III. RESEARCH METHODS

A. Research Design

The design of this research was **one group pretest posttest design** (Hatch and Farhady, 1982:20) in which to investigate whether there is an increasing in students' reading comprehension achievement through scanning and skimming technique. In this design, pretest and posttest was administered whether scanning and skimming technique can be used to increase students' reading comprehension.

The pretest was conducted to measure students' reading comprehension before treatments and the posttest was conducted to find the students' reading comprehension after being taught through scanning technique. Then, the means of both pretest and posttest were compared to find out the progress before and after treatments.

This research used one class as experimental class using simple random probability sampling, which was selected randomly using lottery. The researcher used one class as experimental class. This class had both pretest and posttest and four treatments.

The design of the research was described as follows:

T1 X1X2X3X4 T2

Where :

T1   : The Pretest

X (1,2,3,4)   : Treatment

T2   : The Post test

(Hatch and Farhadi in Setiady,2006: 131)

This study was to investigate whether scanning and skimming technique can be used to increase students' reading comprehension in identifying the specific information significantly by comparing the average score (mean) of the pretest with the average score (mean) of the posttest. Firstly, the researcher administered a pretest to the students to identify their achievement of reading comprehension in identifying the specific information in functional and monologue texts before applying the technique. Then, the students was given four treatments by using scanning and skimming technique. Eventually, a posttest was administered to identify students' reading ability in identifying the specific information in functional and monologue texts after being taught by using scanning and skimming technique. If the average score of the pretest was higher than the average score of the posttest, it indicates that scanning technique can not be used to increase students' reading comprehension in identifying the specific information significantly. However, if the average score (mean) of the posttest is higher than the average score (mean) of the pretest, it showed that scanning technique can be used to increase students' reading comprehension in identifying the specific information significantly (in functional and monologue texts).

B. Population and Sample

The population of this research was the 2nd grade students of SMPN 8 Bandar Lampung period of 2008/2009. There were 7 classes in 2nd grade of SMPN 8 Bandar Lampung and consisted of 37 - 40 students in each class (VIIIA-VIIIG). The sample was VIII.G as experimental class, which consist of 37 students and this class was selected using Simple random sampling and VIII.C was taken as the try out class which consist of 38 students. The class was selected randomly by using lottery, since the 2nd grade in SMPN 8 Bandar Lampung was no priority class. It was applied based on the consideration that every student in the population had the same chance to be chosen and in order to avoid the subjectivity in the research (Setiyadi, 2006: 39). The experimental class had pre-test, post-test, and four treatments.

C. Data Collecting Technique

This research used reading test as the instruments (the same tests for both pre-test and post-test) in collecting the data. Multiple choices test is used since its marking is rapid, simple and most importantly reliable, that is, not subjective or influenced by marker judgments (Heaton, 1975: 151). Besides, it did not require writing, thus restricting it to the skill being tested – reading. Each test contained 4 passages and 20 items of reading in which each text had five questions. The questions had four alternative answers for each (A, B, C, and D), one was the correct answer and the rest were the distracters. The scoring system was that the load of each correct answer was four points. Therefore, if one participant answered all the items correctly, s/he got 100 points (20x5).

1. Validity of the instrument

Validity of the instrument is considered in this research. The researcher take content and constructs validity for this research. It is considered that instrument should be valid and in line with reading theory and the material. The validity of the instrument is presented as follows:

- Content validity referred to the extent to which a test measures a representative sample the subject matter contents, the focus of the content validity was adequacy of the sample and simply on the appearance of the test (Hatch & Farhady, 1982:251). Content validity is intended to know whether the test items are good reflection of what would be covered. The test items are adapted from the materials that had been taught to the students. The test should be so constructed as to contain a representative sample of the course (Heaton, 1975: 160). This research applied two materials for the treatments. Those materials are monologue and functional texts. To know whether the tests have a good content validity, the items of the test was discussed with the experts (lectures and advisors) to measure the degree of agreement. The composition of the test items is presented in table 1: table of specification below

Table 1. Specification of the Validity Test.

No	Skills of Reading	Item Numbers	Percentage of Items
1	Determining main idea	1, 11, 21, 26, 36, 37, 46 ,48.	18%
2	Finding specific	2, 6, 7, 9, 12, 16, 17, 18,	24%

	information	24, 27, 31, 32.	
3	Inference	3, 8, 14, 19, 29, 33, 34, 38, 41, 50.	20%
4	Reference	4, 13, 23, 28, 39, 42, 43, 47, 49.	18%
5	Vocabulary	5, 10, 15, 20, 22, 25, 30, 45, 40, 44.	20%

- Regarding the construct validity, it measures whether the construction had already referred to the theory, meaning that the test construction had already in line with the objective of the learning (Hatch & Farhady, 1982:251). To find the construct validity of the pretest and posttest, the theory of reading ability in identifying the specific information, determining the main idea, references, inference and vocabulary are formulated the test items.

2. Reliability of the instrument

Reliability referred to the extent to which the test is consistent in its score, and give us an indication of how accurate the test score were (Hatch and Farhady, 1982:244). To test the reliability of the instruments, the researcher used *split-half* method in which the reading tests are divided into halves (Hatch and Farhady, 1982: 246). By splitting the test into two equal parts (first half and second half); it was made as if the whole tests had been taken in twice. The first half contained passage 1 and 2 and the items were number 1 until 10. The second half contained passage 3 and 4 involving question number 11 until 20. Moreover, by arranging the tests into first half and second half allowed the researcher to measure the test reliability by having *split half method.*

To measure the coefficient of the reliability between the first and second half, Pearson Product Moment was used, which was formulated as follows:

$$r_1 = \frac{\sum xy}{\sqrt{\sum X^2 \sum Y^2}}$$

Where :

r_1 = The coefficient reliability between first and second half group

X   = The total numbers of first half group

Y   = The total numbers of second half group

X^2 = The Square of X

Y^2 = The square of Y

(Lado in Hughes,1991:3)

Then to know the coefficient correlation of the whole items, Spearman Brown

formula was used:

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

Where :

rk : The reliability of the test

rl : the reliability of the half test

The criteria of reliability were:

0.90 – 1.00   = high

0.50 – 0.89   = moderate

0.0 – 0.49   = low

(Hatch and Farhady, 1982:268)

If the reliability the test reach 0.50 the researcher would consider that it has been reliable. Hatch and Farhady (1982: 223) stated that level of reliability about 0.90-1.00 it indicates that this instrument would produce consistent result when administered under similar condition to the same participant and in different time.

3. Level of Difficulty

Level of Difficulty of the reading test was used to classify the test items into difficult items and easy ones. The items should not be too difficult or too easy for the students. In this research, reading tests consisted of two kinds: one for pretest and the other for posttest. Before being used, both kinds of the tests were tried out, the results of which were explained in this section.

In calculating the Level of Difficulty for each items, the following formula was used:

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

LD   = Level of Difficulty

R   = Number of the students who answer correctly

N   = Total number of the students

The criteria were:

< 0.30 = Difficult

$0.30 - 0.70$ = Average

> 0.70 = Easy

(Shohamy, 1985 :79)

4. Discrimination Power

The discrimination power (DP) is the proportion of the high group students getting the items correct minus the proportion of the low-level students who getting the items correct. In calculating the discrimination power of each item the following formula was used:

$$DP = \frac{correctUpper - correctLower}{\frac{1}{2}N}$$

DP $\quad$ = Discrimination Power

U $\quad$ = Number of upper group who answer correctly

L $\quad$ = Number of lower group who answer correctly

N $\quad$ = Total number of the students

The criteria were

DP: 0.00 – 0.19 $\qquad$ = Poor

DP: 0.20 – 0.39 $\qquad$ = Satisfactory

DP: 0.40 – 0.69 $\qquad$ = Good

DP: 0.70 – 1.00 $\qquad$ = Excellent

DP: – (Negative) $\qquad$ = Bad items, should be omitted

(Heaton, 1975: 182)

5. Scoring System

In scoring the result of the test, the researcher used Arikunto formula. This ideal highest score was 100. The score of pre test and post test had been calculated using formula as follows :

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

Where :

S : The score of the test

R : the total of the highest answers

N : the total items

D. Procedures of Collecting Data

In collecting the data, the researcher used the following steps:

1. *Selecting the instrument materials:* the instrument materials (reading test) were chosen from authentic materials (English magazine and Newspaper). The selecting process considered materials that had been taught to the students and the students' interest.

2. *Determining research instrument:* for both reading tests (pre-test and post-test), the materials were taken from students' authentic materials (short articles and functional texts), i.e. English magazines (two passages) and newspaper (two passages). Two passages (short articles/monologue texts, e.g. narrative and recount text) in each test contained about 3-4 paragraph while the other (functional texts, e.g. advertisement and TV schedule) consisted only single paragraph or not more than ten sentences (functional texts). It is aimed at making an equal proportion and level of difficulty of both pre-test and post-test. The numbers of the items were arranged in such a way so that the reliability of the tests could be seen through split-half method. The authentic materials were chosen as the text, since the textbook did not provide various types of reading text that the students needed to know. In other words, reading

materials in textbook were limited and did not give the various types of texts required.

3. *Determining the population and sample of the research:* the sample of the research was determined through *simple random probability sampling.* It means that the sample was selected randomly by using lottery, since the 8th grade in SMPN 8 Bandar Lampung was not stratified class, there was no priority class. There were seven classes of eighth grade at SMPN 8 Bandar Lampung.

4. *Administering try out test :* the researcher administered the try out using reading text and 50 items of multiple choices. The maximal points. It was taken 80 minutes. The test was given to find the quality of the test before it used in order to get the data on the research. It was to find out whether the test items were good or not in validity, reliability, level difficulty and the discrimination power. The researcher used split-half method to measure the reliability in which required her to provide the items into two same groups, first half and second half.

5. *Determining final test of the instrument.* In this step, the researcher revised the instrument based on the result of try out test. The revision was done by changing the ambiguous statement, distracters, double correct answers.

6. *Administering the pre-test:* pre-test was conducted before the treatments. It was done to check students' reading comprehension to identify the specific information in various types of texts. Pre-test was administered for about 45 minutes on 1st week.

7. *Giving treatment:* four treatments by using scanning and skimmimg technique were given in two weeks. The treatment was conducted in four meetings and

90 minutes for each. The treatments were classroom activity, which used and applied scanning and skimming technique in reading.

8. *Conducting post-test:* post-test was conducted after the treatment. Post-test was conducted to find out whether there was a significant increase in students' reading comprehension in identifying the specific information after the treatments. It was administered for 45 minutes in experimental group.

F. Hypothesis Testing

The hypothesis was stated as follows:

There is significant increase of students' reading comprehension achievement in identifying the specific information after being taught through scanning and skimming technique.

The hypothesis was analyzed by using T-Test though computing with Statistical Package for Social Science (SPSS) version 15.0 for window. The researcher used the level of the significance 0.05 in which the hypothesis is approved if Sign < $\square$. It means that the probability of error in the hypothesis is only 5 %.