

## CHAPTER III

### METHODS OF RESEARCH

In this research, the writer talks about things which are related to the research methods. They are research design, research setting, subject of the research, variable and indicator of study, method of data collection, instrument of the study, method of data analysis and research procedure.

#### **A. Research Design**

In this research, the writer wants to find out the effectiveness of Oral Cue Technique. So the writer uses method that is called experimental. That experimental is used to find out the effect of treatment. The approach used in this research is quantitative. It is quantitative because it emphasizes the used of number from collecting data, interpreting data and presenting data.<sup>1</sup>

An experimental study typically involves two groups: an experimental group and control group with receives different treatment. This study uses design pre test-post test.

The design of the experimental study can described as follow:

E	0 <sub>1</sub>	X	0 <sub>2</sub>
C	0 <sub>3</sub>	X	0 <sub>4</sub>

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<sup>1</sup> Suharsimi Arikunto, *Prosedur Penelitian : Suatu Pendekatan Praktik*, (Jakarta:PT.Rineka Cipta, 2006) 6<sup>th</sup> Ed., p.12.

Where:

E : Experimental group

C : Control group

$O_1$  : Pre-test for the experimental group

$O_2$  : Post-test for the experimental group

$O_3$  : Pre-test for the control group

$O_4$  : Post-test for the control group

X : Treatment <sup>2</sup>

In design above, subject were grouped into an experimental group (top line) and control group (bottom line). Their language proficiency of the subject was first checked by pre-testing them ( $O_1$  and  $O_3$ ). Then the treatment taught by Oral Cue Technique was applied to the experimental group, while the control group did not teach by Oral Cue Technique. The test type was completion. The result of which ( $O_2$  and  $O_4$ ) were then computed statistically.

## **B. Research Setting**

The research took place in SMP Islam Walisongo Kedungwuni Pekalongan, where located on Jl. Raya Kedungwuni. This school was purposively selected as the research setting because of two major reasons. Firstly, this school may be called good school because of some achievements. Some achievements

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<sup>2</sup> Suharsimi Arikunto, *Prosedur Penelitian : Suatu Pendekatan Praktik*, (Jakarta:PT.Rineka Cipta, 2006) 6<sup>th</sup> Ed., p.86.

that the school gained are mostly in the English competitions like speech contest etc. Unfortunately, the achievements are partially achieved only by few students who are active in extracurricular of English. However, the other students have low speaking skills because the school only focused on the structure or grammar and reading in giving English instruction in the classroom by consideration that speaking is not part of the national examination whereas the main skills in learning English should be communication competence such as speaking. Secondly, students have good proficiency in grammar rules but when they are asked to implement their grammar proficiency in speaking they still find difficulty. Therefore, the researcher intended to conduct research by employing grammar as means to pursue speaking skill. In other words, the researcher attempted to implement grammar rule in speaking skill.

### **C. Subject of the Research (Population, Sample and Sampling Technique )**

#### **1. Population**

Population is all research subject<sup>3</sup> . Based on the definition above, the writer took the eighth grade students of SMP Islam Walisongo Kedungwuni Pekalongan in academic year 2013/2014 as population of the research, which consists

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<sup>3</sup> Suharsimi Arikunto, *Prosedur Penelitian : Suatu Pendekatan Praktik*, (Jakarta:PT.Rineka Cipta, 2006) 6<sup>th</sup> Ed., p.130.

of 173 students. They were divided into two groups, namely experimental group and control group based on their class. Each class consists of 35 students.

## 2. Sample and Technique Sampling

Sample is some of chosen population using certain procedure so that can be expected to represent its population. Sampling is the process done to choose and take sample correctly from population so that it can be used as valid representative to the population.<sup>4</sup> In this research, the researcher took the subject of research randomly. In it, the subjects were regarded that each of them has the equal chance to be chosen as the sample.<sup>5</sup> The sample might be categorized in paired sample because there are experimental and control group that are compared. Two classes were chosen randomly, in which the each class consists of 35 students. Class VIII C was chosen as the experimental group which was taught by means of Oral Cue Technique while class VIII B was chosen as the control group which was taught by means of non-Oral Cue technique. The researcher's consideration on choosing the samples was based on the cognitive structure of the students in each class. At this school, the students were distributed thoroughly into their classes without regarding

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<sup>4</sup> Sugiarto, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2<sup>nd</sup> Ed, p.4.

<sup>5</sup> Sugiarto, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2<sup>nd</sup> Ed, p.46.

their cognitive competence. So, every class had the same right to be the sample of the research. In addition, there was a pre-test to ensure that students' competences of both classes are equal.

#### **D. Variable and Indicator of Study**

Variable refers to the object of research that becomes research focus. There are two variables in this research.

##### 1. Independent Variable

It refers to the teaching learning method that is Oral Cue Technique. Its indicators are as follows:

###### a. Instruction: Information on how to do something.<sup>6</sup>

Example:

Give the correct response for this question. I will read the question once then give the cue whether you have to give positive or negative response.

###### b. Model: Small scale copy of something.<sup>7</sup>

Example:

Question : Did you bring a dictionary?

Cue : Negative Response

Response : No, I did not bring a dictionary

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<sup>6</sup> *Oxford Learner's Pocket Dictionary*, (China: Oxford University Press, 2008) p.231.

<sup>7</sup> *Oxford Learner's Pocket Dictionary*, (China: Oxford University Press, 2008) p.283.

- c. Cue: Action or event that is a signal for somebody to do something.<sup>8</sup>

Example : Positive or negative cues.

## 2. Dependent Variable

It refers to the achievement of the students. The indicators can be seen in every phase in teaching learning process using Oral Cue Technique.

- a. Modifying sentence types based on the cues accurately.
- b. Using past verb (V2) in answering question based on oral cue correctly

## **E. Data Collection Technique**

To get the accurate data in this study, the researcher selects the instruments that will be appropriate for the problem statement, there are:

### 1. Test

Test as instrument can be used to measure skill and intelligence knowledge.<sup>9</sup> This research obtained from the students score of pre-test and post-test.

#### a. Pre Test

Before the teacher teaches new material by using oral cues technique, the teacher gave a test to the students.

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<sup>8</sup> *Oxford Learner's Pocket Dictionary*,( China: Oxford University Press, 2008,) p.108.

<sup>9</sup> Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), p.223.

Pre-test would be given to the experimental group and control group with same test.

b. Post Test

To get the data, the writer gave a post-test to experimental group and control group in order to know the ability of the students after they were taught by using oral cues technique and the students who were taught without oral cues technique as method to facilitate students understanding on oral use of simple past tense. Finally the scored obtained from the post-test would be analyzed.

2. Instrument Test

An instrument plays an important role in a research in the sense that the reliability of the instrument influenced the reliability of data obtained. Before the collecting the data the writer made instruments such as pre-test and post-test. In this thesis the writer in concerned with simple past tense mastery of second grade student of SMP Islam Walisongo Kedungwuni Pekalongan. Essay tests are chosen as the type of the test. The test consists of 25 items.

Measurement is said well if it has good validity, reliability, degree of test difficult and degree of question distinctive.

a. Validity

According to Arikunto, a test will be called to be valid if there is sufficient evidence that test score correlated fairly highly with actual ability in the skill being tested, and then we may feel reasonably safe in assuming that the test is valid for our purpose. The writer corrects all of the items to know whether each of them valid or not. Is measurement that shows the validity of the instrument?. It is counted using product moment formula.<sup>10</sup>

$$r_{xy} = \frac{N\sum_{xy} - \sum_x - \sum_y}{\sqrt{\{N\sum x^2 - (\sum x)^2\} \{N\sum y^2 - (\sum y)^2\}}}$$

Notice:

$R_{xy}$ : question correlation coefficient

N : number of students

X : number of each item score

Y : number of total score

Calculation result of  $r_{xy}$  is compared with r table of product moment by 5% degree of significance. If  $r_{xy}$  is higher than r table, the item of question is valid.

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<sup>10</sup> Suharsimi Arikunto, Dasar-dasar Evaluasi Pendidikan ,(Jakarta:PT Bumi Aksara, 2002), p.65.

## b. Reliability

It means can be believed. Besides having high validity, a good test should have high reliability too. Alpha formula is used to know reliability of test.<sup>11</sup>

$$r_{11} = \frac{k}{k-1} \cdot \frac{S - \sum pq}{S}$$

Where:

$R_{11}$  : the reliability coefficient of items

$K$  : the number of item in the test

$P$  : the proportion of students who give the right answer

$Q$  : the proportion of students who give the wrong answer

$S_2$  : the standard of deviation of the test

Calculation result of  $r_{11}$  is compared with  $r$  table of product moment by 5% degree of significance. If  $r_{11}$  is higher than  $r$  table, the item of question is reliable.

## c. Degree of Test Difficulty

A good question is a question that not really difficult and not really easy. Formula for degree of test difficulty is:<sup>12</sup>

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<sup>11</sup> Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT. Bumi Aksara, 2002), p. 170.

<sup>12</sup> Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT. Bumi Aksara, 2002), p. 208.

$$P = \frac{B}{JS}$$

Notice:

P : difficulty's index

B : number of students who answer the items correctly

JS : number of students

The criteria are:

P = 0,00                    too difficult question

0,00 < P ≤ 0,30        difficult question

0,30 < P ≤ 0,70        average question

0,70 < P ≤ 1,00        easy question

P = 1                      too easy question

d. The Discriminating Power of the Item

The discriminating power is used to measure the effectiveness of test items. It is used to know how accurate the question to differ higher subject and lower subject

Formula for Discriminating power is

$$D = \frac{BA}{JA} - \frac{BB}{JB}$$

Where:

D = discrimination index

JA = member of student in upper group

JB = member of student in lower group

BA = member of student in upper group who answers the items correctly

BB = member of student in lower group who answers the items correctly

The criteria are

$D < 0.2$  is poor

$0.2 < D \leq 0.4$  is fair

$0.4 < D \leq 0.7$  is good

$0.7 < D \leq 1.5$  very good

### 3. Observation

It refers to the activity of giving total concern to research object by the sense. In this research, the concern of research was focused on the students' observable behavior pertaining to their understanding on English simple past tense. The instrument used in this research is observation check list.

## **F. Data Analysis Technique**

### 1. Prerequisite Test

Before testing the hypothesis that is to compare the difference of students' academic achievement using t-test formula, there is a prerequisite test to know the legality of the sample. Here, the normality and homogeneity test are employed.

a. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not.

Chi square is used here<sup>13</sup>

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Notice:

$\chi^2$  : Chi square

$O_i$  : Frequency from observation

$E_i$  : expected frequency

Calculation result of  $\chi^2$  is compared with x table by 5% degree of significance. If  $\chi^2$  is lower than x table so the distribution list is normal.

b. Homogeneity Test

Is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:<sup>14</sup>

$$F = \frac{Vb}{Vk}$$

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<sup>13</sup> Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

<sup>14</sup> Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p.250.

Notice:

Vb : bigger varian

Vk : smaller varian

The hypotheses in homogeneity test are:  $\sigma_1^2 = \sigma_2^2$

Ho : homogeny variant:  $\sigma_1^2 = \sigma_2^2$

Ha : non homogeny variant:  $\sigma_1^2 \neq \sigma_2^2$

If calculation result of F is lower than F table by 5% degree of significance so Ho is accepted, it means both groups have same varian.

c. Test of the Average

Is used to examine average whether experimental and control group that has been decided having significant different average from the mark grammar in previous time before the treatment. (has same varian), the formula is:<sup>15</sup>

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

$\overline{X}_1$  : average of experimental group

$\overline{X}_2$  : Average of control group

N1 : number of experimental group

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<sup>15</sup> Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p.239.

$N_2$  : number of control group

$S_1^2$  : Deviation Standard of experimental group

$S_2^2$  : Deviation Standard of both groups

If  $\sigma_1^2 \neq \sigma_2^2$  (has no some variant), the formula is:

$$t^1 = \frac{\overline{X} - \overline{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_1^2}{n_2}}}$$

The hypotheses are:

$H_0: \mu_1 = \mu_2$

$H_a: \mu_1 > \mu_2$

$\mu_1$  : Average data of experimental group

$\mu_2$  : Average data of control group

$H_0$  is accepted if calculation result of  $t$  is lower than  $t_1 - \alpha$ . Degree of freedom for data  $t$  is  $(n_1 + n_2 - 2)$  with probability  $1 - \alpha$ . IF  $H_0$  is refused and  $H_a$  is accepted, so the average of first group is better than the second one.

## 2. Test of Research Result

To examine the hypothesis that has been stated, these following steps are used.

### a. Normality Test

The steps are same with the steps on data analysis technique.

b. Homogeneity Test

The steps are same with the steps on data analysis technique.

c. Hypothesis Test

Proposed hypothetical test in average similarity with the right test is as follows:

$$H_0 = \mu_1 = \mu_2$$

$$H_a = \mu_1 > \mu_2$$

$\mu_1$ : average data from experimental group

$\mu_2$ : average data from control group

The t-test formula is used

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

with,

$$S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

where:

$\overline{X}_1$  : Average of experimental group

$\overline{X}_2$  : Average of control group

N1 : number of experimental group

N2 : number of control group

$S_1^2$  : Deviation Standard of experimental group

$S_2^2$  : Deviation Standard of both groups

Testing criteria that applied  $H_0$  is accepted if  $t_{\text{count}} > t_{\text{table}}$  with determinate  $df = (n_1 + n_2 - 2)$  and the significant  $\alpha = 5\%(1 - \alpha)$

d. Interpret the Observation Data

The result of observation focusing on the students' observable behavior that might indicate the students' understanding on English simple past tense during the experiment was interpreted to give further information in support to the test of measurement result.

## G. Research Procedure

In collecting data, the researcher needs six weeks and some steps as follows:

1. 1<sup>st</sup> week, asks permission to the headmaster of the school.
2. 2<sup>nd</sup> week, the writer asks permission and meets to the English teacher.
3. 3<sup>rd</sup> week, the writer gives pre test for control and experimental class.
4. 4<sup>th</sup> week, the writer teaches control and experimental class
5. 5<sup>th</sup> week, the writer gives post test for both control and experimental class.
6. 6<sup>th</sup> week, the writer calculates the data. The procedure of the collecting data could be seen in the following table.

The sequences of administration of the data collection as follows:

No.	Task	What to prepare	Date
1.	Preliminary visit (meet the administration officer)	-	Monday, 2 <sup>nd</sup> September 2013
2.	Contact the headmaster	Research permission letter	Thursday, 5 <sup>th</sup> September 2013
3.	Contact the English teacher to ask data of data of students' as participants	-	Friday, 6 <sup>th</sup> March 2013
4.	Give pre-test	Pre-test worksheet	Saturday, 12 September 2013
5.	Give treatment	Lesson plan, handbook, worksheets, and observation checklist.	1. Sunday, 13 September 2013 2. Saturday, 19 September 2013 3. Sunday, 20 September 2013
6.	Give post-test	Post-test worksheet, and recorder	Saturday, 26 September 2013

1. Preliminary Visit

The researcher visited the school to get information about the students and teacher as participants. To gain the information, the researcher asked the administration officer whether the school possibly became the setting of research or not by describing the researcher's intention and asked for information about setting and participants.

2. Contact the Headmaster

Having got the information about setting and participant, the researcher did the second visit to meet the headmaster of the school by giving the permission letter.

3. Contact the English Teacher

After receiving research permission from the headmaster of the school, the researcher met the English teacher and asked for the data of students and negotiated what the class should become the participants that were the control and experimental group.

4. Give Pre-test

In this session, the researcher gave the pre-test of English Simple Past Tense. Both experimental and control group were given this kind of test. This test was to ensure that both two groups were the same in grammar proficiency. In addition, the results or score of the test were used to determine the students' groups.

5. Give the Treatment

In this session, the experimental group was given the treatment and taught by researcher as the experimenter by means of Oral Cue technique while the control group was taught by the same teacher and material but was different in teaching method that was by means of non- Oral Cue technique. The students received the treatment three times in which the three different items of English simple past tense. During the treatment, the observation was also conducted.

6. Give Post-test

Having administered the treatment for three times, the post-test was given to both groups to test their understanding on English Simple Past Tense.