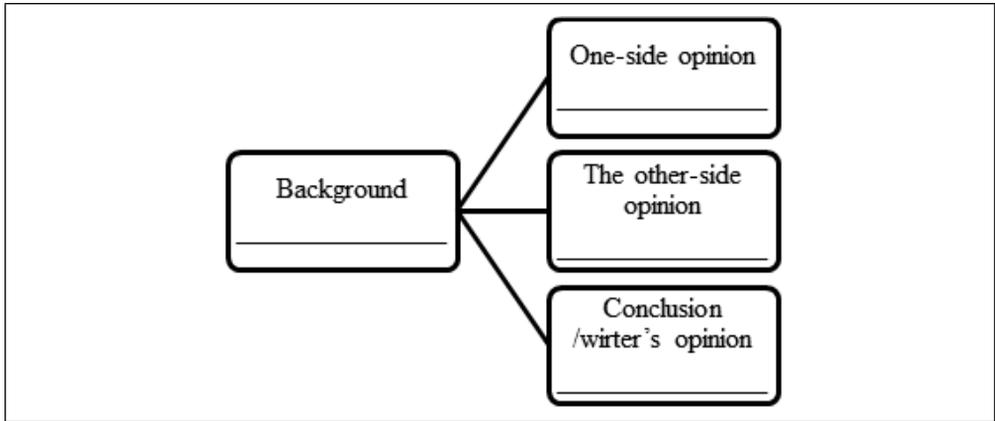
Structure of argumentative text

Structure of narrative text

Structure of main ideas

Appendix V: Schedule for Conducting the Intervention in the Experimental Group

When	Measures	Syllabus for reading	Teaching method	Reading material	Grouping mode
Before week 1	Compre-hensive test	-	-	-	-
Week 1	-	Intensive reading: skimming; scan-ning; paraphrase; structure	GI+TGT	Unlock book of TAL Educa-tion Group	Group based on student selection; "tian type"
Week 2	-	-	-		
Week 3	Pre-test	Cloze:	-		
Week 4	Pre-question-naire	Reading strategy: making inference	Explicit Di-rect Instruc-tion+GI+ TGT	The materi-al of exami-nation	Heterogeneous group; "tian type"

Week 5	Pre-inter-view	Intensive reading: summarizing the main idea and structure of the text	GI+TGT	Unlock book of TAL Education Group	Heterogeneous group; "tian type"
Week 6	-	Cloze	-	-	-
Week 7	-	-	-	-	-
Week 8	-	Reading strategy: finding the main gist of the text,	Explicit Direct Instruction+GI+T-GT	The material of examination	Random group; "tian type"
Week 9	-	Intensive reading: training the ability to summarize the main idea	GI+TGT	Unlock book of TAL Education Group	Homogeneous group; "tian type"
Week 10	-	-	-	-	-
Week 11	-	Cloze	-	-	-
Week 12	-	Practice of reading comprehension	GI+TGT	The material of examination	Heterogeneous group; "tian type"
Week 13	Post-ques-tionnaire	Analyzing the routine of reading comprehension	Explicit Direct Instruction +GI+TGT	The material of examination	Heterogeneous group; "tian type"
Week 14	Post-inter-view	Comprehensive exercises of English skills	GI+TGT	The material of examination	Random group; "tian type"
Week 15	Post-test	-	-		

Appendix VI: Results of Pretest and Posttest of the Two Groups

Experimental group		Control group	
Pretest & Posttest		**Pretest & Posttest**	
28	30	24	26
24	30	28	28
24	28	30	28
24	30	24	24
28	30	30	28
28	30	26	24
26	28	28	28
24	28	24	24
24	30	26	30
18	28	30	28
22	28	18	24
18	24	30	26
24	26	26	26
28	30	26	26
26	30	24	26
26	28	28	30
28	30	26	26
24	28	26	26
26	28	28	26
26	30	24	24
30	30	18	24
18	28	22	24
30	30	18	26
26	28	24	26
24	28	24	24
28	28	26	24
26	30	28	30
30	30	28	26
24	28	24	26
30	30	24	26
28	28	24	28
24	28	28	28