III. RESEARCH METHODS

This research is belonging to quantitative research. In conducting the research, the researcher used quasi experimental method. This experimental method dealt with only one group, the experimental class. The data which is obtained is numbers (score) that was assessed and analyzed by using statistical analysis.

3.1 Research Design

In conducting the research, the researcher used quasi experimental method. This experimental method dealt with only one group, the experimental class. The experimental class was the class which gets treatments through Jakarta-Post article that was presented by the researcher. The class received pre test, treatments which were done three times, and post test. The result of pre test and post test were compared to know the significant.

The design is presented as follows:

G :   T1   X   T2

G   : Experimental class

T1   : Pre-test

T2   : Post-test

X   : Treatment

(Hatch and Farhady, 1982:20)

3.2 Research Population and Sample

A population can be defined as the whole subjects of the research. Setiyadi (2006: 38) states research population is all individuals are being target in research while research sample is individual who given the data. The population of this research is four classes of the students in the second grade students of SMAN 1 Kotagajah. Because it is impossible to use the whole class as the experimental class, therefore the researcher chose one class as the experimental class. The selection of the research sample used simple random sampling. After using dice to determine the research population, the researcher gets XI IPS 1 as the experimental class and XI IPS 2 class as the tryout class.

3.3 Variables

Hatch and Farhady (1982:12) define a variable as an attribute of a person or of an object which varies from person to person or from object to object. Besides, in order to assess the influence of the treatment in research, variables can be devided as dependent and independent variables. Hatch and Farhady (1982:15) states that the independent variable is the major variable that is expected to investigate and the dependent variable is the variable that the researcher observes and measures to determine the effect of the independent variable. The research consists of the following variables:

1. Students reading achievement as dependent variable (Y)

2. The using Jakarta Post article as independent variable (X)

3.4 Data Collecting Technique

The technique in collecting data of this study was trough administering several test these include administering pretest and posttest. Through these techniques, necessary information about the use of *Jakarta Post* Article is expected to be obtained. The example of pretest and posttest can be seen in *Appendixes 3, 4, 6, and 7*. To know the validity, reliability, discrimination power and difficulty level, the researcher used try out test. The example of try out test can be seen in *Appendixes 1 and 2*. The analysis of those four aspects were used in making the items for pretest and posttest. The next step is comparing means of pretest and posttest to see the significance.

3.5 Research Instrument

The Instrument is a tool used by the writer in the research. In this research, the researcher used test items to get the data about students' reading achievement. The aim of pre test is to know the students' basic reading comprehension achievement before treatment. The purpose or the post test is to know the improvement's result of reading text after giving the treatments. The test was in the form of multiple choice. The source of materials that were used in the test are taken from *Jakarta Post*. Because it based on the previous study the implementation of *Jakarta Post* article can help the students during the teaching learning process. The number of items for pretest and posttest were determined after the researcher analyze the result of try out test. The example can be seen in *Appendix 1 and 2*.

3.6 Research Procedures

The procedures of the research are as follows:

1. Determining Population and Sample

   The population of this research is the second grade of SMAN 1 Kotagajah. The researcher chooses two classes defined as try out class and as the sample class by dice.

2. Arranging the Material to be Thought

   The materials are based on the newspaper of Jakarta Post. Beside that the materials also search from the network. The news item text is chosen as the focus.

3. Administering the Try-Out Test

   It is conducted to measure the validity, reliability, difficulty level and discrimination power of the items that were used in pretest and posttest and to make sure whether the test is good or bad for students. The test is tried out to the students whose level is equal to the sample of the research. In this case, it is chosen XI IPS 2. It is administered to find out the quality of the test before it is used, whether the items are good or not in validity, reliability, level of difficulty, and the discrimination power. This exam use multiple choice test consists of 40 items to be done in 80 minutes. The maximum score is 100.

4. Administering the Pre-Test

   Pretest is the test that is done after the tryout test. After the items in try out test are analyzed, the items were repaired to be used in pretest. The researcher administers the pre test in order to find out the students' basic ability before treatments. The subject of pretest is the experimental class that is XI IPS 1. In

this test, the researcher asks students to do the objective test that consists of thirty items.

5. Conducting Treatments

    Treatments were the application of the media that was used by the researcher in the class. Treatments were done after conducting pretest. It is done in order the researcher can compare the result before and after conducting the treatments. In this case the treatments conducted in five meetings. It required sixty minutes for each meeting. In each treatment, there are different sub topics that were presented.

6. Administering the Post Test

    The post test was administered after treatments. This test is used to know whether the treatments could significantly improve students' reading achievement or not. In this test, the students are asked to do the multiple choice test that consisted of thirty items. The items are not different with the items that are used in pretest item, but the researcher just change the number of the questions.

7. Analyzing the Data and Testing Hypothesis

    After scoring students' work, the result of pre test and post test are compared to see whether the score of post test is higher than the pre test.

3.7 Data Analysis

As mentioned earlier, the test is in the form of multiple choice questions. If it is compared with other format, the multiple choice format can be used to assess a greater variety of learning target (Nitko and brookhart,2007:152). In order to get

the improvement of students' achievement, the students' scores are calculated by the ways:

1. In scoring students' result on the test, the researcher use "Arikunto's formula". The highest score would be 100.

   Scoring the pre test and post test

   The formula was:

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

Where:

   S = The score of the test

   R = the total of the right answer

   N = number of items

(Arikunto, 2007)

2. Tabulating the result of the test and finding the mean of pre test and the post test.

   The mean is calculated by the formula:

$$M = \frac{\Sigma x}{N}$$

   Notes:

   M   = (mean) average score

   x = the total students' score

   N = total number of students

(Hatch and Farhady, 1982:55)

3. Drawing conclusion from the tabulated results of the test given, that is by comparing the mean the pre test and the post test. In order to know whether the students get any progress, the formula as follow:

$$I = \bar{X}_2 - \bar{X}_1$$

Notes:

I = the improvement of students' reading achievement.

$\bar{X}_2$ = the average score of post test

$\bar{X}_1$ = the average score of pre test

After getting the means, pre test, and post test, the data are analyzed by using Mathed T-Test to get the significant of the treatment effects. The formula is as follow:

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

in which:

$$S_{\bar{D}} = \frac{SD}{\sqrt{n}}$$

$$SD = \frac{(\sum D^2 / n) - (\bar{D})^2}{n-1}$$

Notes

I = hyphothesis test

$\bar{X}_1$ = mean score of pre test

$\overline{X_1}$ = mean score of post test

$S_{\bar{D}}$ = standard error of differences between two means

SD   = standard deviation

n   = number of students

3.8 Data Treatment

After collecting the data, the data are treated by using following procedures:

3.8.1   Testing the Try Out

This test is used to remove the bad items based on their level of difficulty (LD), discrimination power (DP), the reliability, and validity of the test.

3.8.1.1 Level of Difficulty

Level of difficulty (LD) is used to know how easy of difficult the form of the test item based on the students who take the test. According to Arikunto (1993:209), the test items are good if they are not too easy and not too difficult or in other words, the difficult level is average. The students are divided into two groups that are the upper and the lower group. The researcher takes 50% of the students as the upper group who get the highest score and takes 50% of the students as the lower group who get the lowest score.

The formula of the difficulty level is as follow:

$$LD = \frac{U+L}{N}$$

Notes:

LD   = level of difficulty

U   = the number of upper group students who answer correctly

L   = the number of lower group students who answer correctly

N   = the total number of students who take the test

The criteria are as follow:

<0.30 : difficult

0.30 – 0.70   : average

>0.70   : easy

(Shohamy, 1985:79)

3.8.1.2 Discrimination Power

Discrimination power is the ability of the item to differentiate between the students who have high ability and those who have low ability. To determine the discrimination power, the following formula is required:

$$DP = \frac{Upper - Lower}{^1/_2 N}$$

Where:

DP   : discrimination power

Upper : proportion of "high group" students getting the item correct

Lower : proportion of "low group" students getting the item correct

N   : the total number of students

(Shohamy, 1985:82)

The criteria are:

0.00 – 0.20   = poor

0.21 – 0.40   = satisfactory

0.04 – 0.70   = good

0.71 – 1.00   = excellent

Negative   = bad items (must be omitted)

(Heaton, 1975:182)

3.8.1.3 Validity

A test is considered valid if the test measures the object to be measured and suitable with the criteria (Hatch and Farhady, (1982:250). Heaton (1988:159) also states that validity of the test is the extent to which it measures what it is supposed to measure. A test must aim to provide true measure of the particular skill which it is measure.

There are four types of validity, they are: (1) face validity, this validity concerns with point of view someone about the lay out of the test; (2) content validity, this validity concerns to the items in which the items reflect to the material being measured. (3) construct validity; this validity measures certain specific characteristic which essential to the theory in language learning. (4) criterion-related validity, concerns with measuring the success in the future, as in replacement test.

Based on the types of validity above, content is used because the other are considered to be less needed. This validity is explained as follow:

a. Content validity

This kind of validity depend on a careful analysis of the language being tested and of the particular course objectives. The test must be so constructed to contain a representative sample of the course, the relationship between the test items and the course objectives always being apparent (Heaton, 1988:160). To get the content validity of reading comprehension, the materials were arranged based on the standard competence in syllabus for second grade of senior high school students in second semester that is students are able to construct meaning of news item texts to communicate with surroundings and the

objectives of teaching those are the students are able to find out the main ideas, identify the specific details or information, infer the information, reveal the meaning of the words and determine the reference of words stated in the text. Moreover, the writer also made a table of specification in order to judge whether the content validity already good or not.

Table 1. Specification that is used to judge the content validity of the reading comprehension test concerning the news item text.

No	Reading Skills	Items Number	Percentage of Item
1.	Determining main idea	1, 11, 20, 25, 29, 34, 36, 39	20%
2.	Finding supporting details	3, 8, 16, 21, 22, 26, 32, 37	20%
3.	Finding inference meaning	4, 6, 7, 15, 18, 24, 31, 38	20%
4.	Understanding vocabulary	2, 8, 9, 12, 19, 28, 30, 35	20%
5.	Finding reference	5, 10, 13, 17, 23, 27, 33, 40	20%
Total		**items**	**100%**

In judging the content validity of the test, the items of the test were discussed with the researcher's partners and the English teacher of SMAN 1 Kotagajah. The test items which included into good validity should be arranged based on the standard competence in syllabus for second grade of senior high school students in second semester that is students are able to construct meaning of news item texts to communicate with surroundings and the objectives of teaching those are the students are able to find out the main ideas, identify the specific details or information, infer the information, reveal the meaning of the words and determine the reference of words stated in the text. All test items which had good validity were used to collect the data for this research and the bad one should be revised.

3.8.1.4 Reliability

Reliability refers to the extent to which the test is consistent in its score and gives us an indication of how accurate the test score are (Hatch and Farhady, 1982:244). The test is determined by using Pearson Product Moment which measured the correlation coefficient of the reliability between odd and even number (reliability of half test) in the following formula:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

where:

r_{xy} : coefficient of reliability between odd and even numbers items

x : odd number

y : even number

x^2 : total score of odd number items

y^2 : total score of even number items

xy : total score of odd and even number

After getting the reliability of half test, Spearman Brown is employed to determine the reliability of the whole tests, as follows:

$$r_k = \frac{2\,r_{xy}}{1+\,r_{xy}}$$

where:

r_k : the reliability of the whole tests

r_{xy} : the reliability of half test

(Hatch and Farhady, 1982:247)

The criteria of reliability are as follows:

0.90 – 1.00   = high

0.50 – 0.89   = moderate

0.0 – 0.49   = low

3.8.2   Normality Test

The normality test is a test that is used to know whether the data is in normal distributed or not. It is counted by using SPSS. After knowing the data is normal distributed or not, it can be continue by determining the testing procedure whether parametric or non parametric. To run normality test, the steps are as follows:

Entering the data   analyze   Descriptive Statistics   Explore.

To see the normality, it can be seen in three ways; variants coefficient, Skewness ratio, and Kurtosis Ratio.

3.8.2.1   Variants Coefficient

The data is called as normal distribution data if the variants coefficient < 30 %. This value should be counted second with this formula:

Variants Coefficient = $\underline{\text{Std Deviation}}$ x 100 %

                          Mean

3.8.2.2   Skewness Ratio

The data is called as normal distribution data if the Skewness ratio was in the range of -2 until 2. The formula to count this is as follows :

Skewness ratio = $\underline{\text{Skewness}}$

                   Skewness Std.error

3.8.2.3   Kurtosis Ratio

It is almost the same as Skewness Ratio. The data called as normal distribution data if the range was between -2 and 2. The formula is:

Skewness ratio =   Kurtosis

                            Kurtosis Std.error

3.9 Hypothesis Test

This test is used to test whether the hypothesis propose by the writer accepted or not. To test the hypothesis, the researcher used SPSS. The steps are as follows:

Entering the data   →   Analyze   →   Compare means   →   Paired samples T-test.

The writer's hypotheses are:

Ho: There is no significant improvement in students' reading achievement before and after being taught by using Jakarta Post article.

H_1:   There is any significant improvement in students' reading achievement before and after being taught by using Jakarta Post article.

While the criteria of the test are:

If the significant > 0.05, Ho is accepted, but if the significant < 0.05, Ho is refused.

3.10   Research Schedule

This research is conducted based on sequenced schedule in order to make this research run well. The pre observation is conducted to investigates the students reading achievement and whether the students reading authentic texts has exceeded minimum completeness criteria of English subject in SMAN 1

Kotagajah. Then, Administering try out, administering pre test, conducting first treatment, conducting second treatment, conducting third treatment, administering post test.

Table 2. Research Schedule in Conducting Research at SMAN 1 Kotagajah

No	Day/Date	Activites	Place
2	17/04/2014	Administering try out	XI IPS 2
3	23/04/2014	Administering pre test	XI IPS 1
4	24/04/2014	Conducting first treatment	XI IPS 1
5	30/04/2014	Conducting second treatment	XI IPS 1
6	07/05/2014	Conducting third treatment	XI IPS 1
7	08/05/2014	Administering post test	XI IPS 1