

III. RESEARCH METHODS

A. Research Design

In this research, the researcher uses One Group Pre-test Post-test Design (Hatch and Farhady, 1982:20) in which to investigate whether there is a gaining achievement of students' reading comprehension through scanning technique.

The researcher used simple random probability sampling to determine one experimental class. There will be one experimental class that had both pretest and post test and four treatments.

The design of the research was presented as follow:

T1 X1X2X3X4 T2

Notes:

T1 : Pre-test

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

T2 : Post-test

(Hatch and Farhady in Setiadi, 2006: 131)

This research will be conducted in six meetings with presentation as follows. The first meeting is for try-out test. The second meeting is for pre-test. The third, fourth, and fifth meetings are for treatment. The sixth meeting is for post-test.

B. Population and Sample

The population of the research is the second grade of students of SMAN 3 Kotabumi. The researcher chooses this school because it is a favorite senior high school in North Lampung. There are nine classes in the first grade of SMAN 3 Kotabumi and consists of 30-35 students in each class (X.1-X.9). The researcher will take one class as the experimental class, and the sample was X.6. and X.3 was taken as try out class. The class was selected randomly since the first grade in SMAN 3 Kotabumi was no priority class. It was applied based on the consideration that every students in the population had the same chance to be chosen and in order to avoid the subjectivity in the research (Setiyadi, 2006:39).

C. Research Procedures

In research procedures, there are six major types that should be concerned, that is:

1. Determining the problem

The first step in conducting the research was determining the problem. The researcher got the problem based on the rule of curriculum that has not been achieved through what happen in the real situation of teaching reading process. It can be seen from a class observation that was held by researcher.

2. Finding the population and determining the sample

The researcher selected randomly one experimental class in SMAN 3 Kotabumi.

3. Determining the research instrument

The materials which are used in reading skills test is taken from the students' textbook and authentic materials (i.e. taken from internet). The test was in form of multiple choice tests which consist of 25 items. In giving treatments, the researcher use reading text which will be taken from English textbook for first year students of SMA and authentic materials.

4. Administering the try out test

The researcher conducted try out test in order to find out whether the test items that will be used in the research are good or not considered from the validity, reliability, level of difficulty, and discriminating power.

5. Administering pre-test.

The researcher administered the pre-test on the experimental class. Based on the calculation of the result of pretest, the total of students' score was 1388 with the mean score was gotten that is 46.27 (see appendix 16).

6. Conducting treatments.

The researcher taught reading comprehension in reading a text by using Scanning technique in the experimental class that is X.6 class of SMAN 3 Kotabumi for four times.

7. Administering the post-test.

The researcher administered the post-test after giving four treatments in the experimental class. Based on the calculation of the result of the post test, the

total score was 2000 with the mean score was gotten that is 66.67 (see appendix 16).

8. Analyzing the data

This step is to find out the students' reading comprehension achievement using scanning technique. The data had been computed through the statistical package for social sciences (SPSS) version 15.0.

9. Testing hypothesis

The hypothesis test will be taken from the comparison mean of the pretest and post test of the experimental class.

D. Research Instruments

The data of this research was collected by means of reading tests. The reading tests are focused in examining students' reading skill that is scanning technique. In gathering the data the researcher used try out test, pre test, treatments and post test.

1. Try Out Test

The researcher did try out test to measure that the research instrument is good for testing students' reading comprehension. The quality measurement is based on the calculation of its reliability, level of difficulty and discrimination power. In the reliability of the try out, the Split-Half Method is used in order to analyze the odd (x) and even (y) of the test items. To measure the coefficient of the reliability between odd and even group, the researcher used Spearman-Brown formula. Based on the research result that had been conducted, some items were dropped

and administered to both pretest and post test. The level of difficulty of try out consisted of 5 difficult items, 22 average items and 23 easy items. Meanwhile, the discrimination indexes, one bad item, 16 poor items, 17 satisfactory items, three good items and 9 excellent items (see appendix 14). The items 2, 4, 6, 8, 9, 11, 12, 13,15, 17, 19, 22, 23, 25, 30, 33, 34, 36, 38, 40, 41, 43, 46, 47, 49 were administered and the rests were dropped. Eventually, the items that were administered for both pretest and posttest were 25

2. Pretest

The pretest had been administered once only. This pre test was done to know the basic of students' reading ability in comprehending texts before getting treatments. The test consists of 25 items in multiple choice form with four options a, b, c, d. Each correct answer has 4 points so that the highest score is 100.

3. Treatments

In the treatments, the researcher taught reading comprehension by using Scanning skill. The materials will be given four times in four meetings in which one meeting has 2x45'

4. Post test

The post test wasalso be administered once. It was given to measure students' reading ability in comprehending text and also to know the effectiveness of Scanning skill. The items were approximately same as pretest that was consists of 25 items in multiple choice form. Each correct has 4 points so that the highest score is 100.

E. Results of Try Out

The research instrument will be tried out to measure the quality in terms of validity, reliability, level of difficulty and discrimination power. Here are some elements tested as follows:

1. The Validity

Validity is a matter of relevance; it means that the test measures what is claimed to measure. To measure whether the test has a good validity, it can be analyzed from its face validity, content validity and construct validity. Face validity concerns with how the test looks. Content validity is concerned whether the test is sufficiently representative for the rest of test or not. While construct validity focuses on the relationship between indicators within the test.

In getting face validity, the instructions and the directions of the reading skills test is examined by advisors and English teachers until the test looked right and is understandable.

The next is content validity. The test needs to reflect what has been taught to the students. The writer correlated the test with the syllabus used by the teacher.

Meanwhile, construct validity is achieved by looking if the test measures just the ability which it is supposed to measure. In this research, the writer measured reading skills. Content validity is related with all of the items which exist in one of measure instrument. The focus of content validity is on adequacy of the sample and not simply on the appearance of the text. To assure the researcher of content

validity of the test, the content of whatever the test will measure must be carefully defined.

2. The Reliability

According to Hatch and Farhady (1982:243), the reliability of a test can be defined as the extent to which a test procedures consistent result when administered under similar conditions. To estimate the reliability of the test, the Split-Half Method is used in order to analyze the odd (x) and even (y) of the test items. To measure the coefficient of the reliability between odd and even group, the researcher used Spearman-Brown formula, that is:

$$R_{XY} = \frac{N \sum XY - (\sum X) (\sum Y)}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2)}}$$

Notes:

R : coefficient of reliability between odd and even numbers

N : number of the students

X : square of X

Y : square of Y

$\sum X$: total score off odd number

$\sum Y$: total score of even number

(Hatch and Farhady, 1982:198)

The criteria are:

0,80 up to 1,00 is very high.

0.60 up to 0.79 is high.

0.40 up to 0.59 is average.

0.20 up to 0.39 is low.

0.00 up to 0.19 is very low.

The result of the try out shows that, the calculation can reach the reliability that was 0.70 (see appendix 15). According to the criteria of reliability, it is high result and can be used to test students' reading comprehension.

3. The Level of Difficulty

The difficulty level of an item shows how easy or difficult that particular item done by the participants, (Heaton, 1975:182). Level of difficulty is generally expressed the percentage of the students who answered the item correctly. It is calculated by the following formula:

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

Notes:

LD : the level of difficulty

R : the number of the students who answer correctly

N : the total of the students in the higher and lower group

(Heaton, 1975:182)

The criteria of the difficulty level are:

< 0.30 = difficult

0.30-0.70 = average

> 0.70 = easy

Based on the try out that had been conducted, the researcher got the result that from 50 questions 5 of those have <0.30 score means difficult, 22 questions of those have 0.30-0.70 score means average and 23 of those has >0.70 score means easy (see appendix 14)

4. The Discrimination Power

The discrimination power 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. The formula of the discrimination power is:

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

Notes:

- D : discrimination power
- U : the number of students from the upper who answer correctly
- L : the number of students from the lower who answer correctly
- N : the number of the students

(Shohamy, 1985:82)

In accordance with Shohamy (1985:81), there are some criteria of discrimination power of an item. An item is excellent if the discrimination index ranges from 0.10 to 1.00. A good item ranges from 0.41 to 0.70. A satisfactory item ranges from 0.21 to 0.40. An item is poor if the discrimination index range from 0.00 to 0.20 and an item is bad if the discrimination index is negative.

Based on the try out test that had been conducted by the researcher, the result showed that from 50 questions, one question has minus score means it is bad, 16 questions have 0.00-0.20 score means poor, 17 questions have 0.21-0.40 score means satisfactory, 3 questions have 0.41-0.70 score means good and 9 questions have 0.10-1.00 score means excellent (see appendix 14).

5. Scoring System

In scoring the result of students' test, the researcher will use Percentage Correct (Lyman, 1971:95). The percentage correct score is used in reporting the result of achievement test. The researcher will calculate the average of the pre-test and post-test by using this formula:

$$X_{\%C} = 100 \frac{R}{T}$$

Where:

- $X_{\%C}$ = percentage of correct score
- R = number of right answers
- T = total number of items on test.

F. Data Collecting Technique

In collecting the data, the researcher use reading test as the instrument. And there will be two kinds of test, pre-test and post-test. Pre-test will be provided in order to measure the student's reading comprehension achievement before the treatment, and post-test will be provided after presenting the treatment in order to know the achievement of reading comprehension. The test will be designed based

on School Based curriculum for the ten grade students. And the test is multiple choices.

Table 1. Table Specification of Pretest

No	Objective	Items Number	Percentage
1	Determining main idea	7,8,11,14,25	20%
2	Finding specific information	1,3,4,12,18,19,22	28%
3	Inference	5,6,10,17,20,23	24%
4	Reference	2,13,16,21	16%
5	Vocabulary	9,15,24	12%
Total		25	100%

Table 2. Table Specification of Post Test

No	Objective	Items Number	Percentage
1	Determining main idea	10,11,13,16,18	20%
2	Finding specific information	2,4,5,7,19,20,22	28%
3	Inference	3,6,9,14,17,21	24%
4	Reference	1,8,23,25	16%
5	Vocabulary	12,15,24	12%
Total		25	100%

Table 3. Determining Main Idea Achievement

Pretest Score

No.	Item Number	Total Correct Answer	Percentage
1	7	22	73.3%

2	8	19	63.3%
3	11	18	60.0%
4	14	22	73.3%
5	25	16	53.3%
	Total	97	64.64%

Posttest Score

No	Item Number	Total Correct Answer	Percentage
1	10	26	86.6%
2	11	20	66.6%
3	13	18	60.0%
4	16	25	83.3%
5	18	20	66.6%
	Total	109	72.62%

Table 3 above indicates that the total students' correct answer of determining main idea was increased from 97 to 109, in which the increase was amounting to 12 points. Furthermore, the increase of percentage was 7.98% that is the

percentage of determining main idea in the pretest was 64.64% and the percentage of determining main idea in the posttest was 72.62%.

Table 4. Finding Specific Information Achievement

Pretest Score

No	Item Number	Total Correct Answer	Percentage
1	1	27	90.0%
2	3	20	66.6%
3	4	13	43.3%
4	12	17	56.6%
5	18	17	56.6%
6	19	22	73.3%
7	22	15	50.0%
	Total	131	62.34%

Posttest Score

No	Item Number	Total Correct Answer	Percentage
1	2	27	90.0%
2	4	20	66.6%
3	5	18	60.0%
4	7	18	60.0%

5	19	23	76.6%
6	20	25	83.3%
7	22	20	66.6%
	Total	151	71.87%

Table 4 above indicates that the total students' correct answer of finding specific information was increased from 131 to 151, in which the increase was amounting to 20 points. Furthermore, the increase of percentage was 9.53% that is the percentage of finding specific information in the pretest was 62.34% and the percentage of finding specific information in the posttest was 71.87%.

Table 5. Inference Achievement

Pretest Score

No	Item Number	Total Correct Answer	Percentage
1	5	21	70.0%
2	6	22	73.3%
3	10	21	70.0%
4	17	26	86.6%
5	20	19	63.3%
6	23	22	73.3%
	Total	131	72.75%

Posttest Score

No	Item Number	Total Correct Answer	Percentage
1	3	23	76.6%
2	6	25	83.3%
3	9	20	66.6%
4	14	26	86.6%
5	17	20	66.6%
6	21	21	70.0%
	Total	135	74.9%

Table 5 above indicates that the total students' correct answer of inference was increased from 131 to 135, in which the increase was amounting to 4 points. Furthermore, the increase of percentage was 2.15% that is the percentage of inference in the pretest was 72.75% and the percentage of inference in the posttest was 74.9%.

Table 6. Reference Achievement

Pretest Score

No	Item Number	Total Correct Answer	Percentage
1	2	11	36.6%

2	13	10	33.3%
3	16	22	73.3%
4	21	20	66.6%
	Total	63	52.45%

Posttest Score

No	Item Number	Total Correct Answer	Percentage
1	1	15	50.0%
2	8	15	50.0%
3	23	22	73.3%
4	25	24	80.0%
	Total	76	63.32%

The table 6 above indicates that the total students' correct answer of reference was increased from 63 to 76, in which the increase was amounting to 13. Furthermore, the increase of percentage was 10.87% that is the percentage of reference in the pretest was 52.45% and the percentage of reference in the posttest was 63.32%.

Table 7. Vocabulary Achievement

Pretest Score

No	Items Number	Total Correct Answer	Percentage
1	9	22	73.3%
2	15	25	83.3%

3	24	19	63.3%
	Total	66	73.3%

Posttest Score

No	Items Number	Total Correct Answer	Percentage
1	12	23	76.6%
2	15	25	83.3%
3	24	24	80.0%
	Total	72	79.9%

Table 7 above indicates that the total students' correct answer of vocabulary was increased from 66 to 72, in which the increase was amounting to 6 points. Furthermore, the increase of percentage was 6.6% that is the percentage of reference in the pretest was 73.3% and the percentage of reference in the posttest was 79.9%.

G. Hypothesis Testing

The hypothesis was analyzed by using T-Test through 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 $\text{Sign} < \alpha$. It means that the probability of error in the hypothesis is only 5%.

H. Schedule of The Research

This study was conducted teaching reading comprehension, the schedule below.

1. On January 3rd, 2013 was administered the try out test
2. On January 5th, 2013 was administered the pretest
3. On January 8th, 2013 was given the first treatment
4. On January 12th, 2013 was given the second treatment
5. On January 15th, 2013 was given the third treatment
6. On January 19th, 2013 was given the fourth treatment and post test to the sample.