

CHAPTER III RESEARCH METHOD

This chapter discusses about the methods of research used in this study, they are: research design, population and sample, data collecting technique, research procedures, criteria of good test, scoring system, and data analysis.

3.1 Research Design

This research is a quantitative research carried out by using One Group Pretest-Posttest Design. The research investigates whether there is an improvement in students' reading comprehension achievement of narrative text or not. The researcher has taught narrative text reading to experimental class by using self-questioning strategy.

The researcher has chosen one class as the experimental class by applying probability sampling using lottery. Pretest, three treatments, and posttest are then administered to this class.

The design can be presented as follows:

T1 X T2

T1 : Pre-test

T2 : Post-test

X : Treatment by using self-questioning strategy

(Setiyadi, 2006:131)

3.2 Population and Sample

The population in this research was the second year students of SMA N 1 Negeri Katon. There are four classes of second year students and they are all of equal level. Each class consists of 30-35 students. From the initial 35 students, the number of participants was whittled down to 33 because 2 students were absent and did not participate in both the pretest and posttest phases of the research. The researcher has XI IPA 2 as the experimental class. In determining the experimental class, the researcher has used the probability sampling, using lottery.

3.3 Data Collecting Technique

In collecting the data the writer used the following technique:

Pretest

Pretest was used to find out how far the competence of the students basic ability in reading comprehension. The researcher conducted pretest to find students' basic ability in reading narrative text. In pretest, the students were asked to answer multiple choices question about narrative text given. Students' score in the pretest was used to see the students' basic knowledge in comprehending narrative text.

Posttest

Posttest was administered after conducting three treatments to the students. It was used to find out whether there was significant improvement in students' reading comprehension achievement after three time treatments or not. Students' average score in the posttest was compared with their average score in pretest. By doing so, the researcher could measure students' increase in comprehending narrative text.

3.4 Research Procedures

The procedures of this research were:

1. Determining the population and sample of the research

To determine the population and sample of the research, the researcher chose two classes from four classes in the second year students in SMA N 1 Negeri Katon by using lottery.

2. Administering tryout test

Tryout was given to the students in order to know the quality of the test as instrument of the research.

3. Analyzing the test

The result of the tryout test was analyzed in order to know which items were good to be used in pretest.

4. Presenting the pretest

Pretest was given in order to find out students' basic ability in comprehending narrative text.

5. Conducting treatment

In this research, the treatment was conducted three times. In the treatment, the researcher explained about self-questioning strategy to help students comprehend narrative text given. After giving explanation of self-questioning strategy, the researcher gave them a session training in question formulation. During this session the experimental group was taught to recognize and express the main idea of sample paragraphs and to ask questions based on them.

6. Presenting posttest

The posttest was given in order to know students' improvement after they had received the treatment. Multiple choice items were applied in the test.

7. Analyzing the test result

After conducting the pretest and posttest, the researcher analyzed the data. The data was analyzed by using Repeated Measures T-Test. It was used in order to know whether self-questioning strategy was suitable to increase student's achievement in reading narrative text significantly or not. The data was computed through SPSS Program.

8. Reporting the result

In reporting the data, the data was arranged systematically based on the pretest and posttest to see whether there was an increase on the students' achievement in reading narrative text significantly or not.

3.5 Criteria of Good Test

Whenever a test or other measuring device is used as part of the data collection process, there are four criteria of a good test should be met namely, validity, reliability, level of difficulty, and discrimination power.

3.5.1 Validity

A test can be said to be valid if it measures the object to be measured and suitable with the criteria (Hatch and Farhady, 1982:250). According to Hatch and Farhady (1982:251), there are four types of validity: face validity, content validity, construct validity and empirical or criterion-related validity. To measure whether the test has good validity, the researcher will use content and construct validity since the other two are considered be less needed. Face validity only concerns with the layout of the test. Criterion-related validity concerns with measuring the success in the future, as in replacement test (Hatch and Farhady, 1982:251). The two types used in this research are:

Content Validity

Content validity is the extent to which a test measures a representative sample of the subject matter content, the focus of content validity is adequacy of the sample and not simply on the appearance of the test (Hatch and Farhady, 1982:251). To know whether the test is good reflection of what has been taught and of the knowledge which the teacher wants the students to know, the researcher compares this test with the table of specification. If the table represents the material that the researcher wants to test, then it is valid from the point of view. A table of specification is an instrument that helps the test constructor plans the test.

Janssen (2002:107) explains that self-questioning strategy slows down the reading process, focuses students' attention on details in the text, and makes them aware of gaps in the story and/or breaches with their own expectation. Commeyras and Sumner (1998) in Janssen (2002) also found that student questions were primarily why-questions about events and actions in the narratives. Considering those statements, the writer focused her attention on finding specific information by having 40% test items of finding specific information.

Table 3.1 Table of Specification

No	Objectives	Item Numbers	Percentage of Items
1	Determining the main idea	1., 15., 24., 33., 37., 40., 45.	14%
2	Finding specific information	5., 8., 10., 11., 16., 19., 20., 21., 23., 25., 26., 28., 31., 32., 34., 36., 41., 46., 47., 50.	40%
3	Inference	3., 4., 6., 7., 12., 13., 14., 18., 22., 29., 30., 38., 39., 42., 44., 49.	32%
4	Reference	2., 9., 17., 27., 35., 43., 48.	14%

Construct Validity

Construct validity is concerned with whether the test is actually in line with the theory of what reading comprehension means (Hatch and Farhady, 1982:252). To know whether the test is true reflection of the theory in reading comprehension, the researcher examines whether the test questions actually reflected the means of reading comprehension or not.

3.5.2 Reliability

Reliability is a measure of accuracy, consistency, dependability or fairness of scores resulting from administration of particular examination.

Reliability of the test can be determined by using the Spilt half method in order to estimate the reliability of the test. To measure coefficient of the reliability the first and second half group, the researcher used the following formula:

$$r_1 = \frac{\sum XY}{\sqrt{[\sum X^2 \sum Y^2]}}$$

Notes:

- r_1 : The coefficient of reliability between first half and second half group
- X : The total numbers of first half group
- Y : total numbers of second half group
- X^2 : The square of X
- Y^2 : The square of Y

(Lado in Hughes, 1989)

To find out the reliability of the test, the researcher employed “Spearmen Brown’s Prophecy Formula” (Hatch and Farhady, 1982:286)

The formula is as follows:

$$rk = \frac{2r_1}{1 + r_1}$$

- rk : the reliability of the test
- r_1 : the reliability of half test

The criteria of reliability are:

0.90-1.01.1 : high

0.50-0.89 : moderate

0.00-0.49 : low

3.5.3 Level of Difficulty

To see the level of difficulty, the researcher used the following formula:

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

Where:

LD : level of Difficulty

R : 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, 1989:79)

3.5.4 Discrimination Power

To see the discrimination power, the researcher used the following formula:

$$DP = \frac{\text{the proportion of upper SS} - \text{the proportion of lower SS}}{\frac{1}{2} \text{ total number students}}$$

(Shohamy, 1985: 81)

The criteria are:

1. If the value is positive, it has discrimination because a large number or more knowledgeable students than poor students get the item correct. If the value is zero, it means no discrimination.
2. If the value is negative, it has negative discrimination because more low-level students than high level students get the item correct.
3. In general, the higher discrimination index, the better, in the classroom situation most items should be higher than 0.20 index.

(Shohamy, 1985: 82)

3.6 Scoring System

In scoring the student's result of the test, this research employed Arikunto's formula. The ideal highest score was 100. The score of pretest and posttest were calculated by using the formula as follows:

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

Where,

S = the score of test

R = total of the right answer

N = total items

(Arikunto, 1997: 212)

3.7 Data Analysis

The researcher computed the students' score in order to find out the students' achievement in reading narrative text through self-questioning strategy using the following steps:

1. Scoring the pre-test and post-test.
2. Tabulating the results of the test and calculating the score of the pre-test and post-test.
3. Drawing conclusion from the tabulated results of the pre-test and post-test administered, that was by statistically analyzing the data using statistical computerization i.e. *Paired T-Test of Statistical Package for Social Science (SPSS) version 15.0 for windows* to test whether the increase of students' gain is significant or not, in which the significance was determine by $p < 0.05$. It was used as the data come from the one sample. (Hatch and Farhady, 1982:117).

3.8 Hypothesis Test

After collecting the data, the researcher recorded and analyzed them in order to find out whether there was an increase in students' ability in reading comprehension of narrative text or not after the treatment. The researcher used Matched T-Test to know the level of significance of the treatment effect.

The formula is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{D}}}$$

With:
$$S_{\bar{D}} = \sqrt{\frac{\sum D^2 - (1/n)(\sum D)^2}{n-1}}$$

\bar{X}_1 : Mean from pre-test

\bar{X}_2 : Mean from post-test

$S_{\bar{D}}$: Standard error of differences between means

n: Subjects on sample

(Hatch and Farhady, 1982:114)

The criteria are:

1. If the t-ratio is higher than t-table: H_1 is accepted
2. If the t-ratio is lower than t-table: H_0 is accepted