

### III RESEARCH METHODS

This chapter presents research design, variables, population and sample, data, research procedure, instruments of the research which tells about listening comprehension test, scoring the students' work, validity, reliability, index of difficulty and discrimination power, procedures of collecting data, and the hypothesis of the research. All of the subtopics describe about the methods that are used in this research.

#### 3.1. Research Design

This research was a quantitative study which used true experimental design. This research was conducted based on *pretest-posttest control group design*. The writer took two classes; the first as experimental class, which received the treatment of dictation technique and the second as control class, which was taught through regular teaching learning activity by the classroom teacher. The presence of the control class was only to ensure that the increase of the posttest related directly to the application of the treatment. In this research, the writer was interested in investigating whether there is a significant increase of students' listening comprehension achievement after being taught using dictation technique.

The writer conducted pretest, treatments and posttest. The design is presented as follows:

G1 (random)	T1	X	T2
G2 (random)	T1		T2

Note:

- G1 is the experimental class which received the treatment of dictation technique.
- T1 is pretest which was given to see the students' basic ability.
- X is treatment which was given after pretest. The treatment was teaching listening through dictation technique.
- T2 is posttest which was given after the treatment to see the result after applying the treatment.
- G2 is the control class which was taught regular teaching learning activity by the classroom teacher.

(Hatch and Farhady, 1982:22)

In this research, the writer administered a try out test. Then the writer administered a pretest to investigate students' ability in listening comprehension before conducting the teaching. After that, the writer gave the students three times treatments by using dictation technique. Eventually, the writer conducted the posttest to know the students' listening comprehension achievement after being taught using dictation technique.

### 3.2. Variables

This research contains the following variables:

1. Independent variable, dictation technique
2. Dependent variable, students' achievement on listening comprehension test.

### **3.3. Population and Sample**

The population of this research was all classes at the eighth grade of SMP Negeri 8 Bandar Lampung. There are seven classes of eighth grade students. Each class consists of 36-38 students. The writer selected the sample by using random sampling technique through lottery drawing with the assumption that the second year classes of SMP Negeri 8 Bandar Lampung have the same characters and level of English Proficiency. The writer took two classes; the first was VIII F as the experimental class and the other was VIII A as the control class.

### **3.4. Data**

The writer aimed to gain the data of students' listening comprehension achievement before the treatment (pretest) and after the treatment (posttest) to see whether there is significant increase of students' listening comprehension achievement after being taught using dictation technique.

### **3.5. Research Procedure**

The procedures of the research were as follow:

1. Determining the population and sample

The population of this research is the eighth grade of SMPN 8 Bandar Lampung. There are 7 classes of the eighth grade of SMP Negeri 8 Bandar

Lampung. Each class consists of 36-38 students. The writer took two classes as the sample of the research, one class as the experimental class (VIII F) and another one as control class (VIII A). The writer selected randomly in determining the experimental class and control class through lottery.

## 2. Selecting the materials

The materials that were used in this research were taken from the students' handbook and based on the teaching and learning syllabus. The materials were part of the integrated ones taught in normal classes, which were based on the School-Based Curriculum 2006 (KTSP). Therefore they were still in the same themes of the other normal classes.

## 3. Administering try out test

The try out test was carried out after choosing the subjects. The try out was a listening comprehension multiple-choice test. The writer used 30 items of listening comprehension multiple-choice test and was administered for 80 minutes. The aim of try out test was to make sure the quality of the test; they are validity, reliability, level of difficulty and discrimination power of the test which was used as the instrument of the research.

## 4. Administering pretest.

This activity was done before applying the treatment. The test was conducted as the first test for all testiest, and it was a multiple-choice test. The purposes of this test were to know how far their achievement in

listening comprehension, and to know the ability of the class that involved in this research. The pretest was administered before the implementation of dictation technique. After the quality of validity, reliability, level of difficulty and discrimination power of the try out test being analyzed, 25 items was selected as the pretest items.

#### 5. Conducting treatment

In the treatment, which was given three times, the writer applied dictation technique in order to increase students' listening comprehension achievement. The treatment was conducted 2 X 40 minutes per lesson. The materials that were used in the treatment were based on the school's syllabus. They were about *descriptive text*. The theme was taken from electronic book provided for eight grade students of SMP entitled SCAFFOLDING. The theme was *describing things and animals*.

#### 6. Administering posttest

Post-test was administered to find out the development of the students' listening comprehension achievement after having the treatments. The test was the same as in the pretest, but in different order.

#### 7. Analyzing the test result

The data of the research (pre test and post test) were statistically analyzed using SPSS 16.0. The writer used *paired samples T-test* to analyze the data in order to find out if there is a significance increase of students' listening comprehension achievement based on the data.

### 3.6. Instruments of the Research

Instruments that were used in this research are as follows:

#### 1. Listening comprehension test

In this research, the listening comprehension test was a multiple-choice test. The writer did a try out of 30 items of listening comprehension in form of multiple-choice test. Then the try out result was analyzed through its validity, reliability, level of difficulty and discrimination power of the test. From the analysis, there were 25 items that was classified into good items and were used as pretest and posttest items.

#### 2. Scoring the students' work

The writer scored the students' work in order to get data. The writer used the following formula in scoring the test:

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

Note:

S = score of the test

R = right answer

N = number of item test

#### 3. Validity

Validity determines whether the instrument of the research truly measures that which it is intended to measure or how truthful the research results are. Truthful means that the test measures what it purpose to measure. To measure the validity

of the test of the research, the writer analyzed the test from Content validity and Construct validity.

***Content validity*** refers to the good reflection of the material that will be tested. It means that the test should represent the material that has been discussed before. To get the content validity of the test, the writer adopted the test based on the students' handbook and the curriculum used. The writer arranged the test based on the material that has been taught to the students. In this research, only the theme of the material was adopted. The material of the test was arranged based on curriculum of eighth grade of SMP students. The materials for the treatment were about describing things and animals. It means that to get a good content validity, the test should represent those materials or closely to them.

***Construct validity*** examines whether the test is actually in line with the theory of what it means to know the language, whether the test is actually a reflection of what it means to know a language (Shohamy, 1985: 74-75). It is concerned with the theory of testing certain language skill; in this research, listening. The table of specification as follows:

**Table 3. Table of Specification for Construct Validity**

LISTENING PROCESS	LISTENING SKILLS	ITEM NUMBERS		PERCENTAGE
		PRETEST	POSTTEST	
TOP-DOWN PROCESS	1. LISTENING FOR MAIN IDEAS	6, 14, 24	6, 10, 15	12%
	2. MAKING INFERENCES	2, 5, 10, 13, 19, 21, 23, 25	2, 5, 8, 11, 14, 21, 23, 25	32%
BOTTOM-UP PROCESS	3. LISTENING FOR DETAILS			40%
	3.1. LISTENING FOR SPECIFIC INFORMATION	1, 4, 7, 8,9, 11, 12, 15, 16, 18	1, 3, 4, 7, 12, 13, 16, 17, 18, 20	16%
	3.2. UNDERSTANDING PHONOLOGICAL FORM	3, 17, 20, 22	9, 19, 22, 24	
TOTAL		25	25	100 %

#### 4. Reliability

Besides validity, reliability is another essential characteristic of a good test. Reliability is important to know whether or not the test as an instrument for collecting data is consistent or stable. As Brown (1988: 98) states “reliability of a test is defined as the extent to which the result can be considered consistent or stable,” furthermore Tinambunan notes that “reliability refers to the consistency of test scores. That is, how consistent test scores or other evaluation from one measurement to another.”

To estimate the reliability of the test, the writer used split-half technique which required her to split the test into two similar parts, first half and second half (Hatch and Farhady, 1982: 246). To measure the coefficient of the reliability between first half and second half, the writer used Pearson Product Moment,

which was formulated as follows:

$$r_1 = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Note:

$r_1$  = coefficient reliability between 1<sup>st</sup> half and 2<sup>nd</sup> half groups

$x$  = total number of 1<sup>st</sup> half group

$y$  = total number of 2<sup>nd</sup> half group

$x^2$  = square of  $x$

$y^2$  = square of  $y$

(Lado: 1961 in Hughes, 1989:32)

Then to know the coefficient correlation of the whole items, the writer used

Spearman Brown formula:

$$r_k = \frac{2r_1}{1 + r_1}$$

Note:

$r_k$  = reliability of full test

$r_1$  = reliability of half of the test

The criteria of reliability are:

0.80-1.00 = very high

0.60-0.79 = high

0.40-0.59 = average

0.20-0.39 = low

0.00-0.19 = very low

(Hatch and Farhady, 1982:246)

The result of reliability was 0,98 (see appendix 7). It can be concluded that the test has very high reliability in which criteria is in the range 0.81-1.00. It indicated that the instrument would produce consistent result when administered under similar condition, to the same participant and in different time (Hatch and Farhady, 1982: 286). So, it can be concluded that the test has fulfilled the criteria of reliability or in other word, the test was reliable.

#### 5. Index of difficulty

To see the index of difficult, the writer used the following formula:

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

Note:

FV = Index of difficulty

R = number of students who answer correctly

N = total number of the students

The criteria are:

LD < 0.30 = Difficult

LD = 0.30 – 0.70 = Satisfactory

LD > 0.70 = Easy

(Heaton. 1986: 178)

Based on the criteria above there were 10 easy items (3, 6, 13, 15, 17, 19, 21, 24, 26, and 27). Some were revised and administered (3, 13, 15, 17, 19, 21, 24, 26, and 27) one item was dropped because it also showed negative discrimination item (6). There were 17 items (1, 2, 4, 5, 7, 8, 11, 12, 14, 16, 18, 20, 22, 23, 25,

28, and 29) showing satisfactory, but one item (18) was dropped because it is also resulted in negative point for its discrimination index. 3 items (9, 10, and 30) were classified into difficult items that were dropped (see appendix 8).

#### 6. Discrimination Power

To see the discrimination power, the writer used the following formula:

$$D = \frac{\text{correct}U - \text{correct}L}{\frac{1}{2}N}$$

Note:

- D = Discrimination index  
 correct U = Number of correct in the upper group  
 correct L = Number of correct in the lower group  
 N = Total number of the students

The criteria are:

- D: 0.00-0.20 = Poor  
 D: 0.21-0.40 = Satisfactory  
 D: 0.41-0.70 = Good  
 D: 0.71-0.00 = Excellent  
 D: – (Negative) = Bad item, should be omitted

(Heaton, 1975:180)

Based o the criteria, there were 5 items in the try out test (6, 9, 10, 18, and 30) which did not fulfill the standard of discrimination power, since those items had discrimination index under 0.20 which meant the item had poor discrimination power. The other items (1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21,

22, 23, 24, 25, 26, 27, 28, and 29) had discrimination index more than 0.21 with the criteria satisfactory to excellent (see appendix 8).

### 3.7. Procedures of Collecting Data

This procedure was done to take a conclusion of the listening comprehension achievement. The data analysis consisted of quantitative analysis which based on students' listening comprehension achievement (the students' score). The data of the research was analyzed by using paired samples t-test. After collecting the data, the steps of analysis the data in this research was:

- Scoring the pre-test and post-test
- Finding the mean of the pre-test and post-test using this formula:

$$Md = \frac{\sum d}{N}$$

Md = mean

$\Sigma$  = total score of the students

N = number of students

- Drawing conclusion by comparing the means of the pre-test and post-test
- Analyzing the data using t-test, but first it is necessary to find out whether the data that was taken by the writer in experimental class and control class are random, normally distributed, and homogenous or not.

#### 1) Random test

This is to make sure that the data is random. The writer used SPSS version 16 to help her with level of significance 0.05. The writer used mean as cut point. The hypothesis was formulated as follows:

$H_0$  : The data is random

$H_a$  : The data is not random

The  $H_0$  is accepted if the result of random test is higher than 0.05 (sign  $> \alpha$ ). From the result of the test, it was known that the data was random (see appendix 19 and 20).

## 2) Normality test

The writer used normality test to know whether the data was distributed normally or not. The hypotheses were formulated as follows:

$H_0$  : The data is distributed normally

$H_a$  : The data is not distributed normally

The  $H_0$  is accepted if the result of random test is higher than 0.05 (sign  $> \alpha$ ). In this case, the writer used 0.05, level of significance. The result of the normality test showed that the data was distributed normally (see appendix 21 and 22).

## 3) Homogeneity test

The writer used homogeneity test to know whether the data was homogenous or not. The hypotheses were formulated as follows:

$H_0$  : The data is homogenous

$H_a$  : The data is not homogenous

The criteria are:

The  $H_0$  is accepted if the result of homogeneity test is higher than 0.05 (sign  $> \alpha$ ). In this case, the writer used 0.05, level of significance. The

result of the homogeneity test showed that the data was homogenous (see appendix 24).

### 3.8. Hypothesis Testing

The hypothesis testing was used to prove whether the hypothesis that proposes by the writer will be accepted or not by using t-test. The writer used SPSS (Statistical Package for Social Science) version 16.0 for Windows. After getting the mean of pretest and post test, the writer analyzed the data by comparing the mean of the pretest and posttest; the writer used paired samples t-test in order to know the significance of the treatments' effect. The hypothesis was analyzed at significance level of 0.05 in which the hypothesis was approved if  $\text{Sign} < \alpha$ . The hypothesis was formulated as follows:

$H_0$  : There is no significant increase of students' listening comprehension achievement after being taught using dictation technique at SMPN 8 Bandar Lampung.

$H_a$  : There is a significant increase of students' listening comprehension achievement after being taught using dictation technique at SMPN 8 Bandar Lampung.

The criteria are:

$H_0$  is accepted if t-ratio is lower or equal than t-table ( $t\text{-ratio} < t\text{-table}$ )

$H_0$  is rejected if the t-ratio is higher than t-table, or ( $t\text{-ratio} > t\text{-table}$ )

The hypothesis testing (see appendix 24) showed that t-ratio (17.563) is higher than t-table (2.030). It means that  $H_0$  was rejected and  $H_a$  was accepted. It can be

concluded that there is a significant increase of students' listening comprehension achievement after being taught using dictation technique at SMPN 8 Bandar Lampung.