III. RESEARCH METHOD

3.1. Research Design

The design of this research is comparative. In this research, the researcher compares the student's reading achievement between those who are taught through short story and those through mini dialogue. This two teaching materials will be used because the researcher wants to find out a better materials for teaching reading and to help students improve their reading achievement. The researcher uses true experimental design. In this research, there will be two groups and both of them will be given a treatment. The two group pre-test post-test design is employed. The two classes, experimental class and control class will be compared in order to find out the significant difference of student's reading comprehension achievement. In this case, the experimental class is students who are taught through Short Story and the control class will be the students who are taught through Mini Dialogue.

$$\frac{G_1 = T1X1T2}{G_2 = T1X2T2}$$

Notes:
G_1 : The experimental class
G_2 : The control class
X_1 : Treatment I (short story technique)
X_2 : Treatment II (mini dialogue technique)
T1 : Pre-test
T2 : Post-test
(Hatch and Farhady, 1982:20)

The 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, fifth meetings are for treatment. The sixth meeting is for post-test.

3.2. The Population and Sample

The population of this research is the ten grade students of MA MA'ARIF 4 Kalirejo, and each class consists of 30 students. The class as the sample will be taken through lottery, because all the classes have the same opportunities to be chosen as the sample of this research. One is the experimental class, and the other one is the control class. In this case, the researcher asks the leader of the each class to take a small piece of paper in order to know the class will be as experimental class or control class.

3.3. The Data Colleting Technique

In collecting the data, the researcher uses reading test as the instrument. There will be two kinds of test, pre-test and post-test. Pre-test will be administered in order to measure the student's reading comprehension achievement before the treatment, and post-test will be administered after presenting the treatment in order to determine the

achievement of reading comprehension. The test will be designed based on School

Based curriculum for the ten grade students. The test is multiple choices.

Table of specification

NO	Objective	Number of items	Percentage
1	Identifying main idea	1,6	35%
2	Specific Information	2,7	30%
3	Inference	3,8	15%
4	Antonym	4,9	10%
5	Synonym	5,10	10%
Total			100%

3.4. The Procedures of Taking the Data

There are some procedures that are applied for taking the data, they are:

1.   Determining the population and the sample.

   The researcher will take two classes to determine the experimental class and the

   control class.

2.   Administering try-out.

   The try out will be administered to determine the quality of the test.

3.   Administering pre-test.

   The researcher and the teacher administer the pre-test on both groups

   experimental class and control class.

4.   Conducting treatment.

5.   Administering the post-test.

The researcher and the teacher will administer the post-test, experimental class and control class.

6.   Scoring the student's work.

The researcher will score the learner's work in order to get the data.

7.   Analyzing the data.

After collecting the data, the researcher will analyze the data.

8.   Testing hypothesis.

After analyzing the data, the researcher will test the hypothesis.

3.5.   Try-Out

The try-out is administered to determine the quality of the test that is used in taking the data. In order to determine the quality of the test, the researcher will analyze four terms, that is: the validity, the reliability, the level of difficulty, and the discrimination power of the test.

3.5.1.   The Validity

A test can be said valid if it measures the object to be measured and suitable for the criteria (Hatch and Farhady, 1982: 251). There are four basic types of validity: content validity, criterion-related validity, face validity, and construct validity, (Hatch and Farhady, 1982:251). To determine the validity of the test, the researcher emphasizes only on 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 on adequacy of the sample

and not simply on the appearance of the text. To assure the researcher of content

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

defined.

3.5.2. 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 will use

Spearman-Brown formula, that is:

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

Notes:

R   : coefficient of reliability between odd and even numbers
N   : number of the students
X   : square of x
Y   : square of y
ΣX : total score of odd number
ΣY : total score of even number
ΣY : 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.
0.0 p to 0.19 is very low.

3.5.3. 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 as the fraction (or 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

3.5.4. The Discrimination Power

The discrimination power (D) 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 discrimination power of an indicate item the extent, to which the item discriminates between the test taker from the less able. The formula of the discrimination power is:

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

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)

The criteria of discrimination power are:
1.   If the value is positive, it has positive discrimination because large number or more knowledge 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 has negative discrimination power because lower and higher level of the students gets the item correct.

3.   In general, the higher discrimination index is better. In the classroom situation most items should be higher than 0.20 index.
(Shohamy, 1985:82)

3.5.5. 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 classroom achievement tests. The researcher will calculate the average of the pre-test and post test by using this formula:

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

(Lyman, 1971: 95)

Where:

$X_{\%c}$ = percentage of correct score

R   = number of right answers

T   = total number of items on test.

3.5.6. The Data Analysis

In order to find out whether the data is meaningful or not and to determine a better

technique for reading comprehension, the researcher will analyze the data by:

1. Scoring the pre-test and post-test

2. Tabulating the result of the thesis and calculating the mean of the pretest and

    posttest. To compute the average score or mean of the pretest and posttest, the

    researcher will use a very simple statistic formula as follows:

$$\bar{X} = \frac{\Sigma x}{N}$$

Notes:
$\bar{X}$: mean (average score)
Σx: total number of the student's score
N : total number of the students
(Hatch and Farhady, 1982:5)

3. Drawing calculation from the tabulated results of the pretest and posttest

    administered, that is by statistically analyzing the data using *t-test* to test whether

    or not the difference between pretest and posttest is significant. It is used as the

    data comes from the same sample or known as paired data.

    (Hatch and Farhady, 1982:114)

4. Administering the Normality Test

    Normality test is an idealized model which can be used to dealing with natural

    behaviour (Hatch and Farhady, 1982:64). The normal distribution has three

distinct properties that allow the researcher to make inference about the population in general and sample of the population in particular. That is:

a. The mean, median, and mode in a normal distribution are all the same.

b. The first property results in the second characteristic-the shape of the normal distribution is bell shaped and symmetric.

c. The normal distribution does not have a zero score; the tails never meet straight line.

(Hatch and Farhady, 1982:64)

Normality test has been used to identify whether the data is normally distributed or not. The researcher uses Liliefors formula to test the normality of the data. The highest values $F(Z_i) - S(Z_i)$ on formal distribution will take as Liliefors ratio. The test criteria are:

Ho = L-ratio is lower than L-table (the distribution of the data is normal)

Ha = L-ratio is higher than L-table (the distribution of the data is not normal)

From the calculation, the distribution of the data is normal (L-ratio is smaller than L-table)

3.5.7. The Hypothesis Testing

The hypothesis testing is done to determine whether the hypothesis (H_0 or H_1) of the researcher accepted or not. The formulation of the hypothesis testing (t-test) is as follows:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

Notes:
X1   : means of experimental class 1
X2   : means of experimental class 2
S   : standard Deviation
N1   : the number of the students in experimental class
N2   : the number of students in control class

The criteria of the test are:

If the value of T-test is higher than T-table ($t_0 > t_{tab}$), H_0 is accepted.
If the value of T-test is lower than T-table ($t_0 < t_{tab}$), H_1 is accepted.
(Hatch and Farhady, 1982:120)

H_0 = There is no a significant difference of reading comprehension achievement between the student who are taught through Short Story and those who taught through Mini Dialogue.

H_1 = There is a significant difference of reading comprehension achievement between the student who are taught through Short Story and those who taught through Mini Dialogue.
(Hatch and Farhady, 1982:111)