III. RESEARCH METHODS

A. Research Design

In doing this research, the researcher conducted quantitative research based on the experimental method. She used *one group pretest-posttest* design. She used one class as the experimental class. The research was conducted to see whether there is a significant improvement of students' listening comprehension after being taught short stories through top down approach. The researcher conducted pretest, treatments, and posttest. The design of the research as follow:

$$T1 \quad X \quad T2$$

Where,

T1 = Pre-test

X = Treatments

T2 = Post-test

<div align="right">(Setiyadi, 2004: 40)</div>

B. Population and Sample

The population of this research was the eleventh grade students of SMA YP Unila Bandar Lampung, which had eleventh classes. The researcher used two classes,

one class as an experimental class (XI IPA 1) and another class as a try out class
(XI IPA 2). Those classes were chosen by lottery. It was applied based on the
consideration that every class in the population has the same chance to be chosen
and in order to avoid the subjectivity in the research (Setiyadi, 2006: 39).

C. Research Instruments

The instrument of this research is a set of listening comprehension test that was
used for try out, pretest and posttest. Those tests were in the form of multiple
choices. The multiple choices test was used since its marking is rapid, simple, and
most importantly reliable, not subjective or influenced by the marker's judgment
(Heaton, 1975).

1. Validity of the Instruments

A test could be said valid if the test measures the object that should be measured
and suitable with the criteria. To measure whether the test has good validity, the
researcher saw from the content validity and constructs validity.

Content validity was the extent to which a test becomes representative sample of
the subject matter contents. Construct validity was concern with the test, whether
the test is actually in line with the theory of what it means to know the certain
language knowledge skill, for example listening.

Since listening and reading are receptive skills, so both of them have the same
purpose in comprehending the message while listening comprehends the oral
message, reading comprehend the written messages. Therefore, the researcher

used the same aspects of reading comprehension namely determining the main

idea of the text, finding specific information of the text, inference, referencing and

vocabulary in the test instrument. The table specification of the instrument test

could be seen on the table below:

Table1. Specification of the Instrument Test

No	The aspect of listening comprehension	Items numbers	Percentage of items
1	Determining main idea	22,39	**5%**
2	Finding specific information	1, 2, 4, 5, 7, 8, 10, 11, 12, 16, 17, 18, 19, 20, 23,24, 25, 26, 27, 28, 30, 31, 32, 35, 37, 40	**65%**
3	Inference	6, 21, 33, 36, 38	**12.5%**
4	Vocabulary	3, 9, 13, 14, 15, 29, 34	**17.5%**
Total		**40 Items**	**100%**

2. Reliability of the Instruments

To find out the reliability of the test, the researcher used split-half technique

which requires her to split the test in two similar parts, first and second half

(Hatch and Farhady, 1982: 246). To measure the coefficient of the reliability

between first and second half, the researcher used Pearson Product Moment

formula. The formula was:

$$r_1 = \frac{\sum xy}{\sqrt{\sum X^2 \sum Y^2}}$$

Where,

r_1 = coefficient reliability between 1st half and 2nd half

X   = total number of the 1st group

Y   = total score of 2nd group

X^2 = square of x

Y^2 = square of y   (Lado; 1964 in Huges, 1989: 32)

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

Spearman Brown formula:

$$r_k = \frac{2r1}{1+r1}$$

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)

3. Level of Difficulty

Level of difficulty is the way to see how easy or difficult item is from point of view of the students who take the test. We conclude it by dividing the number of students who get it right by the total number of the students. The index of difficulty level (or facility value) of an item simply shows how easy or difficult the particular item proved in the test.

To see the difficulty of all tests, the researcher used the following formula:

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

Where:

LD = Level of difficulty

R   = the number of students who answer correctly

N   = the number of then students

(Arikunto, 1992: 23)

The criteria are:

LD < 0.30   = difficult

LD 0.30 – 0.70   = satisfied

LD 0.70 – 1.00   = easy

4. Discrimination Power

Discrimination power is the extent to which the items differentiate between high and low level students on the test. The higher discrimination power the better it can be differentiating between upper and lower class. If the value is positive; it means that a large number of more knowledge students than poor students get the items correct. If the value is zero, it means no discrimination; it doesn't differentiate between upper class and lower.

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

Where:

DP   = discrimination power

U   = the number of upper class who answer correctly

L   = the number of lower class who answer correctly

N   = total number of students

The criteria are:

0.00 – 0.19 = poor

0.20 – 0.39 = satisfactory

0.40 – 0.69 = good

0.70 – 1.00 = excellent

Negative (-) = bad item, should be omitted

(Sudjiono, 1996: 375)

5. Standard Deviation

The standard deviation is another way of showing the spread of scores. It measures the degree to which the group of scores deviates from the mean, it show all the scores are spread out and thus give a fuller description of test scores than the range, which simply describe the gap between the highest and lowest marks and ignore the information provide by all the remaining scores.

$$SD = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}$$

Where:

SD   = Standard deviation

X   = Score of students' test

D. Research Procedures

1. Planning

There are some steps that should be planned by the researcher. The procedure of planning this research can be seen as follows:

a. Preparing the Try-out

The researcher prepared a kind of test (called Try-out test) that was given to the students. She prepared the total number of test items and material that was tested. It used an objective test in form of 40 items in 90 minutes time. It was done in order to know the level of difficulty and discrimination power and also to find out the reliability.

b. Preparing the Pre-Test

The researcher prepared a kind of test (called Pre-Test) that was given to the students. The researcher used an objective test in form of 30 multiple choices items in 90 minutes time. It was done to check the students' listening comprehension before treatments.

c. Determining the material to be taught

The researcher determined the material that should be taught to the students, of course, the material is about short stories. Each treatment was held for 90 minutes.

d. Preparing the Post-Test

The researcher prepared a kind of test (called Post-Test) that was given to the students. This aimed to measures the improvement of students' listening comprehension after they are taught short stories. The researcher used an objective test in form of 40 multiple choices items in 90 minutes time. It was done to find out whether there was any significant difference of students' listening comprehension after the treatments.

2. Implementation

After that, the researcher applied the research procedure that had already been planned. There were some steps that should be implemented such as:

a. In the first meeting, the researcher gave try-out test

The researcher administered the test papers to the students and asked the students to do the test and the last, she asked them to hand in their test. This test was in the form multiple choices that consisted of 40 items.

b. In the second meeting, the researcher gave pre-test

The researcher administered the test papers to the students and asked the students to do the test and last asked them to hand in their test. This test was multiple choices that consisted of 30 items.

c. After giving the pre-test to the students

The researcher conducted the treatments consisting of three meetings. In each treatment, different short stories were presented.

d. In the last meeting, the researcher gave post-test.

The researcher administered the test papers to the students and asked the students to do the test and then asked them to hand in their test. This test was multiple choices that consisted of 30 items.

E. Scoring System

In scoring system the student's on the test the researcher uses Arikunto's formula. The highest score is 100. The formula is:

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

Notes:

S   = Score

R   = the right answer

N   = Number of items

In order to know the students' progress in listening through short stories, the researcher calculates the students' score by doing three activities:

1. Scoring the pretest and posttest.

2. Tabulating the result of the test and finding the mean of the pretest and posttest.

The mean calculates by applying:

$$X = \frac{\sum X}{N}$$

Note:

X   = mean

$\sum X$ = the total score of the student

N   = number of the students

3. Drawing conclusion from tabulated results of the test given, that was statistically analyzing the data using SPSS 15.0.

F. Data Treatment

According to Setiyadi (2006:168-169) using t- test for hypothesis testing has three basic assumptions that should be fulfilled, they are:

1. The data is interval ratio.

2. The data is taken from random sample in a population.

3. The data is distributed normally.

Therefore, the researcher used the following procedures to treat the data were as follows:

1. Random Test

Random test was used to make sure whether the data was random or not. In this case, the researcher used SPSS version 15 to analyze the data with level of significant 0.05, ($\alpha = 0.05$). From the result (see appendix10), we can see that $p>0.05$ in all test (pretest and posttest). It proves that all the data were random.

2. Normality Test

Normality test was used to know whether the data is distributed normally or not. In this case, the researcher used SPSS version 15 to analyze the data with level of significant 0.05, ($\alpha = 0.05$). From the result (see appendix11), we can see that $p>0.05$ in all test (pretest and posttest). It proves that all the data were distributed normally.

G. Hypothesis Testing

After getting the mean of the pre-test and the post-test, the research analyzed the data by using Repeated Measures T-test in order to know the significance of the treatment effect.

Hypothesis of this research:

"There was significant improvement of students' listening comprehension after being taught short stories through top down approach"

The hypothesis was statistically analyzed using Repeated Measure T-test that was used to draw the conclusion at the level of 0.05 ($p<0.05$).