

III. RESEARCH METHOD

The researcher compared between the students' reading comprehension achievement in the pretest and the students' reading comprehension achievement in the posttest after being taught through Collaborative Strategic Reading technique. To answer the research questions, there are seven topics which need to be elaborated here. They are: Research Design, Setting, Population and Sample, Data Collecting Technique, Research Procedures, Scoring System, Analysis Research Instruments, Data Analysis, and Hypothesis Testing.

3.1 Research Design

To gain the objective of the research, the researcher conducted quantitative design with *one group pretest posttest design* which used one class which got the treatments through Collaborative Strategic Reading (CSR). The pretest was administered to see the students' basic ability before treatments. Then, after giving the treatment the researcher administered the posttest. The posttest was administered in order to prove that CSR can be used to improve students' reading comprehension.

The design of the research is described as follows:

T1 X T2

Where:

T1 : pretest
T2 : posttest
X : treatment by using Collaborative Strategic Reading

(Hatch and Farhady, 1982)

3.2 Setting

This research was conducted in SMA Negeri 1 Tulang Bawang Tengah, Tulang Bawang from 21st April to 10th May, 2012.

3.3 Population and Sample

The population and sample that were used in this research were explained as the following:

3.3.1 Population

The population of the research was the first grade students of SMAN 1 Tulang Bawang Tengah. There were 13 classes in this school. In this research, the researcher chose the first grade students to be investigated. There were five classes of the first grade students: X1, X2, X3, X4, and X5 and each class consists of 30-32 students. Their ages ranged from 15-16 years old.

3.3.2 Sample

From the population above, one class was taken as try out class that was X2 and one class was as the experimental class that was given the treatments (teaching reading through collaborative Strategic Reading) that was X1. In determining the samples, the writer used the random sampling technique by using a lottery, so that all the first year classes got the same

chance to be the sample in order to avoid subjectivity and to guarantee that every class had the same opportunity.

3.4 Data Collecting Techniques

In collecting the data, the writer used the following techniques:

1. Pretest

Pretest is the way to measure students' ability in the beginning before giving treatment.

The researcher used pretest because it is very important to know students' ability at the beginning to compare it with students' ability after treatment. Pretest was given in order to know how far the competence of students in reading comprehension before the treatment.

The test consisted of 30 items of multiple choice forms with five options. The materials were taken from some of try-out test items. In this research, researcher used the same multiple choices as the pretest and posttest. The good items from try-out test that had been analyzed were given in the pretest and posttest. The contents of the test were presented in the table of specification on page 36. The test was conducted within 60 minutes.

2. Posttest

This test was administered to the students after conducting the treatments. The aim of this test was to find out the students' reading comprehension achievement after the three times treatments. The posttest was given in the last meeting. The test papers were administered to the students in the experimental class, and they were asked to do the test and then handed in the paper sheet. This test was multiple choices and consists of 30 items with five options. The posttest was conducted within 60 minutes.

3.5 Research Procedures

In conducting this research, the researcher used the following procedure:

1. Planning

Before applying the research procedure, some planning was made in order application run well. The procedure can be seen as follows:

1. Determining the sample of the research

In determining the experimental class, the writer used the random sampling technique by using a lottery, so that all the first year classes got the same chance to be the sample in order to avoid subjectivity and to guarantee that every class had the same opportunity. Having used the random sampling technique, it was gotten that X1 was chosen as experimental class.

2. Preparing the try out

The test was prepared (called try out test) and given to the students in order to know the quality of the test as an instrument of the research. This test is multiple choices and consists of 45 numbers.

3. Determining the quality of the test

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

4. Preparing the pretest and posttest

In this research, researcher used the same multiple choices as the pretest and posttest. The good items from try out test that had been analyzed were given in the pretest and posttest. This test is multiple choices and consists of 30 items with five options.

5. Preparing the materials

The materials that were prepared for the students relate to the curriculum that is *News item* that used in the school and also introduce Collaborative Strategic Reading to the students in the experimental class.

2. Implementation

After planning, the research procedures that had already planned were applied, there were some steps that should be applied, and they are:

1. Conducting try out

The try out was conducted before the pretest at chosen class that was X2. This was intended to measure the validity and reliability of pretest and posttest, to ensure that the data used by the researcher was valid and reliable to be used as a research instrument. Students were administered the test paper, asked to do the best and then asked to hand in their answer sheet. This test is multiple choices and consists of 45 items.

2. Conducting pretest

In the first meeting in X1 (experimental class), the pretest was given. The test papers were given to students, asked them to do the best, and then handed in the test. This test is in form of multiple choices with 30 items taken from the try out test. The pretest was conducted within 60 minutes.

3. Implementing the treatments

The Collaborative Strategic Reading was trained in three meetings and 2x45 minutes was distributed for each meeting for experimental class.

4. Administering posttest

The posttest was given in the last meeting. The test papers were administered to the students in the experimental class within 60 minutes, and they were asked to do the

test and then handed in the paper sheet. This test is multiple choices and consists of 30 items with five options.

3. Reporting

The last point to be done in this research procedures was reporting. There are two steps that were done in reporting:

1. Analyzing the data from pretest and posttest

The researcher analyzed the data by using *Repeated Measure T-Test* because the data was only collected from experimental group. This formula was used to compare the pretest score (mean) and posttest score (mean) to investigate whether there was a significant increase of students' reading comprehension through Collaborative Strategic Reading technique. Before determining whether there was a significant increase, the raw data was put in the table by putting the highest score on the top. The data was computed through the SPSS version 17.0.

2. Making a report on the findings.

3.6 Scoring System

In scoring students' result of the test, the researcher used Percentage Score. The ideal highest score is 100. The score of pretest and posttest were calculated by using formula as follow:

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

Where:

PS : Percentage Score

R : the total of right answer

N : total item

(Henning, 1987)

3.7 Analysis Research Instrument

A good test should meet four criteria: a good validity, reliability, level of difficulty, and discrimination power.

3.7.1 Validity of the Test

Validity refers to the extent to which the test measures what is intended to measure. This means that it relates directly to the purpose of the test (Shohamy, 1985). There are four types of validity, namely face validity, content validity, construct validity, and empirical validity or criterion-related validity. To measure whether the test had a good validity, the researcher used content validity and construct validity. Face validity only concerns with the lay out of the test while the criterion-related validity is concerned with measuring the success in the future, as in replacement test (Hatch and Farhady, 1982). So these two validities were considered to be less needed. Therefore, the two types of validity were used in this research as follows:

A. Content Validity

Content validity is the extent to which the test measures a representative sample of the subject matter content. The focus of the content validity is adequacy of the sample and not simply on the appearance of the test (Hatch and Farhady, 1982). A good test is the test that appropriate with the material that have been taught, and the material is developed from the education goal. In the other word, content validity is the appropriateness of the test instrument with the goal and the material.

The procedure for determining content validity is to compare the test content with the universe of content supposedly being measured. The content being measured is students'

reading comprehension i.e. determining main idea, finding the detail information, reference, inference, and understanding vocabulary.

Furthermore, the researcher compared the test items with a table of specification. The test is based on 2006 English curriculum, and the syllabus of first years SMA students and represent of the materials that had been taught by the teacher. The content of the test was presented in the table of specification below:

Table 1. Table of Specification

No.	Skills of Reading	Item Number	Percentage of Item
1	Identify the main idea	11., 21., 22., 28., 33.,	11,11%
2	Specific information	1., 2., 6., 7., 8., 14., 16., 18., 19., 20., 23., 34., 36., 38., 41., 42., 43., 44.,	40%
3	Reference	3., 5., 15., 17., 27., 31., 35., 37., 45., 25.,	22,22%
4	Inference	10., 12., 29., 32., 39.,	11,11%
5	Vocabulary	4., 9., 13., 24., 26., 30., 40.,	15,55%

B. Construct Validity

Construct validity is concerned whether the test is actually in line with the theory of what reading comprehension means (Hatch and Farhady, 1982).

To make sure the test reflects the theory in reading comprehension, the researcher examined whether the test questions actually reflected the means of reading comprehension or not.

3.7.2 Reliability of the Test

Shohamy (1985) states that reliability refers to the extent to which the test is consistent in its score. It can also give an indication of how accurate the test score. The researcher used split-half method to estimate the reliability of the test, since the formula is simple. It is because (1) it avoids troublesome correlation and (2) in addition to the number of item in the test, it

involves only the test, mean and standard deviation, both of which are normally calculated anyhow as a matter of routine. To measure the coefficient of the reliability between odd and even group, the research used the Pearson Product Moment formula as follows:

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

Where:

R_{xy} : coefficient of reliability between the first half and the second half items

X : total numbers of odd numbers items

Y : total numbers of even numbers items

X^2 : square of X

Y^2 : square of Y

(Lado, 1997)

To know the coefficient correlation of whole items, the researcher used Spearman Brown's Prophecy Formula (Hatch and Farhady, 1982). The formula is as follows:

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

Where:

r_k : the reliability of the test

r_l : coefficient of reliability between the first half and the second half items

The criterion of reliability is:

0.90 – 1.00 : high

0.50 – 0.89 : moderate

0.0 – 0.49 : low

3.7.3 Level of Difficulty

Difficulty level relates to how easy or difficult the item is from the point of view of the students who take the test. It is important since the items, which are too easy (that students get right) can tell us nothing about differences within the test population. To see the level difficulty, the researcher used the formula as follow:

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

Where:

LD : level of difficulty

R : the number of students who answer correctly.

N : the total of students following the test

The criteria are:

< 30 = difficult

0.30-0.70 = average

>0.70 = easy

(Shohamy, 1985)

3.7.4 Discrimination Power

This index refers to the extent to which the item differentiates between high and low levels students on the test. A good item according to this criterion is one that good students do well on and bad students fail. To see the discrimination index, the writer used the following formula:

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

Where:

DP : discrimination power

U : the proportion of upper group students who answer correctly

L : the proportion of lower group students who answer correctly

N : total number of students

The criteria are:

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

(Shohamy, 1985)

3.8 Data Analysis

The researcher examined the students' scores using the following steps:

1. Scoring the pretest and posttest
2. Tabulating the result of the test and calculating the scores of the pretest and posttest.
3. Drawing conclusion from the tabulated results of the pretest and posttest which statistically analyzed using *Repeated Measure T-Test* computed through SPSS version 17.0.

3.9 Hypothesis Testing

The hypothesis is analyzed by using *Repeated measures T-Test* with Statistically Package for Social Science (SPSS) version 17.0. The level of significance is 0.05, and the probability of error in the hypotheses is 5%. The researcher stated the hypothesis as follows:

H_0 : There is no significant increase of students' reading comprehension achievement after being taught through Collaborative Strategic Reading technique.

H_1 : There is a significant increase of students' reading comprehension achievement after being taught through Collaborative Strategic Reading technique.

The criteria are:

1. If $p < 0.05$: H_1 is accepted.
2. If $p > 0.05$: H_0 is accepted.