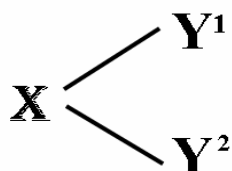


III. RESEARCH METHODOLOGY

This chapter describes the design of the research, how to collect the data from the subject of the research and how to analyze the data. This chapter also describes research procedure, validity and reliability of the test instrument, data treatment, and hypothesis testing.

3.1. Research Design

This research was a combination between qualitative and quantitative study. This present study had *one group pretest-posttest design*. The researcher selected the class by using *simple random probability sampling*. The learners received pretest before four-time treatments and got the posttest after the treatments. The research design could be represented as follow:



X = Treatment (metacognitive learning strategy training)

Y¹ = Metacognitive learning strategies

Y² = Reading comprehension

3.2. Subject of the Research

The population of this research was the second year of the SMP N 1 Metro. There are six classes of second grade learners. Each class consists of 24 learners. In determining the class the researcher used *simple random probability sampling by using dice*. So that those all the second year classes got the same chance to be the sample.

3.3. Source of the Data

The data of this study were in the form of:

- ✓ The learners' metacognitive learning strategies before and after the treatment
- ✓ The learners' scores of reading comprehension before and after the treatment

3.4. Data Collecting Technique

In collecting the data, the researcher used some technique as follows:

Administering the Reading Test

The kind of reading test used is objective test. The reading test was given to know learners' reading achievement consists of pretest and posttest. The pretest reading had been delivered before the treatment was conducted while posttest reading was conducted after the researcher had conducted the

treatment. It is used to know if there any increase of learners' reading comprehension after they were given the treatment. The posttest has the same difficulty as the pretest.

In selecting reading text, the researcher considered the text based on themes stated in curriculum for second years of SMP (KTSP 2006). The texts used were taken from any textbooks and articles on the internet.

The validity of the test was measured by content and construct validity. Content validity was obtained by choosing the texts based on School Based Curriculum (KTSP) for second grade of SMP, while construct validity was achieved by representing five sorts of reading skill. Those five specifications were determining idea, finding the detail, reference, inference, and vocabulary mastery.

3.5.Steps in Collecting the Data

In collecting the data, the researcher used following steps:

1. Determining the subject of the research

In determining the sample, the researcher used simple probability sampling, by using dice. The researcher chose one class out of six classes of grade VIII learners of SMPN 1 Metro as the research subject. The class consists of 24 learners.

2. Preparing the Pretest Materials

In this research, the pretest materials were about narrative and recount text as stated on the curriculum (KTSP). The materials were taken from learners' handbook of English for junior high school and articles from the internet.

3. Conducting Try Out

Try out was conducted to measure the reliability of pretest and posttest. The aim of try out is to know the quality of the test used as the instrument of the research, and determine which item should be revised for pretest and posttest. This research used the result of the try out test to measure the level of difficulty and discrimination power, to find out the validity and reliability.

4. Conducting the Pretest

Pretest was conducted to measure the learners's metacognitive strategies and reading comprehension. The learners's metacognitive strategies was in the form of reading performance checklist which was filled by marking "Yes". Meanwhile the reading comprehension was in the form of multiple choice items and selected from tryout test. Each item has 4 options of answer. Both pretests were conducted in 80 minutes.

5. Giving Treatments

The metacognitive learning strategy was trained in two weeks. There are four time treatments conducted in this research. Each treatment was conducted for 80 minutes consisting of procedures of metacognitive learning strategy training through CALLA approach.

6. Conducting the Posttest

The researcher used the same reading performance checklist to analyze the learners' metacognitive strategies. Similar to the pretest, the posttest reading consists of narrative and recount text. It was conducted in multiple choice questions that were selected from tryout test. It was conducted in 80 minutes to measure whether there is increase of learners' reading comprehension achievement after being given the four time treatments.

7. Analyzing the Test Result (Pretest and Posttest)

After conducting pretest and posttest, the researcher analyzed the data. The data of learners' metacognitive strategies was analyzed by seeing the mean score then describing it. While the data of learners' reading comprehension achievement was analyzed by using t-test i.e. paired sample t-test in SPSS 16.

8. Making a Report and Discussion of Findings

After having gained all the data, the researcher made a report and discussion on findings of the effect of metacognitive learning strategy training in learners' reading.

3.6. Treatment Procedures

The metacognitive learning strategy training in learners' reading process was conducted through CALLA approach. CALLA has five recursive steps i.e. preparation, presentation, practice, evaluation, and expansion. Those five steps would explore four ways of metacognitive strategy training i.e., planning,

managing, monitoring, and evaluating. Before coming to the five steps of CALLA approach, researcher made a discussion with the learners about good characteristics of learners and teacher in order to build a pleasurable and joyful atmosphere between learners and teacher. There were various answers mentioned, for example most of them mentioned that a good learner should do assignments and pay attention to the teacher's explanation. Meanwhile for the characteristic of good teacher, they mentioned that a good teacher should master the materials, understand the learners' needs, give some tips of how to learn well, come on time, friendly, etc. After that, researcher conducted those five steps of CALLA approach that will be presented below.

A. Planning Strategy

Stage 1 Preparation: Raising Learners' Strategy Awareness

In this stage, the learners conducted pre-reading activities to activate their background knowledge of the text that would be presented. In the preparation phase of a lesson that includes learning strategies, the English teacher activated learners' background knowledge of the strategies they already use to help them complete a specific task. They gave various answers such as by reading the text slowly and carefully, looking at the first and the last sentence (read: paying selective attention), looking at the picture or the title, etc. Learners shared their strategies in a group. It is worth noting that the number of learners in group became smaller in each

following meeting. On this stage the learners were told the purpose and importance of metacognitive training in EFL reading. Then the learners were introduced the four main strategies in which one strategy in one meeting. These strategies involved planning, managing, monitoring and evaluating.

Stage 2 Presentation

Before explaining one of the metacognitive learning strategies i.e. planning strategy, the teacher divided the learners into group consists of 4-5 learners. Then the teacher distributed the passage to the learners, but the picture and the title were deleted. The learners were asked to read the text at glance and inform what it was about to their group. Then the teacher chose one of the learners in one group randomly and asked her to tell what it was about (read: determining main idea). After that the teacher distributed the same passage with the title and the picture. Then the teacher asked the learners which passage was easier to be comprehended, and they answered that the passage with picture and title was easier to comprehend since by reading the title or looking at the picture first, they could guess what the text was about. The teacher told the learners that when they were making the use of picture and title, they could state a reading objective of what information they can expect exist in the text and that they could make some predictions of what the content of the text will be. The picture and the title have another function too i.e. to activate background knowledge

that is useful in comprehending a reading text. Then the teacher told the learners that they actually had used the strategy before reading the text i.e. planning strategy. Then the teacher demonstrated the purpose, when, why, and how to use the planning strategy. The teacher also modeled the learners how her planning strategy before reading the text.

Stage 3 Practice

In this stage, the metacognitive strategy was integrated into concrete reading tasks and materials. The learners applied the strategies they have just learned to their reading activities. The learners were given the different text. They were asked to use the strategies that have been learned. They did this activity independently in order to accustom them to use the strategy. In their paper, they stated some reading objectives and some strategies they would use to read and understand the text given. After having read the text, the teacher gave them reading tasks related to the specification of reading comprehension i.e. determining main idea and finding the detail information. The questions were in the form of true/false sentence and multiple choices.

Stage 4 Evaluation

This stage was designed to develop learners' ability to be aware of the strategy they used and to evaluate their own strategy use. The evaluation phase of the CALLA instructional framework focused on learner self-

evaluation of the effectiveness of the strategies they use in accomplishing specific tasks. Students need to find out which learning strategies work best for them on certain tasks and why. Through such self-evaluation, students consciously monitor those strategies they find effective and ineffective, and by so doing refine their individual repertoire of strategies.

The teacher designed a self-evaluation in the form of performance checklist to fill in after the reading task has been completed. The learners place a mark on the checklist after reading the text. The items in the performance checklist were discussed with the learners in reference to each reading task to keep learners' metacognitive strategies awareness fresh throughout the training and to help learners to use, identify, and develop learning strategies in a systematic way. By working on the checklist regularly, the learners learn how to plan before reading.

Stage 5 Expansion

This stage was designed to develop students' transfer of strategies to new tasks. Teacher encouraged students to read extensively and apply what they had learned to new reading materials after class. Finally, teacher assigned learners to use a strategy in a new context for homework and use the checklist after reading the text has been done.

B. Managing Strategy

Stage 1 Preparation

In this step, the teacher reviewed the learners about planning strategy at glance. Then the teacher explained that there was other strategy that includes into metacognitive strategies i.e. managing strategy. The teachers told the learners that sometimes the text might seems difficult, but if they determine how they learned best and learn how to focus their attention on the task it would be easier. Then the teacher distributed the text to the learners and asked them to read the passage. As going along in the class, the teacher read the passage and explained to the learners how she made it easier for herself to understand it. As the example the teacher emphasized the learners that she is the visual learner and the picture or graphic help her understand the text.

Stage 2 Presentation

The teacher explained to the learners the purpose of managing strategy when reading a passage. The teacher demonstrated how, when, and why one should manage his/her own learning. Then the teacher modeled how to manage reading process, e.g. by paying attention to the unfamiliar word, phrase, or sentences, looking for the causes, and other problems in comprehending the passage. After that the teacher modeled to try to solve the problems e.g. when there was unclear sentence, the teacher would reread the sentence or relate to the schemata, or when there was unfamiliar

vocabularies, the teacher gave examples how to unlock the unfamiliar words by inferring or guessing the meaning by the clues provided, by relating to the previous and next words, etc. Therefore the learners were expected not to rely on the dictionary all the time if they found the difficulty in finding the meaning of unfamiliar words when reading.

Stage 3 Practice

In this stage, the metacognitive strategy was integrated into concrete reading tasks and materials. The learners applied the strategies they have just learned to their reading activities. The learners were given the different text. They were asked to use the planning and managing strategy before and during reading the text. They did this activity independently in order to accustom them to use the strategy. In their paper, they stated how they tackle their problems when facing the text given. After having read the text, the teacher gave them reading tasks related to the specification of reading comprehension i.e. determining main idea, finding the detail information, and vocabulary. The questions were in the form of multiple choices.

Stage 4 Evaluation

Similar to the planning strategy, in this stage the teacher designed a self-evaluation in the form of performance checklist to fill in after the reading task has been completed. The learners place a mark on the checklist after reading the text. The items in the performance checklist covered the planning and managing strategy and were discussed with the learners in reference to each reading task to keep learners' metacognitive strategies awareness fresh throughout the training and to help learners to use, identify, and develop learning strategies in a systematic way. By working on the checklist regularly, the learners learn how to manage their own learning by seeing each of the items stated on the checklist.

Stage 5 Expansion

This stage was designed to develop students' transfer of strategies to new tasks. Teacher encouraged students to read extensively and apply what they had learned to new reading materials after class. Finally, teacher assigned learners to use a strategy in a new context for homework and use the checklist after reading the text has been done.

C. Monitoring Strategy

Stage 1 Preparation

In this stage, the teacher reviewed the learners about planning strategy and managing strategy and asked the learner to use both strategies with the new strategy introduced to comprehend the text that would be given later. Then the teacher introduced other strategy that included in metacognitive

strategies i.e. monitoring strategy. The teacher explained that monitoring strategy is useful for completing seemingly tough assignments. It involves breaking big tasks into smaller pieces and monitoring one's progress.

Stage 2 Presentation

The teacher modeled the strategy by explaining that she would read a difficult article in the form of narrative text in small bits. After reading the first paragraph, the teacher ensured the learner that she had understood it. Then the teacher modeled how to monitor comprehension i.e. by using some guiding questions i.e. 5W+1H questions to verify their predictions and guesses and to ask themselves if it makes sense. The guidance questions were "what happened according to the text?", "why did it happen?", "when and where did it happen?", etc. By using those questions, it was hoped that whenever the learners did not find the answer for the guidance questions they would reread the passage until they found and comprehended it. The teacher then informed the purpose, when, why and how to use the monitoring strategy.

Stage 3 Practice

The learners were divided into a partner and were given the narrative text. With their partners, the learners were encouraged to use planning strategy and managing strategy before and while facing the text given. After that

the learners were asked to come to the monitoring strategy by reading the text aloud with the partner. At the end of each paragraph, they had to stop and discuss what they have read with their partner by using some guidance questions. The teacher emphasized the learners that monitoring strategy is a strategy that they would use more often individually rather than with a partner.

Stage 4 Evaluation

After the practice had been completed, the learners were given the performance checklist again, like in the two previous meetings. The performance checklists consist of how the learners' planning strategy, managing strategy, and monitoring strategy were.

Stage 5 Expansion

The teacher had the learners find other narrative text and had them write down a short summary of the text. The teacher encouraged learners to use some guiding questions while reading.

D. Evaluating Strategy

In this stage the learners were told that in the three previous meetings, they unconsciously had done the last strategy of metacognitive strategies i.e. evaluating strategy in evaluation stage. Then the teacher told them that it was useful for them to evaluate their own work. They were told that they could also ask someone else to comment their progress. In the last meeting of the training, the learners were given the narrative text and they were encouraged to use the four metacognitive strategies that have been trained before i.e. planning strategy, managing strategy, monitoring strategy, and evaluating strategy. They stated how they use the four metacognitive strategies in a piece of paper. Then after that they wrote down the summary of the text and discussed it and compared it with their partner in order to practice again the evaluating strategy. After that the learner completed the exercise related to the specification of reading comprehension i.e. determining main idea, finding detail information, inferring, referring, and vocabulary knowledge.

After having done the exercise, the teacher distributed the performance checklists that consist of the four metacognitive learning strategies in reading. In the expansion phase, the teacher encourages the learners to use the four metacognitive strategies in other task even on the other context in their real life.

3.7 Criteria of Good Test

In this research, to prove whether the test has good quality, it must be tried out first. As Heaton (1991:5) states that a reading test will be said have a good quality if it has good validity, reliability, level of difficulty and discrimination power. The learners' metacognitive strategies checklist could also be called as a good test if it has good validity and reliability.

3.7.1 Validity

A test can be considered valid if the test measure the object to be measured and suitable with the criteria (Hatch and Farhady, 1982; 250). The discussion of the validity of metacognitive learning strategies checklist and reading test were provided below.

a. Content validity

Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. In the content validity, the materials given are suitable with the curriculum.

The topics chosen are recount and narrative texts. The topics are the representative of reading materials of School Based Curriculum or KTSP as a matter of tailoring the lesson to students' need. Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. According to Hatch and Farhady (1982:251), since content validity is the extent to which a test measures a representative sample of the subject meter,

the focus of content validity is adequacy of the sample of the appearance of the test. Therefore, since the test instrument was conducted to get the data of the learners' reading comprehension achievement, the content validity of the test items were conducted by including reading materials which were arranged based on the materials already given and it was suitable with the curriculum.

b. Construct Validity

It is concerned with whether the test is actually in line with the theory of what it means to know the language that is being measured. In this research the researcher focused on reading comprehension in the form of recount and narrative texts. Nuttal (1985) states that the relation validity of the instrument refers to construct validity in which the question represents five of sort reading skills, i.e. determining main idea, finding the detail information, reference, inference and vocabulary mastery. Skills of reading in the test are a part of the construct validity and the item numbers are a part of the content validity. The researcher will use 3 inter raters in order to make the reading test more valid.

The test was compared to the table of specification to know whether the test is good reflection of what has been taught. A table of specification was an instrument that helped the test researcher plans the test. In order to fulfill the criteria of construct validity, the table of specification of reading comprehension was presented below.

Table1. Specification of Reading Comprehension

No	Reading Specification	Item Number	Percentage
1	Determining main idea	1,3,12,17,22,30,35,28,38	22.5%
2	Inferences	4,7,14,24,31,34,36,40	20%
3	References	2,6,11,15,20,27,32,37	20%
4	Finding detail information	8,10,18,21,23,25,29	17.5%
5	Vocabularies	5,9,13,16,19,26,33,39	20%
Total		40	100 %

Basically, the construct and content validity are overlap. It is a representative of the materials from the subject. Based on the table of specification of reading comprehension above, skills of reading comprehension in the test instrument are a part of the construct validity and the item numbers are a part of the content validity. In order to measure the content and construct validity, *inter-rater* analysis was used to make the reading test instrument more valid. Thus, three English teachers of SMPN 1 Metro would be the raters, they are Pariama S.Pd., Juriah S.pd., and Atik Damayanti Amd. took part in measuring the content and construct validity of the test instrument. If the percentage of one item was >50%, it meant that the item test would be taken.

3.7.2 Reliability

1. Reliability of the MARSII and SILL

Reliability refers to whether the test is consistent in its score and gives us an indication of how accurate the test score are (Shohamy, 1985: 70). In this present study, the combination of MARSII and SILL in the form of

reading performance checklist was used to gain the data of metacognitive strategies use on the learners. Several statistics were computed to examine the reliability of the MARSI and the internal subscale correlations.

Cronbach's alpha coefficients were computed for the entire set of 20 items ($\alpha = .77$) in order to obtain estimates of internal consistency reliability for each subscale.

The reading performance checklist consists of 20 items. It was translated into Indonesian in order to facilitate the learners in understanding the statement. Those statements measure metacognitive strategies under four categories i.e. planning, managing, monitoring, and evaluating.

Strategy Measured	Number of the Reading Performance Checklist
Planning Strategy	1-5
Managing Strategy	6-12
Monitoring Strategy	13-15
Evaluating Strategy	16-20

2. Reliability of Reading Test

Reliability of the test can be defined as the extent to which a test produces consistent result when administrated under similar conditions (Hatch and Farhady, 1982:243). Split-half technique was used to estimate the reliability of the reading test and to measure the coefficient of the

reliability between odd and even group, *Pearson Product Moment formula* was used is as follows:

$$r_{l} = \frac{\sum xy}{\sqrt{[\sum x^2][\sum y^2]}}$$

r_l : Coefficient of reliability between odd and even numbers items.

x : Odd number.

y : Even number.

x^2 : Total score of odd number items.

y^2 : Total score of even number items.

xy : Total number of odd and even numbers.

(Lado, 1961 in Hughes, 1991:32).

The criteria of reliability are:

- 0.80 – 1.00: high.
- 0.50 – 0.79: moderate.
- 0.00 – 0.49: low.

(Hatch and Farhady, 1985:247).

To know the coefficient correlation of whole items, *Spearman Brown's prophecy formula* was used. The formula is as follows:



$$rk = \frac{2r1}{1+r1}$$

rk: The reliability of the test.

r1: The reliability of the half test.

(Hatch and Farhady, 1982:246).

3.8. Data Treatment

3.8.1. Normality Test

Normality test was used to measure whether the data in the subject of the research was normally distributed or not (Setiyadi, 2006:168-169). The students' scores of the pre-test and post-test in 8.4 class were analyzed by *One-sample Kolmogorov-Smirnov* formula through SPSS 16 to gain the normality test. The hypotheses for the normality test are as follow:

H₀	: The data is not distributed normally.
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H₁	: The data is distributed normally.
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In this research, H₁ would be accepted if $p > \alpha$, and the researcher used level of significance 0.05.

3.8.2. Level of Difficulty

Level of difficulty is related to how easy or difficult the item is from point of view of the students who take the test. To analyze the level of difficulty, the following formula was used is:

$$\text{LD} = \frac{R}{N}$$

LD: Level of difficulty.

R: The number of the students who answered correctly.

N: The total number of the students who were following the test.

The criteria are:

<0.30 = difficult.

0.30-0.70 = average.

>0.70 = easy.

(Shohamy, 1985:79).

3.8.3. Discrimination Power

The discrimination power refers to the extent to which the item differentiates between high and low level students on the test. A good item according to the criteria is one which good students will do well and bad students will fail. To know the discrimination power of the test, the formula was used is:

$$DP = \frac{U-L}{\frac{1}{2}N}$$

DP: Discrimination power.

U: The proportion of upper group students.

L: The proportion of lower group students.

N: Total number of the students.

The criteria of discrimination power are:

1. If the value is positive discrimination, it means that a large number of more knowledgeable students than the poor students answer the item incorrectly. If the value is zero, there will be no discrimination.
2. If the value is negative, it means that more low-students than high-level students answer the item correctly.
3. Generally, the higher the discrimination index, it will be better, in which in the classroom situation, most items should be higher than 0.20 indexes. (Shohamy, 1985:81).

3.8.4. Scoring System

In scoring the students result of the test, Arikunto`s formula was used. The ideal higher score was 100. The scores of the pre-test and post-test were calculated by using formula as follows:

$$S = \frac{R}{N}100$$

S: The score of the test.

R: The total of the right answers.

N: The total items.

(Arikunto, 1997:212).

3.9. Data Analysis

Analysis means categorizing, ordering, manipulating, and summarizing of data obtained to answer the research questions (Kerlinger, 1988:125). The purpose of analysis is to reduce data to be intelligible and interpretable so that the relation of the research problem can be studied. Therefore, the data from the test was collected and analyzed to find out what the effect of the training to the use of metacognitive strategies on learners and whether there was significant increase on learners' reading comprehension achievement after being trained the metacognitive learning strategies in reading.

3.9.1. Data Analysis of Learners Metacognitive Learning Strategies

In order to analyze the effect of the learners' metacognitive learning strategies, the data was analyzed by these following procedures:

- 1) Separating the data of learners' metacognitive strategies before and after the training.

- 2) Tabulating the result of the learners' metacognitive strategies; categorizing the metacognitive strategies into four classifications i.e. planning, managing, monitoring, evaluating; and calculating the mean of each classification of metacognitive strategies before and after the training.
- 3) Drawing a conclusion from the tabulated results of metacognitive strategies before and after the training in the form of tables and then describing each table.

$$\frac{Y1 - Y1}{N}$$

N

3.9.2. Data Analysis of Learners' Reading Comprehension Achievement

In order to analyze the increase of the learners' reading comprehension, the data was analyzed by these following procedures:

- 1) Scoring the pre-test and post-test.
- 2) Tabulating the result of the test and calculating the mean of the pre-test and post-test.
- 3) Drawing a conclusion from the tabulated results of the pre-test and post-test, then analyzing by using *Repeated Measure t-test* of SPSS 16 for windows, i.e. $\frac{\overline{Y2} - \overline{Y1}}{Sd}$ to test how significant the difference between the

score of pre-test and post-test, in which the significance is determined by $p < 0.05$. (Hatch & Farhady, 1982:114).

3.10. Hypotheses Testing

The hypotheses are used to prove whether the hypothesis proposes in this research is accepted or not.

The hypothesis testing was stated as follow:

H^o : There is no significant difference between learners' reading comprehension before and after the metacognitive training

H¹ : There is significant difference between learners' reading comprehension before and after the metacognitive training

The hypothesis was analyzed at the significant level of 0.05 in which the hypothesis is approved if Sig. <0.05.

Statistical Testing: *repeated measures t- test*