Chapter 3
Method

There are four sections in this chapter. In the first section, the features and distribution of the participants in this research are described. In the second section, the instruments used in this study are introduced and further explained. In the third section, the procedures of the research are explicated. The last section addresses data analyses for this study.

3.1 Participants

Thirty seven graders were chosen from the music class. Students were placed in this class according to their interest and performance in music, without considering their performance in IQ test or any other subject performance. Therefore, they basically belong to a heterogeneous group. Under the condition of Nine-Year Integrated Curriculum Program, these students have learned English for more than 5 years since elementary. They were instructed the Metacognitive Reading Strategy Training (MRST) three hours per week by the researcher and also English teacher. The total training period lasted for four weeks. The four-week training period was considered short enough to control the learning effect based on the MRST and to exclude other influential significant learning.

Considering the factor of short-term memory, a pre-test and a post-test were given to the participants before they were answering the Questionnaire II. Also, before the Metacognitive Reading Strategies Instruction, the pre-test was administered for the purpose of dividing participants into high-proficiency group and low-proficiency group in the target class. Their performances on regular tests and period exams were also taken into consideration for group division.

In order to help the participants learn the metacognitive reading strategies efficiently, the researcher adopted the form of Informed Strategies for Learning (ISL) to design two

lesson plans for each of the three metacognitive reading strategies, including semantic mapping, prediction, and summary (Appendixes B-1, B-2 and B-3).

3.2 Materials and Instruments

To achieve the purpose of the study, the following instruments were adopted for data collection. Each of the instruments has its focus and thus needs further explanation:

1. The Pretest and Post-test Questionnaires on the Students' Perception of Reading (Appendix A, Questionnaire I)

2. The Reading Materials for the MRST (Appendixes B-1, B-2 and B-3)

3. The Pretest and Posttest English Reading Comprehension Tests (Appendixes C-1, C-2)

4. The Pretest and Post-test Questionnaires on Metacognitive Reading Strategies (QOMRS) (Appendix D, Questionnaire II)

5. The Questionnaire on Students' Responses to the Metacognitive Reading Strategy Training (Appendix E, Questionnaire III)

3.2.1 The Pretest and Post-test Questionnaires on the Students' Perception of Reading (Appendix A)

The questionnaire was applied to investigate participants' perception of reading before the MRST. It was applied again after having implemented the MRST to assess whether the MRST would reconstruct students' perception of reading. The questionnaire consists of two parts. The first part concerns about students' perception of remedial behavior (fixed-up) behaviors, and the second part investigates students' attitudes toward the nature of good reading and good readers.

3.2.2 The Reading Materials (Appendix B-1, B-2, B-3)

The entire package of instructional materials includes 6 modules arranged in 3 groups that are sequentially aimed at instructing (a) semantic mapping, (b) prediction, (c) summary. The two modules in each set introduce a distinct strategy. The reading materials are chosen from popular writing or ESL reading materials at the appropriate readability level for the participants and are selected on the basis of their presumed interests. Each module has declaration of the specific matacogntive reading strategy first. In the second part, guided activities are instructed by the teacher and discussion was coonducted among group members as well as in the whole class on how to and when to use the presumed strategy to comprehend the text step by step. In the last part of each model are five following reading comprehension questions that have been modified mainly to testify specifically the instructed strategies.

3.2.3 The Pretest and Posttest of English Reading Comprehension Tests (Appendix C-1, C-2)

The pre-test and post-test of reading comprehension are designed to evaluate the level of reading comprehension for both high-proficiency and low-proficiency groups. There are four reading passages in each test with 16 accompanying reading comprehension questions. The reading texts in pre-test and post-test are selected from the popular English reading comprehension tests at the level of seven graders. The purpose of the pre-test is for group division and also for providing participants reading experiences before answering the items in Questionnaire II. Additionally, the result of the pretest is intended to compare with the result of the post-test after the instruction, to examine whether the instruction of metacognitive reading strategies is effective in promoting students' reading comprehension in the four-week period. All the test items in each reading passage are purposely modified in order to examine the usage of each instructed metacognitive reading strategies, which are semantic mapping, prediction and summary.

3.2.4 Questionnaire II: The Questionnaire on Metacognitive Reading Strategies (QOMRS) (Appendix D)

It is adapted from Schmitt (1991) Metacomprehension Strategy Index (MSI) and Jacobs & Paris (1987) Index of Reading Awareness (IRA). This questionnaire is modified and translated into Chinese version to ensure that the students can understand each item. The MSI is a 25-item, 4-option, multiple- choice questionnaire that asks students about the strategies they could use before, during, and after reading in a narrative selection. The MSI assesses students' awareness of a variety of metacomprehension behaviors that fit within six broad categories: (a) predicting and verifying (b) previewing (c) purpose setting (d) self questioning (e) drawing from background knowledge (f) summarizing and applying fix-up strategies. As Schmitt proposed (1990) the strategies assessed by the MSI are consistent with those taught in several metacomprehension instructional studies (e.g., Braun, Rennie, & Labercane, 1986; Palincsar & Brown, 1984; Paris et al., 1984; Risko & Feldman, 1986).

The results of the MSI can be used to help teachers design programs of reading comprehension instruction that fosters metacomprehension strategy awareness and competence. As with other assessment, according to Schmitt, the MSI should not be used in isolation. Rather, teachers should consider it as one source of information about students' reading abilities that must be viewed in conjunction with other sources of information. MSI results can be interpreted both quantitatively and qualitatively. The questionnaire was originally developed to measure strategic awareness of students who participated in metacomprehension training study (Schmitt, 1988), and adaptations of the index have been used in several additional studies (e.g., Baumann et al., 1987; Lonberger, 1988).

On the other hand, The Questionnaire (IRA) is a multiple-choice test of metacognition, which is designed to measure three aspects of metacognition: evaluation,

planning, and regulation (Paris & Lindauer, 1982). The IRA questions assess children's knowledge about reading and their abilities to evaluate tasks, goals, and personal skills; to plan ahead for specific purposes; to monitor progress while reading; to recruit fix-up strategies as needed.

The entire IRA includes 20 questions, each with three alternatives representing an inappropriate response (0 points), a partially adequate answer (1point), and a strategic response (2 points). A multiple-choice Index of Reading Awareness (IRA) is constructed to provide data about children's reading awareness and to serve as an index of the treatment's effectiveness. Data from the IRA are also analyzed in relation to children's performance on a standardized comprehension test. It is designed to meet four criteria. First, a multiple-choice test is more objective than interview that may involve interpretations of open-ended responses, experimenter bias, or fabricated responses. Second, it is based on empirical research of children responses to metacognition questions, so that it can accurately reflect children's knowledge about reading strategies rather than teachers' beliefs about what they know. Ease of administration and scoring is the third criterion. Finally, it is sensitive to individual and age-related differences in reading awareness.

The Questionnaire of Metacognitive Reading Strategies (QOMRS) in this research is constructed under the framework of MSI, which asks students about the strategies they can use before, during, and after reading in a narrative selection.   However, some of the MSI original questions are modified and also replaced by the questions in IRA under the consideration of readability and compatibility for junior high school seven graders. The QOMRS is a 21-item, 3-option, multiple- choice questionnaire that asks students about the strategies they use before, during, and after reading. It is designed to observe and assess students' use of metacognitive reading strategies and also students' awareness of a variety of metacomprehension behaviors. The questionnaire is administered for the

students before and after the treatment. The results of the questionnaire before and after the MRST are compared to investigate if the MRST is effective and influential to promote participants' metacognitive awareness of metacognitive reading strategy use. Also, the differences between high-proficient and low-proficient readers in the outcomes of Questionnaire II are investigated and discussed.

3.2.5 Questionnaire III: A Questionnaire on Responses to the Metacognitive Reading Strategy Training (Appendix E)

Another measure of participants' opinions on the Metacognitive Reading Strategy Training (MRST), titled Questionnaire on Responses to the Metacognitive Reading Strategy Training (See Appendix E), is designed for this study to collect the information on the participants' evaluation of the three instructed reading strategies and the effectiveness of the training toward reading comprehension. It also functions as a means to have students reflect on their experiences and difficulties they encountered in the process of the training.

The questionnaire consists of 13 multiple-choice with short-answer questions. Among the 13 questions, two questions with open-ended questions are designed to probe into the readers' personal feelings toward the MRST. For the multiple-choice with short-answer questions, participants are required to choose one response out of the list of provided responses. In addition, the two multiple-choice questions with open-ended questions are to tap personal feelings and thoughts toward the MRST effectiveness on English reading comprehension and promotion of interest in English reading. Through the introspection, it is hoped that some important issues or perspectives from the readers can be found.

The questionnaire is administered after the treatment. The results of the questionnaire are intended to provide supportive evidence and participants' points of view

with the results obtained in the Questionnaire I (Students' perception of Reading) and Questionnaire II (QOMRS).

3.3 Procedures & Instruction

Step 1: The pilot study

To verify the practicability of the study, the researcher carried out a pilot study to modify the instruments of the study and to adjust the procedure. The researcher invited 10 seventh graders to participate in the pilot study, who did not join the formal study afterward. To meet the students' reading ability, the researcher modified the tests and revised the questionnaires properly.

Step 2: Before the metacognitive reading strategies instruction

The teacher made a brief introduction to the purpose of the study, a description of the instruments, and an explanation of steps involved in the MRST. Before the instruction, the students were asked to fill in the Questionnaire of Students' Perception of Reading (Appendix A). Afterwards, the students read the articles and answered the comprehension questions in the Pretest Reading Comprehension Test (Appendix C-1). The pretest served as a placement test for the division of high-proficiency group and low-proficiency group in the target class. The mean scores of HPG and LPG were calculated. Considering the factor of memory failure, the QOMRS (Appendix D) was conducted immediately after the pre-test reading comprehension test and the participants were asked to fill in the Questionnaire II (QOMRS). The researcher read each question and each choice aloud to insure that all students were able to understand the questions and to ensure a uniform pace. The researcher paused until all students had selected answers before going on the next question. The outcomes of the questionnaire were to be compared with later outcomes of the same QOMRS after the reading instruction. Also, in order to probe into students' real thinking about reading, five students of each group were randomly chosen to interview

according to the questions of Appendix A. The interview started with greetings to create an easy and friendly atmosphere to ease interviewees' worry and anxiety. The interview content was transcribed by the researcher.

Step 3: The Metacognitive Reading Strategies Training (MRST)

First, the researcher divided the students into 6 groups for the purpose of group discussion in class. To enhance the interaction between group members, students were not distributed randomly; instead, the researcher allocated high-proficiency and low-proficiency students equally in numbers in each group.

The methods incorporated aspects of both *informed* and *self-controlled* training (Brown et al., 1984), so that instruction provided information, practice, and discussions about metacognitive reading strategies. The teacher informed teaching about what a strategy was, how to use it, and when and why it should be used and modeled explicitly each strategy with the reading materials (Appendix B). Students were not only informed what the strategies are, but were encouraged by the researcher to use them when reading texts.

Group discussions were constructed based on the instructed materials and lesson plans. Before the teacher's demonstration, group discussions focused on why, when, and how to use the strategies in context. Thus, each lesson included explicit instruction, discussion and practice about comprehension strategies. The purpose of the whole instruction was intended to convince students of the value of using strategies independently.

Each module of the teaching materials was designed to be presented to the entire class in approximate 60 minutes. The series of lessons were designed to "fade" the teacher's support and to place more responsibility on students' application of the three strategies.

Step 4: After the metacognitive reading strategies instruction

After the four-week reading instruction, the target participants were asked to take the Post Reading Comprehension Test (Appendix C-2), and then the mean scores of HPG and LPG in the post-test were calculated. Meanwhile, right after the post-test, all students in the study were asked to fill in the QOMRS again. The procedures were the same as Step 2. Meanwhile, students were asked to fill in Appendix A. Finally, they were also required to reflect on the whole training process and fill in the Questionnaire III (Responses to the MRST).

Step 5: Data Collection

The researcher collected the results of all the pre- and post tests, questionnaires, interview transcript and direct classroom observation jot-down, and then computed the scored data as well as synthesized narrative descriptions about participants' perspectives and metacognitive awareness of using reading strategies.

3.4 Data Analysis

Qualitative, descriptive, and quantitative data were collected in this study to examine the effect of the MRST on the participants' metacognitve awareness of strategy use as well as English reading competence. The qualitative data were from participants' reflection of the training, open-ended questions in the questionnaires (Appendix A and Appendix E), and the interviews. The descriptive results mainly come from frequencies of the participants' responses to the multiple-choice questions in the three questionnaires (See Appendix A, Appendix D, and Appendix E). Additionally, quantitative data were mainly from the t-test analysis which was conducted to compare the pre-test and post-test of English Reading Comprehension, to examine whether there was any significant improvement as a result of the implementation of the Metacognitive Reading Strategy Training. Here, the quantitative data were only meant to serve as ancillary information to

the descriptive and qualitative data. To answer the six research questions, the following procedures were adopted to collect and analyze the data.

First, the Questionnaire of Metacognitive Reading Strategies (QOMRS) (Appendix D, Questionnaire II) consists of 21 questions. For each questionnaire item, the participants have to choose one option that best reflects their appropriate reading strategy use. The right answer to each item is given one point, so the full score of Questionnaire II is 21. To understand the difference of strategy use between high-proficient readers and low-proficient readers, frequencies of the participants' responses to the multiple-choice questions of the Questionnaire on Metacognitive Reading Strategies (QOMRS) (Appendix D, Questionnaire II), before the MRST, were converted to percentage and divided into high-proficient and low-proficient groups. Besides, the mean scores of the two groups were presented. Accordingly, the different awarenesses of metacognitive reading strategy use between HPG and LPG before the MRST were analyzed and discussed further through the low-frequency used and high-frequency used strategies between HPG and LPG.

Second, after the MRST, the results from The Questionnaire on Metacognitive Reading Strategies (QOMRS) (Appendix D, Questionnaire II) were tallied and shown in frequencies of responses. The differences of metacognitive reading strategy use between the high-proficient and low-proficient readers were analyzed mainly by descriptive statistics, and also the mean scores for both groups were counted. Following the discussion of the strategy use, the comparison of the three instructed reading strategies use between HPG and LPG in the pretest and posttest was conducted to see if each participant increases strategy use after the MRST. In Questionnaire II, the items related to each instructed reading strategies were elicited, and the right answer to each item was given one point. The participants' scores for the pretest and posttest were presented with HPG and LPG. In each group, the scores for each participant in the pretest and posttest

were also analyzed and discussed.

Third, to answer Research Question 3 and Research Question 4, Questionnaire I (Students' Perceptions of Reading) was used to probe into participants' perspectives of good reading as well as their fixed- up behaviors before and after the MRST. Frequencies of the participants' responses to the multiple-choice questions were shown by dividing them into HPG and LPG. Also, prominent interview quotations from the questions were collected and shown in a descriptive form. The purpose of having individual interviews was to elicit more in-depth responses from both HPG and LPG participants.

Fourth, to understand whether the MRST was effective in improving participants' reading comprehension, parts of the results from The Questionnaire on Students' Responses to the Metacognitive Reading Strategies Instruction (Appendix E, Questionnaire III) were elicited and the frequencies of the participants' responses to the multiple-choice questions were converted into percentage. The interview data from HPG and LPG were presented in descriptive forms with their responses, reactions, and specific quotations based on the research question. The total training period lasted for four weeks, which was considered short enough to control the learning effect based on the MRST and to exclude other influential significant learning. Therefore, it's suggested that it is valuable to compare participants' reading performances in both pre-test and post-test. For the pretest and posttest of reading comprehension tests, there are 16 questions in each test, and each question is given 1 point, then the full score of each test is 16 points. For Questionnaire II (QOMRS), there are total 21 questions, and the right answer to each question is given one point, with the full score of 21. The paired samples t-test of the software SPSS was used to compare the mean scores of pre- and post reading comprehension tests for both HPG and LPG, to investigate if both groups make

significant improvement of reading comprehension due to the effect of metacognitive reading strategy instruction. A significant level 0 .05 (p= 0.05) was set.

To answer the sixth research question, the results from The Questionnaire on Students' Responses to the Metacognitive Reading Strategies Instruction (Appendix E, Questionnaire III) were collected and analyzed in a descriptive form. Two parts were included in the discussion of the results: (1) the multiple-choice with short-answer questions, and (2) the open-ended questions. Frequencies of the participants' responses to the multiple-choice questions were converted into percentage. The written responses to the open-ended questions and quotations from the interview were shown in a descriptive form.