

### III. RESEARCH METHODS

This chapter provides research design, population and sample, variables, data collecting technique, research procedures, research instruments, data analysis and hypothesis testing.

#### 3.1. Research Design

This research was intended to find out there was a significant increase of students' reading comprehension aspects after they were taught by using the EXCLUSIVE learning model. This research was a quantitative research based on the experimental class. It could be found by using the pretest before the treatment and the posttest after the treatment. This research was a quantitative study which used *control group pretest-posttest design*. The two classes were selected, in this case, one class was the control class and the other one was the experimental class. The research design was as follow referring to Setiyadi (2006 :143) :

G1 (random) T1 X T2

G2 (random) T1 O T2

Where:

G1 : The Experimental class

G2 : The Control class

T1 : The Pretest

T2 : The Posttest

O : No treatment

X : Treatment using the EXCLUSIVE learning model

Control class was used to control the students' progress in the experimental class, whether the progress was affected by the treatment or not. In the control class, the pretest and the posttest were administered. In the experimental class, the EXCLUSIVE learning model was given as the treatment; both of the classes had the same pretest and the posttest. There were three times of treatment. In this case, the reading texts were taught through the EXCLUSIVE learning model using the different text in every meeting or every lesson plan. The pretest was done to find out the prior students' reading comprehension before being taught by using the EXCLUSIVE learning model. Then, the posttest was done to find out the students' reading comprehension after being taught by using the EXCLUSIVE learning model. Finally, the results of the pretest and the posttest were compared to get the result.

### **3.2. Population and Sample**

The population of the research was the students of the first grade of SMA Negeri 2 Metro which consist of eight classes. The class was chosen by using simple random sampling technique by using lottery so that all of the first grade classes got the same chance to be sample in order to avoid subjectivity and to guarantee every class had the same opportunity. Among them, two classes were taken randomly. The material that had been applied was based on the curriculum.

### **3.3. Variables**

There were two variables that had been used in this research. They were the EXCLUSIVE learning model and reading comprehension in text.

### **3.4. Data Collecting Technique**

Data collecting technique was the way to get the data for the research. The data were collected to find out the significant increase of students' reading comprehension aspects of text through the EXCLUSIVE learning model. In collecting the data the pretest, treatment and the posttest were administered. The following activities were used as follow:

#### **1. Pretest**

The pretest was conducted before the treatment, the EXCLUSIVE learning model. The pretest was conducted as an objective test in multiple choices form. The pretest consists of 20 items with the option A, B, C and D. The materials that had been tested were reading test. This pretest was given to know how far the competence of the students' in reading comprehension aspects before the treatment and also the mean score of students' reading comprehension.

#### **2. Treatment**

The students in the experimental class were given the treatment after having the pretest. The treatment was teaching learning in reading comprehension aspects of the text through the EXCLUSIVE learning model. In the experimental class the students were taught with the material based on curriculum which implemented in that senior high school.

### 3. Posttest

The posttest was conducted after the students taught by using the treatment in teaching reading comprehension aspects. The test was multiple choice forms consisting of 20 items with the option A, B, C and D. The posttest was conducted to find out there was a significant increase of students' reading comprehension aspects after they were taught by using the EXCLUSIVE learning model. The posttest was conducted after three meetings of treatments. The result of the posttest was to know whether the EXCLUSIVE learning model was more effective or not to increase the students' reading comprehension aspects.

### **3.5. Research Procedures**

In constructing the research, the research procedures used these following steps:

#### 1. Determining the research problems

The problem of this research was intended to investigate whether there was a significant increase of students' reading comprehension aspects after they were taught by using the EXCLUSIVE learning model.

#### 2. Determining the research design

The research was conducted using the control group pretest-posttest design.

#### 3. Determining the population and sample of the research

The population of this research was the first grade students of SMA Negeri 2 Metro, class X PMS 1 and class X PMS 3 were taken as a subject of this research.

#### 4. Administering the tryout

Tryout test had been conducted in multiple choices tests and consist of 25 items with the options A, B, C or D. The tryout was administered to measure the level of difficulty (LD) and the discrimination power (DP) to find out the reliability and the validity of the test. The tryout was conducted for 45 minutes.

5. Preparing the material

The materials were taken based on the English book of the first grade student and from the internet that available with the material.

6. Administering the pretest

The pretest was administered before the treatment, to monitor the students' base reading comprehension aspects in the text. The pretest was conducted in the form of multiple choices. The pretest was conducted from the result of tryout test by preparing what materials that had been given and how many items before the treatment. The total items for the pretest were 20 items and it was conducted for 45 minutes.

7. Giving the treatment

After having the pretest, the students had been given three times of treatments. The treatment was teaching learning reading comprehension aspects through the EXCLUSIVE learning model. There were three different topics in each meeting.

8. Administering the posttest

The posttest was administered to the students after finished the treatment. There were 20 items in multiple choices questions. The aim of the posttest

was to know the students' progress after being given treatments using the EXCLUSIVE learning model. The posttest was conducted for 45 minutes.

#### 9. Analyzing the data

After conducting the pretest and the posttest, the data were analyzed by using *Independent Group T-test*. It was used to know whether there was a significant increase from the students' reading comprehension aspects (main idea, specific information, reference, inference and vocabulary) after they were taught by the EXCLUSIVE learning model. It had been computed through SPSS.

### **3.6. Research Instruments**

The instrument of this research was objective reading test of the text that was used for the tryout, the pretest and the posttest. Those tests were in multiple choices forms that consist of four options. There were 25 items in multiple choices items for the tryout and 20 items for the pretest and the posttest consisting of text that had been tested to the students.

#### **3.6.1. Validity**

Validity is defined as the extent to which inferences and uses made on the basis scores from an instrument are reasonable and appropriate (Mc Milan and Schumacher, 2001: 181). Validity indicates how deep the instrument can measure the target of research. An instrument is valid when it capable to provide the output accord with the need of data. This research instruments had been analyzed based on content and construct validity.

a. Content validity

Content validity was used to analyze the reading test that had been applied to measure the students' reading comprehension aspects. According to Setiyadi (2006: 23) to fulfill this type of validity this research should be aware of all the indicators of the test items and analyze whether the instrument have represented the material which will be measured.

**Table 1. Table of Specification**

No.	Skill of Reading	Item Numbers	Percentage of Items
1.	Finding the main idea	1, 6, 11, 18, 21.	20%
2.	Specific information	4, 8, 14, 17, 23.	20%
3.	Inference	5, 7, 12, 16, 22.	20%
4.	Reference	2, 10, 13, 19, 24.	20%
5.	Vocabulary	3, 9, 15, 20, 25.	20%

b. Construct validity

Construct validity was about the instrument form. It investigated the research instrument appropriateness to the research object. To achieve the construct validity, the test had been adopted from the students' hand book based on the curriculum of senior high school. Then, the test was determined according to the material that had been taught to the students.

**3.6.2. Reliability**

Reliability of the test can be defined as the extent to which a test produces consistent result when administrated under similar conditions (Hatch and Farhady, 1982:243). To determine the reliability of the test, this research used split-half method since the formula was simple to use since 1) it avoid troublesome

correlations and 2) in addition to the number of item in the test, mean and standard deviation, both of which are normally calculated anyhow as matter of routine (Heaton, 1991: 164). To use the split-half method, the items were classified into two parts, odd and even numbered. To measure the coefficient of the reliability between odd and even group (reliability of half test), this research was used *Pearson Product Moment* in following formula:

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

Where:

$r_{xy}$  : the correlation coefficient of reliability between odd and even

$N$  : the number of students who take part in the test

$x$  : the total numbers of odd number items

$y$  : the total numbers of even number items

$x^2$  : the square of  $x$

$y^2$  : the square of  $y$

$\sum x$  : the total score of odd number items

$\sum y$  : the total score of even number items

(Henning, 1987: 60)

Then, the Spearman Brown's Prophecy formula (Hatch and Farhady, 1982: 246)

was used to know the coefficient correlation of whole items as follows:

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

Where:

$r_k$  : the reliability of the test

$r_{xy}$  : the reliability of half test

the criteria of reliability are:

0.90-1.00 : high

0.50-0.89 : moderate

0,0-0.49 : low

### 3.6.3. Level of Difficulty

Level of difficulty gave the description of the students' perception about the test items. The items should not be too easy and also not be too difficult for the students as research object. To find out the level of difficulty of the test items, this research used formula below:

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

Where:

LD: Level of difficulty

U: The number upper group students who are answer correctly

L: The number lower group students who are 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, 1985:79)

### 3.6.4. Discrimination Power

The discrimination power refers to the extent to which the item differentiates between high and low level students on the test. A good item according to the criteria was one which good students would do well and bad students would fail.

To know the discrimination power of the test, the formula was used as follows:

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

Where:

DP: Discrimination power

U: The proportion of upper group students

L: The proportion of lower group students

N: Total number of the students

(Shohamy, 1985: 81)

### 3.6.5. Scoring System

In scoring the students' result of the test, Henning's formula was used in this research. The ideal higher score is 100. The score of the pretest and the posttest were calculated by using this formula:

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

Where:

S: The score of the test

R: The total of right answer

N: The total items

(Henning, 1987: 17)

### **3.7. Data Analysis**

The purpose of analysis was to determine the students' progress in attempt to master reading comprehension aspects. The data were analyzed statistically using Independent groups T-test because the research took two classes, one for the experimental class and another class for the control class. In order to analyze how the significant the increasing of the students' reading comprehension through the EXCLUSIVE learning model, this research used the following procedures:

1. Scoring the pretest and the posttest.
2. Tabulating the result of the test and calculating the mean of the pretest and the posttest.
3. Drawing a conclusion from the tabulated results of the pretest and the posttest, then analyzing by using SPSS (Statistical Program for Social Sciences) to the test. How the significant the difference between the score of the pretest and the posttest, will be determined by  $p=0.05$  (Hatch and Farhady, 1982: 114).

In order to know whether there was an increase of students' reading comprehension aspects after being taught through the EXCLUSIVE learning model, the result of the pretest and the result of the posttest were compared. If the result of the posttest was higher than the pretest, it means that the EXCLUSIVE learning model could be used to increase students' reading comprehension aspects.

### 3.8. Hypothesis Testing

After collecting the data, the result were analyzed in order to find out whether there was a significant increase of students' reading comprehension aspects after being taught through the EXCLUSIVE learning model at SMAN 2 Metro. The Independent Group T-test was used to know the significance of the treatments effect. The hypotheses of this research were:

$H_0$  : There is no significant difference of students' reading comprehension aspects after being taught through the EXCLUSIVE learning model at SMAN 2 Metro

$H_1$  : There is significant difference of students' reading comprehension aspects after being taught through the EXCLUSIVE learning model at SMAN 2 Metro

#### Research Schedule

No.	Day	Date	Activity	Class
1	Friday	March 7th, 2014	Observation	
2	Tuesday	March 11th, 2014	Try Out	X PMS 4
3	Thursday	March 13th, 2014	Pretest (Control)	X PMS 3
4	Friday	March 14th, 2014	Pretest (Experimental)	X PMS 1
5	Friday	March 28th, 2014	Treatment 1	X PMS 1
6	Friday	April 11th, 2014	Treatment 2	X PMS 1
7	Thursday	April 24th, 2014	Posttest (Control)	X PMS 3
8	Friday	April 25th, 2014	Treatment 3	X PMS 1
9	Thursday	May 2nd, 2014	Posttest (Experimental)	X PMS 1

In analyzed Chapter Three, theoretically this chapter explained about 1) the research design 2) population and sample 3) variables 4) data collecting technique 5) research procedures 6) research instruments 7) data analysis and 8) hypothesis testing.