III. RESEARCH METHODS

This part deals with research design, subject of the research, research procedures, schedule of the research, data collecting technique, data collecting instrument, data treatment, hypothesis testing.

3.1 Research Design

The researcher will be intended to measure whether there is an increase or not in students' listening achievement. Then, The researcher will distribute motivation questionnaire to the students, to know which one of motivation elements which has bigger influence to students' English achievement. After that, the researcher will analyze the test questions in order to know which one of micro or macro skill questions has been answered correctly by almost students. In this research, the researcher will use one class, as experimental class.

First of all, this research is called the quantitative research. Because of that, by using scale in the questionnaire, the researcher will collect the ordinal data in form of numbers, so that the collected data are easier to be analyzed by using the statistical formula. The scores of questionnaire are based on the Likert scale and range of 10 to 60 (low – high).The scores that are given for each answer for each item function as the symbol in showing that one of activity was higher or lower than the others.

In this research, the researcher will use one of the pre experiment design that is *The One Group Pre Test – Post Test Design.* This design can be used to measure the students' achievement, so that through this design, the researcher is enable to see whether there is positive or negative of students' achievement after treatment has been given.

The research design is formulated as follow:

T1 X T2

In which

T1 = Pre Test
X = Treatment
T2 = Post Test (Setiyadi, 2006:132)

In this research, the students will be given the pre test before treatment and post test after the treatment. The treatments will be given three times by teaching listening in using jigsaw technique. The certain tests will be used to analyze students' listening achievement before and after treatment.

3.2. Subjects of The Research

The subject of this research was the second year of students of SMA Mutiara Natar Lampung Selatan 2011/2012 academic year. There are two classes for second year in SMA Mutiara Natar Lampung Selatan. Then, writer chose one of the classes as the subject by random purposively sampling. The researcher used coin to determine which of the classes will become try-out and experimental class.

The total size sample was 40 students. Then, it is decided on using coin that XI IPA experimental class and XI IPS try-out class.

3.3 Research Procedures

The procedures of this research are as follow :

1. **Determining the subject**

   There are two classes of the second year of SMA Mutiara Natar Lampung Selatan and the researcher chooses one of the classes as the subject of research and try-out class by random purposively sampling.

2. **Determining the questionnaire**

   There is one kind of questionnaire used in research. A set of the questionnaire consists of close-ended questions in order to know what the most influential to students' motivation aspects in learning of English. It is adopted and modified from Setiyadi's (1999). There are 20 questions in questionnaire.

3. **Giving the pre-test**

   Pre-test is intended to find out the prior level of the student's listening ability

4. **Conducting the treatment**

   Conducting the treatment in which the researcher applies Jigsaw technique in teaching listening.

5. **Giving the post-test**

   The post-test is intended to find out the effectiveness of the treatment.

6. **Distributing the questionnaire to the subject**

The questionnaire is distributed to the subject after the treatment. The subject will be asked to answer the questionnaire based on their experience in learning listening English.

7. **Analyzing the Data**

In analyzing mean score and significance of the score improvement before and after the treatment, the researcher will use *Repeated Measures T-Test* will be computed by using SPSS 12 for windows.

3.4 Schedule of the Research

The research will be conducted in four meetings during two weeks. The schedule is organized as follows :

Table 2. Schedule of research description

MEETINGS	ACTIVITIES
First Meeting	1.The researcher will give the listening test to try-out class 2.The researcher enters the class chosen, explained to the students what will be done for four meetings to experimental class
Second Meeting	1.The researcher will conduct the first treatment (narrative/ Legend of Tangkuban Perahu) as experimental class
Third Meeting	1.The researcher will conduct the second treatment (spoof/ the zoo job story)
Fourth Meeting	1.The researcher will conduct the third treatment (spoof/ the smartest parrot)
Fifth meeting	1.The researcher will give listening test as post – test 2.The researcher will share motivation questionnaire

3.5. Data Collecting Technique

Then, there is listening instrument test (Multiple choice questions) because the researcher will measure the effectiveness of treatment to see students' listening achievement. In collecting the data for knowing students' motivation aspects, the researcher will use motivation questionnaire as the instrument. It can be implied in many kinds of data gained from different variable and it does not need much fund and energy to collect the data from more subjects. By using questionnaire, the students are able to report their motivation toward the language they learnt. The researcher will distribute the questionnaire to get the data from the subjects.

3.6. Data Collecting Instrument

3.6.1. Reliability of the instrument

Reliability of the listening achievement test

To know reliability of the listening achievement test , the researcher will use split-half technique which requires him 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 and second half, the researcher will use Pearson Product Moment, which was formulated as follows:

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

Where,

r^1 = coefficient reliability between 1st half and 2nd half groups

x = total number of 1st half group

y = total number of 2nd 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 researcher used Spearman Brown formula :

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

r_k = reliability of full test

r_1 = reliability of the half 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)

3.6.2. Reliability of the questionnaire

To know the reliability of the questionnaire, the researcher will use Cronbach's alpha reliability. It is usually used to measured internal consistency so that the questionnaire consists of questions with high reliability.

The standardized Cronbach's alpha can be defined as

$$r = \left(\frac{k}{(k-1)}\right)\left(1 - \frac{\sum \alpha_b^2}{\alpha_t^2}\right)$$

r = Coefficient reliability instrument (cronbach alpha)

k = Many questions items

$\sum \alpha_b^2$ = Items variant total

α_t^2 = Variant total

The questionnaire which will be counted based on the correlation coefficient between each of items of motivation scale and range of 1 to 3. It is used to analyze the instrument from ordinal data. The questionnaire which will be used for this study has been translated and modified from Setiyadi (2006). The researcher has modified it with certain goals. It means that question items in questionnaire should represent each motivation aspects so that the questionnaire need to be modified in order to improve reliability questionnaire.

According to Setiyadi, (2006: 190-191), the higher alpha is, the more reliable the questionnaire will be. The researcher considers the reliability of the questionnaire with the alpha ≥ 0,70 (see the table specification below). If there is an item which has Cronbach alpha in ≤ 0,60. It must be omitted from questionnaire in order to get higher Cronbach alpha scores.

These are a commonly accepted rules of thumb of alpha consistency

Cronbach's alpha	Internal consistency
$\alpha \geq .9$	Excellent
$.9 > \alpha \geq .8$	Good
$.8 > \alpha \geq .7$	Acceptable
$.7 > \alpha \geq .6$	Questionable
$.6 > \alpha \geq .5$	Poor
$.5 > \alpha$	Unacceptable

(George, D., & Mallery, P. (2003).

3.6.3. Validity of The Instrument

Validity of the listening achievement test

There are three validities from this listening achievement test.

- Content Validity : This instrument must represent School Based Curriculum SMA *(KTSP)* for second semester. Especially, in listening skill. Therefore, the researcher uses narrative and descriptive text in teaching listening materials.
- Face Validity

- Construct Validity : The indicators are, looking at the level of difficulty, the discrimination index, and the reliability of the test items, which are calculated by :

a) Level of difficulty

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

Where,

FV = Index of difficulty

R = Number of the students who answer correctly

N = Total number of students

The criteria are :

LD < 0.30 = Difficult

LD= 0.30 – 0.70 = Satisfactory

LD> 0.70 = Easy

(Heaton, 1986:178)

b) Discrimination Power

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

$$\mathbf{D} = \frac{\mathbf{Correct\ U - Correct\ L}}{\frac{\mathbf{1}}{\mathbf{2}}\mathbf{N}}$$

Where :

D = Discrimination Index

Correct T = Number of correct answer in the top group

Correct B = Number of correct answer in the bottom group

N = Total number of 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 – 1.00 = Excellent

D : - (negative) = Bad items, should be omitted

(Heaton, 1975:180)

3.6.4. Validity of Motivation questionnaire

An instrument can be said a valid if the instrument measures the object that should be measured, and suitable with the criteria. To measure whether the instrument has good validity or not, the researcher will use construct validity. Construct validity is the extent to which an instrument becomes representative sample of the subject matter contents. It is used to measure the instrument that has some indicators to measure one aspect or construct. The indicators that have been latticework of the questionnaire are frequency of students' activities, students' goals, students' effort, and students' persistency (Gardner, 1985)

Construct validity is often correlated with instrument of measurement that is related with psycholinguistic such as perception, linguistic attitude, and motivation in learning foreign language (Setiyadi, 2006:20-26). Construct validity concerns with whether the instruments is actually in line with the theory of what it means to the language (Shohamy, 1985:74) that is being measured. It means that the instrument will measure certain aspect based on the indicator. The researcher

will use *Pearson Product Moment Correlation* to measure the correlation. It used to measure correlation between two variable of continuous (Setiyadi, 2006:166).

3.7. Data Treatment

3.7.1. Treatment for listening test instrument

The data collects from the tests and analysis as follows:

1. Scoring the students' answer of listening comprehension both in pre-test and post-test by using the following criteria:

$$\text{Student score} = \frac{\text{Student correct action score}}{\text{The total number of command}} \times 10$$

2. Classifying the score of the student into the following measurement score:

9.6 to 10 is the classified as excellent

8.6 to 9.5 is the classified as very good

7.6 to 8.5 is the classified as good

6.6 to 7.5 is the classified as fairly good

5.6 to 6.5 is the classified as fair

3.6 to 5.5 is the classified as poor

0.0 to 3.5 is the classified as very poor

(Kanwil DepDikBud, 1985)

3. Drawing conclusion from the tabulated results of the achievement tests are given, whether posttest is higher than pretest or posttest is lower than pretest by comparing the means score of students' listening test before treatment to prove whether the data of result has improved or not, the researcher will use analysis of

Repeated T-Test. It used to compare the data of t-test which is called by t-ratio and t-table at the criteria level of significance. The level of significance used is 0.01 based on total of students involved in the treatment. If the t-ratio is higher than t-table, it can be said that students' listening achievement will improve significantly.

3.7.2. Treatment for Listening Aspects Questions in Test

No	Types of Listening Aspects	Number of Questions	Total
1	Micro Skill	1., 2., 3., 4., 5., 6., 7., 8., 10., 11., 12., 13., 17., 18., 20., 22., 23., 26., 27., 28., 29., 30.	22
2	Macro Skill	9., 14., 15. ,16., 19., 21., 24., 25.	8

Students' dominant answers can be known by analyzing their answers in tests by classifying their answers which based on micro and macro skill questions.

After that, the researcher will calculate students' answers through comparing each item questions in pre-test and post-test with using T-Test.

3.7.3. Treatment for Motivation Elements

No	**Elements of Motivation**	**Item Numbers**	**Total**
1	Effort	1., 5., 9., 13., 17.	5
2	Goal	2., 6., 10., 14., 18.	5
3	Persistence	3., 7., 11., 15., 19.	5
4	Frequency	4., 8., 12., 16., 20.	5
	TOTAL		20

Referring the students' answer questionnaire, the researcher will analyze motivation elements which one of effort, persistence, goal, and frequency (motivation elements) has been answered in highest rank by students' answer. Then, it will be integrated with total scores for all answers in questionnaire. Finally, it will be concluded that students with certain motivation elements and their motivation scores.

3.8 Hypothesis testing

The hypothesis is :

Null Hypothesis (Ho):

There is no increase of students' listening achievement after being taught by jigsaw technique

Alternative Hypothesis (H_1) :

There is an increase of students' listening achievement after being taught by jigsaw technique

The criteria are :

1. If the t-value is higher than 0,05 : Ho is accepted (There is no increase of students' listening achievement after being taught by jigsaw technique)
2. If the t-value is lower than 0,05 : Hi is accepted (There is an increase of students' listening achievement after being taught by jigsaw technique)