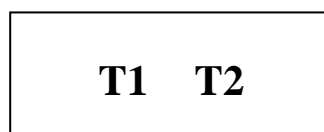


III. RESEARCH METHODS

This chapter discusses about the research methods that was used in this study, such as research design, population and sample, data collecting technique, research instruments, criteria of the test, validity of the instruments, reliability of the instruments, scoring system, research procedures, data analysis, and hypothesis testing.

3.1 Research Design

This research was quantitative research because it was focused on the product (result of the test) not the process of teaching learning and the objective was to find out the correlation between metacognitive learning strategies and students' reading comprehension. In this research, the researcher used co-relation study, which was one of the kinds of ex-post facto design. Correlation study here means the researcher used one group and took the data in one time without giving treatment. The data collected by seeing the correlation between cause and effect that might happen (after the fact). (Setiyadi, 2006:133). The design of this research could be described as follows:



T1 : metacognitive learning strategies

T2 : Reading Comprehension

(Setiyadi, 2006:133)

Whereby, in collecting data, the researcher gave a reading test (T_2) to see the students' reading achievement. Before that, the researcher distributed a questionnaire (T_1) in order to know the metacognitive learning strategies employed by the language learners in comprehending reading text. Then, the data from questionnaire (T_1) was correlated with the data from reading test (T_2).

3.2 Population and Sample

3.2.1 Population

The population of this research was the first grade of SMA Negeri 7 Bandar Lampung in academic year 2012/2013. There were nine classes of the first grade in that school. The number of the students of each class about 30-40 students.

3.2.2 Sample

Based on the population above, the researcher determined the sample by using simple random sampling where every individual in population had probability to be chosen as sample. The researcher chose one class by using lottery, since the first year students in SMAN 7 Bandar Lampung was not stratified class, there was no priority class. It was applied based on that consideration that every class in the population had the same chance to be chosen and in order to avoid the subjectivity in the research.

3.3 Data Collecting Technique

To collect the data, the researcher used the following techniques:

1. Questionnaire: It was a list of statements and questions to be answered by students to measure students' used of metacognitive learning strategies. The questionnaire used was open-ended questionnaire where the answer was limited (Setiyadi 2006:54)
2. Reading test: Reading test was one of objective test to measure students' reading comprehension, one true answer. Reading comprehension test consisted of 40 items, with four options each (A, B, C, and D).

3.4 Research Instrument

3.4.1 The Questionnaire

As it mentioned previously the metacognitive learning strategies knowledge was measured through questionnaire adapted from strategy inventory for language learning (SILL) for ESL/EFL learners constructed by Rebecca L, Oxford (1989). Since the researcher was about metacognitive learning strategies, the researcher took the metacognitive part only, and it was translated into Indonesian. SILL was used to assess students awareness and regulation of learning strategies. The questionnaire which was given to the students was modified from Anggraini (2007). The questionnaire consisted of 25 items, students were asked to rate the strategies in their learning. The two separate five point scales were described as follows:

Answer Alternative	How often (usage)
Never (TP)	1
Seldom (JRG)	2
Sometimes ((KK)	3
Often (SRG)	4
always (SLL)	5

3.4.2 Reading Test

It was a set of question and problems in form of objective test to measure students' reading comprehension. Reading test was given in order to know students' reading achievement in comprehending narrative text. The test was content of narrative text that students have learned during their study. Before i gave them try out of reading test to prepare as good as possible research's equipment.

3.5 Criteria of Good Test

In this research, to prove whether the test had good quality, it might be tried out first. The test could be qualified as 'good' test if it had sufficient validity and reliability, level of difficulty and discrimination power.

3.6 Validity of the Instrument

3.6.1 The Validity of the Questionnaire

The validity of questionnaire was also measured to find if the components were proportionally suitable and related to the relevant theories of metacognitive learning strategies. According to Hatch and Farhady (1978) there were least two validity should be fulfilled; content and construct validity. Since the questionnaire was adapted from SILL constructed by Oxford, it was considered standardized therefore the researcher investigated the content validity only. The following table described the aspects of metacognitive learning strategies in questionnaire based on Oxford.

Table 1. Table of Specification of Metacognitive Learning Strategies in the Questionnaire

No	Aspect of Questionnaire	Number items
1	Centering the learning	1,4,7,8,11
2	Arranging the learning	5,9,14,15,20,23,24,25
3	Planning the learning	2,6,10,12,13,22
4	Evaluating the learning	3,16,17,18,19,21

From the table above, it could be seen that all the aspects of metacognitive learning strategies of reading in the questionnaire might relate to the theories of metacognitive learning strategies (centering, arranging, planning, and evaluating). The number of items of arranging more than of the others because the strategies that were included were more than the others. The strategies were: finding out how language learning works, arranging to read, setting goals and objectives. Then, centering, planning and evaluating strategies in reading include overviewing and linking with already material, paying attention, delaying speech production to focus on listening, planning for language task, seeking practice opportunities, noticing and learning from errors in reading, and evaluating the progress of reading.

3.6.2 The Validity of the Reading Test

“A test can be said valid if the test measures the object to be measured and suitable with the criteria” (Hatch & Farhady, 1982:250). They also stated that there were three basic types of validity. They were content validity, construct validity, and criterion-related validity.

The validity of the reading test referred to the content and construct validity in which the question represent five sorts of reading skill that we knew that quite the same as the reading skill, i.e. *determining main idea, inferences, references, finding detail information, and vocabularies*. They were parallel to the skill required by the language curriculum. The test was tried out to the students whose level was equal to subject of the research. The text was taken from students' handbook.

Besides that to ensure the validity of the test and to avoid the subjectivity of the researcher, *inter-rater* was evaluated. The researcher used *inter-rater* to prove that the content was suitable with the question number.

Table of Specification of Reading Test

No	Reading Specification	Item Number	Percentage
1	Determining main ideas	1,3,12,17,22,30,35,28,38	22.5%
2	Inferences	4,7,14,24,31,34,36,32	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		32	100 %

3.7 The Reliability of the Instruments

3.7.1 The Reliability of the Questionnaire

The researcher collected the data by using the quantitative one. First of all, the result of questionnaire was scored based on Likert Scale. The score ranges from 1-5. To make sure that the data gathers from the questionnaire was reliable, the

researcher used reliability analysis based on Cronbach Alpha Coefficient of SPSS for window. Cronbach Alpha Coefficient was the most common used to measure the consistency among indicators in the questionnaire which was counted based on the correlation between each items. The Alpha ranges from 0 to 1. The higher alpha, the more reliable the items of the questionnaire (Setiyadi,2006).

3.7.2 The Reliability of Reading Test

Reliability was simple consistency of a test. In other words, how far it could measure the subject at separated time, but it showed the same result relatively (Setiyadi.2006:113). Reliability could be defined as the extent to which a test produce consistent results when administered under similar condition (Hatch and Farhady,1982). Reliability of the test was estimated by using split-half technique. To measure the coefficient of the reliability between odd and even group, this research used the person product moment formula as follows:

$$r_{xy} = \frac{n(\sum xy) - (\sum x) (\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} \{N \sum y^2 - (\sum y)^2\}}}$$

Where :

r_{xy} : coefficient of reliability between X variable and Y variable

(Product Moment Correlation formula)

n : numbers of the students

x : total score of odd number

y : total score of even number

x^2 : square of X

y^2 : square of Y

(Arikunto, 2006)

Then the researcher used “Spearman Bown’s Prophecy formula” (Hatch and Farhady,1982; 246) to know the coefficient correlation of whole items.

The formula as follows:

$$r^k = \frac{2rl}{1 + rl}$$

Where:

r_k : the reliability of the test

r_l : the reliability of half test (Hatch and Farhady.1982:246)

The criterion of reliability are:

0.80 – 1.00 : very high

0.60 – 0.79 : high

0.32 – 0.59 : average

0.20 – 0.39 : low

0.0 – 0.19 : very low

1. Level of Difficulty

Level of difficulty was used to classify the test items into difficult items and easy ones. The items should not to be easy for the students. To see the difficulty of the test items, this research used this following formula:

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

Where:

LD : level of difficulty

R : the number of students who answer correctly

N : the total number of students following the test

The criteria are:

<0.30 : difficult

0.30-0.70 : average

>0.70 : easy

(Shohamy, 1985; 79)

2. Discrimination Power

The discrimination power (DP) referred to the extent to which the item differentiates between high and low level students on the test. A good item according to this criterion was one which good students do well on and bad students fail.

To know the discrimination power of the test, the researcher used the following formula:

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

Where:

DP : discrimination power

U : the proportion of upper group students

L : the proportion of lower group students

N : total number of students

The criteria are:

0.00-0.20 = Poor

0.21-0.32 = Satisfied

0.41-0.70 = Good

0.71-1.00 = Excellent

(Negative)= bad items (should be omitted) (Heaton,1975: 182)

3.8 Scoring System

In scoring the students result of the test, this research used Arikunto's formula.

The ideal scores of test were calculated by using the following formula:

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

Where:

S : the score of the test

R : the total of the right answer

N : the total items (Arikunto, 1997:212)

3.9 Research Procedures

In doing the research, the researcher used procedure as follows:

1. Determining the sample of try out of the reading test

The population of the research was the first grade students of SMAN 7 Bandar Lampung. The researcher used simple random sampling, it means that one class was taken as the sample of research. The researcher chose one class by using lottery, since the first grade students in SMAN 7 Bandar Lampung was

not stratified class, there was no priority class. Try out of reading test was given, before i gave students reading test. Try out reading test was used to analyze validity, reliability, and difficulty level of reading test.

2. Determining reading test

Reading test was used to get data of learners' reading ability

3. Determining the questionnaire of metacognitive learning strategies

Questionnaire reading strategy was used to analyze metacognitive learning strategies employed by the learners and to measure students' used of metacognitive learning strategies.

4. Collecting data

After administrating the tests, the data collected.

5. Analyzing the data

The data was analyzed by using SPSS to investigate whether there was any correlation or not and determining metacognitive learning strategies was used or not.

6. Drawing findings and conclusion from the data.

3.10 Data Analysis

In analysing the data, the researcher used co-relational study. It was used to measure whether there was relationship between two variables. In this case T1 was metacognitive learning strategies as the first variable and T2 was reading comprehension as second variable. The result of the students achievement in comprehending text was analyzed by using Pearson Product Moment Correlation

of SPSS for window version in 15.0 to find out whether there is significant correlation of the two data groups.

3.11 Hypothesis Testing

To conclude a possible correlation between metacognitive learning strategies and students' reading comprehension, the researcher used the criterion of the hypothesis acceptance. To determine whether the first hypothesis was accepted or rejected, the following criteria for acceptance:

$$H_0 = r_{\text{value}} < r_{\text{table}}$$

$$H_1 = r_{\text{value}} > r_{\text{table}}$$

Notes:

H_0 : There is no significant correlation between metacognitive learning strategies and students' reading comprehension. We can accept this hypothesis if r_{value} was lower than r_{table} .

H_1 : There is a significant correlation between metacognitive learning strategies and students' reading comprehension. We can accept this hypothesis if r_{value} was higher than r_{table} .