

III. RESEARCH METHODS

This chapter discusses the following points: research design, population and sample, data collection technique, research procedures, validity, criteria for evaluating students' speaking ability, data analysis, data treatment and hypothesis testing.

3.1 Research Design

This is a quantitative research and researcher used one group pretest-posttest, experimental design. The researcher selected one class as the experimental group using random sampling. The aim of this research is to find out whether there is significant improvement of students' speaking ability after teaching using Jigsaw Task at class IX of SMPN 2Bukitkemuning. To answer the research questions, the writer used One pre test – post test design. Here the writer used one class only.

The research design can be represented as follows:

T1 X T2

(Hatch and Farhady, 1982:20)

Note:

T1 : Pretest

X : Treatment

T2 : posttest

Hatch and Farhady(1982:20) in Setiyadi (2001 : 44)

This research was intended to find out whether there is a significant improvement of students' speaking ability score from pretest to posttest after being taught through jigsaw task. Pretest was given to know how far the competence of the students in speaking skill before the treatment. Then, the students were given three treatments by using jigsaw task. Posttest was given to know the progress of students' speaking ability after being taught through jigsaw task. Besides, in order to answer the second research question the researcher shared the questioner to the students. It was given to infer the students' response toward technique being implemented.

3.2 Data

This research was aimed to know the improvement between the students' speaking ability score before and after the treatment in performing interpersonal dialogue concerns on five aspects of speaking namely pronunciation, vocabulary, fluency, comprehension, and grammar based on the rating scale by Harris (1978:84). The score was ranked from 20 – 100. Moreover, this research was also intended to draw students' response toward jigsaw technique

3.3 Step in Collecting the Data

In collecting the data, the researcher uses the following steps:

3.3.1 Selecting Speaking Materials

In selecting the speaking material the researcher used the syllabus of class IX of SMP student based on school based curriculum or KTSP (an English operational curriculum which is arranged and applied by each education unit) which was the newest curriculum used by the school. The topics chosen were meeting and parting, accepting and refusing an invitation and expressing happiness, showing attention and sympathy in the forms of interpersonal dialogue.

3.3.2 Determining the Instrument of the Research

The instrument in this research is speaking test. The researcher conducted the speaking test for the pretest and posttest. These tests were aimed to gain the data of students' speaking ability score before the treatment and after the treatment. In taking the score of speaking this research was based on five aspects of speaking by Harris (1978:84), namely pronunciation, vocabulary, fluency, comprehension, and grammar.

In achieving the reliability of pre test and post test of speaking, inter rater reliability was used in the study. The first rater was the researcher himself and the second rater was the English class teacher. Both of them discussed and put in mind the speaking criteria in order to obtain the reliable result of the test.

Validity of the pre test and post test in this research applied to face and construct validity. The face validity or superficial inspection of the speaking test had been previously examined by both advisors and colleagues, until the test which was in form of instruction looked right and understandable to other teacher.

Construct validity, in this research the researcher focused on speaking ability in forms of interpersonal dialogue. The topics chosen were inviting someone, meeting and parting and expressing happiness, sympathy and attention. Those topics were the representative of speaking materials of School Based Curriculum or KTSP as a matter of tailoring the lesson to students' need.

3.3.3 Determining Population and Sample

The population of this research is class IX of SMPN 2 Bukitkemuning that consists of 7 classes and one class is taken as the sample as experimental group. The class consists of 40 students and the sample was selected using simple probability sampling through lottery drawing.

3.3.4 Conducting Pretest

Pretest was given before the treatment (teaching speaking through jigsaw task). The test was speaking in the forms of interpersonal dialogue. The material tested was related to KTSP curriculum which is suitable with their level. In the activities of pretest, the teacher asked the students to divide into group and each group was asked to perform dialogue in front of the class according to the topic given. Pretest was given to know how far the competence of the students in speaking skill before the treatment. The test was held for 2X45 minutes. The scoring system was based on the rating scale by Harris.

3.3.5 Giving the Treatment

The researcher conducted the treatment in experimental group through jigsaw task. There were three times treatments in this research. Each treatment was held in 2 X 45 minutes. The materials given to the student were based on the syllabus of SMP. The materials were meeting and parting, accepting and refusing an invitation and expressing happiness, showing sympathy in the forms of interpersonal dialogue.

3.3.6 Conducting Posttest

The researcher administered posttest after treatment. It was aimed to know the progress of students' speaking ability after being given the treatment using jigsaw task. The scoring system was based on the rating scale by Harris.

In conducting the posttest the researcher provided some topics (Inviting someone, accepting and refusing an invitation, Expressing happiness, attention and sympathy, meeting and parting) and them let make a short dialogue in group in which each group consists of 2-3 students based on the topic provided. The first the teacher showed the example of invitation and gave a chance to the students to give their opinion. After that, the teacher introduced jigsaw technique to the students and gave the explanation. Then, the teacher called the group one by one in front of the class to perform their dialogue before the researcher asked them to speak clearly since the students' voice were be recorded during the test. The material for pretest and posttest was taken from the students' handbook. The form of the test was subjective test since there is no exact answer.

3.3.7 Distribution of Questioner

The questioner was given to language learners in an attempt to get data about the students' respond toward jigsaw task as a technique. In this study, the questionnaire was only given after the treatment. Besides, the questionnaire was used in finding out the students' respond toward jigsaw task as a technique in teaching speaking. The questionnaire used was referred to "Metode penelitian untuk pengajaran bahasa asing:

Pendekatan Kuantitatif dan Kualitatif" developed by Setiyadi (2006). The questionnaire was designed particularly to review jigsaw task technique used by learners in speaking.

The questionnaire consisted of eight items. It was translated and answered into Indonesian in order to facilitate the learners in understanding the questionnaire. The questionnaire items measure the students' response toward jigsaw task for teaching speaking under one aspect and two indicators.

Table 1. Specification of students' response jigsaw task in the questionnaire

No	Aspects	Indicators	Question Number
1	Students' response toward jigsaw task technique.	Indicated the students' jigsaw task technique	1, 5, 6, 8
		Indicated the uses of speaking ability through jigsaw task technique	2, 3, 4, 7

Based on the aspects and indicators which had been determined above, each item had a numerical value, for example:

1 = strongly disagree

2 = disagree

3 = agree

4 = strongly agree

3.3.8 Analyzing, interpreting and concluding the data gained

After collecting the data of students' utterances in performing the dialogue and listening from recorder, the data were analyzed based on the rating scale namely pronunciation, vocabulary, fluency, comprehension and grammar. And then the interpretations of the data were finished.

In concluding the data gained, the researcher did these sequences of procedure. First, the researcher scored the pretest and posttest before tabulating the results of test and calculating the mean of the pretest and the posttest for experimental group. After that, he drew the conclusion from the tabulated results of the pretest and posttest, that was statistically analyzed by using Repeated Measures Independent T-test of SPSS (statistical package for social science) version 12.0 for windows since he had collected the paired data. The data were gained in order to find out whether there was a significant improvement of students' speaking ability before and after treatment given.

3.4 Validity of the Test

A test is said valid because the test measured the object to measure and suitable with the criteria (Hatch & Farhady, 1982:250). According to Hatch and Farhady(1982;281) there are two basic types of validity; content validity and construct validity.

3.4.1 Content Validity

To get the content validity of the test, the researcher adopted the test based on the students' handbook and the curriculum used. Content validity concerned with the test which was sufficiently representative and comprehensive. In the content validity and the material were considered to be suitable related to the curriculum. It meant that the materials were suitable will the students. Content validity is the extent to which a test measures a representative sample of the subject matter content, the focus of content validity is adequacy of the sample and simply on the appearance of the test (Hatch and Farhady, 1982).

3.4.2 Construct Validity

Construct validity is concerned with whether the test which actually in line with the theory of what it means to know the language that is being measured. It was examined whether the test question actually reflect what it meant to know a language. In this research the researcher focussed on speaking ability in forms of interpersonal dialogue. The topics chosen were inviting someone, meeting and parting and expressing happiness, sympathy and attention. Those topics are the representative of speaking materials of School Based Curriculum or KTSP as a matter of tailoring the lesson to students' need.

3.4.3 Reliability of the Test

Reliability refers to the extent to which the test is consistent in its score and gives us an indication of how accurate the test scores are (Hatch & Farhady, 1982: 244).

In achieving the reliability of the pretest and posttest of speaking, inter-rater reliability was used in this study. The first rater was the researcher herself and the second rater was the English class teacher. Both of them discussed and put in mind the speaking criteria in order to obtain the reliable results of the test.

In this research, the researcher got the reliability of pretest is 0.99 and the reliability of posttest is 0.999. Both raters made slightly different in total amount; it is 8 points of difference in pretest and 16 points in difference in posttest. The reliability of speaking test above will be indicated that the results of the students' speaking ability are accurate and consistent.

3.5 Criteria for Evaluating Students' Speaking Ability

The consideration of criteria for evaluating students' speaking ability was based on the oral rating sheet from Harris (1974: 48). There are five aspects to be tested; pronunciation, vocabulary, fluency, comprehension, and grammar

In evaluating the students' speaking scores, the researcher and the second rater listened to the students' recorded voice in judging the score. The students' utterances were recorded because it helped the raters to evaluate more objectively. Based on the oral rating sheet from Harris (1974:84), there are five aspects to be tested.

Bellow is the table rating scales:

Table 2.of rating Scale

Aspects of speaking	Rating scales	Description
Pronunciation	5	Speech is fluent and effortless as that native speaker.
	4	Always intelligible though one is conscious of a definite accent.
	3	Pronunciation problems necessitate concentrated listening and Occasionally lead to understanding.
	2	Very hard to understand because of pronunciation problem most Frequently asked to repeat.
	1	Pronunciation problem so severe as to make speech unintelligible.
Vocabulary	5	Use of vocabulary and idiom virtually that is of native speaker.
	4	Sometimes use inappropriate terms and must rephrase ideas, because of inadequate vocabulary.
	3	Frequently use the wrong word, conversation somewhat limited because of inadequate vocabulary.
	2	Misuse of words and very limited vocabulary make comprehension quite difficult.
	1	Vocabulary limitations so extreme as to make conversation virtually impossible.
Fluency	5	Speech is fluent and effortless as that of native speaker.

	4	Speed of speech seems rather strongly affected by language problems.
	3	Speed and fluency are rather strongly affected by language problems.
	2	Usually hesitant often forced into silence by language problems.
	1	Speech is so halting and fragmentary as to make conversation virtually impossible.
Comprehension	5	Appear to understand everything without difficulty.
	4	Understand nearly everything at normal speed although occasionally repetition may be necessary.
	3	Understand most of what is said at slower than normal speed with repetition.
	2	Has great difficulty following what is said can comprehend only "social conversation" spoken slowly and with frequent repetition.
	1	Cannot be said to understand even simple conversation in English.
Grammar	5	Grammar almost entirely in accurate phrases.
	4	Constant errors control of very few major patterns and frequently preventing communication.
	3	Frequent errors showing some major patterns uncontrolled and causing occasional irritation and misunderstanding.
	2	Few errors, with no patterns of failure.
	1	No more than two errors during the dialogue.

Harris (1974:84).

The scores of each point are multiplied by four;

Hence, the highest score is 100

Here the identification of the scores

If the students get 5, so $5 \times 4 = 20$

4, so $4 \times 4 = 16$

3, so $3 \times 4 = 12$

2, so $2 \times 4 = 8$

1, so $1 \times 4 = 4$

For instance:

A student got 5 in Pronunciation, 4 in Vocabulary, and 3 in Fluency, 2 in comprehension and 1 in grammar. Therefore, the student's total score will be:

Pronunciation $5 \times 4 = 20$

Vocabulary $4 \times 4 = 16$

Fluency $3 \times 4 = 12$

Comprehension $2 \times 4 = 8$

Grammar $1 \times 4 = 4$

Total = 60

It means he or she got 60 for speaking.

3.6 Data Analysis

To analyze the data, the students' score in the pretest and posttest researcher computed them by using the formula as follows:

$$M = \frac{x}{N}$$

Mean											X1=	X=2
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Notes;

R1 : Rater 1

R2 : Rater 2

X1 : R1

X2 : R2

Table 4. Inter-rater reliability of pre-test

No	Students' code	R1	R2	d ¹	d ²

Reliability of pre-test:

$$R = 1 - \frac{6 \cdot (d^2)}{N \cdot (n^2 - 1)}$$

Notes:

R = reliability of the test

d1 = the difference between R1 and R2

d² = the square of d1

3.7 Data treatment

According to Setiyadi (2006:168-169), using T-Test for hypothesis testing has 3 basic assumptions, namely:

1. The data is interval or ratio
2. The data is taken from random sample in population
3. The data is distributed normally

According to Setiyadi (2006:168-169), using T-Test for hypothesis testing had 3 basic assumptions, namely:

The data is interval or ratio

The data is taken from random sample in population

The data is distributed normally

Therefore, the writer used the following procedures:

1. Random Test

This was to make sure that the data was random. The writer used SPSS version12 to help him. The writer used mean as the cut point. The hypothesis was formulated as follows:

Ho: the data is random

H1: the data is not random

In this script, the criterion for the hypothesis is that:

H is accepted if $\text{sign} > @$. In this case, the writer used the level of significance 0.05. From the result (see table below), we could see that $p > 0.05$ in all test (pretest and posttest). It proved that the H_0 was accepted and all the data were random.

Table 5. Random Test of the Data of Pretest

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	34	61.4194	3.68646	56.00	68.00

Runs Test

	Pretest
Test value(a)	61.4194
Cases < Test Value	21
Cases <= Test Value	13
Total Cases	34
Number of Runs	13
Z	-1.315
Asymp. Sig. (2-tailed)	.189

a mean

Table 8. Random Test of the Data of Posttest

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Posttest	34	76.23329	5.85627	64.00	88.00

Runs Test

	Posttest
Test value(a)	76.2329
Cases < Test Value	21
Cases <= Test Value	13
Total Cases	34
Number of Runs	13
Z	-1.315
Asymp. Sig. (2-tailed)	.189

a mean

2. Normality test

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

Ho: The data was distributed normally

H1: The data was not distributed normally

In this research, the criterion for the hypothesis was that: H is accepted if sign > @ in this case, the writer used the level of significance 0.05. From the result (see

appendix), we could see that $p > 0.05$ in all test (pretest and posttest). It proved that the H_0 was accepted and all the data were distributed normally.

Table 7. Normality Test of the data of Pretest

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	34	61.4194	3.68646	56.00	68.00

One-Sample Kolmogorov-Smirnov Test

		Pretest
N		34
Normal Parameters(a,b)	Mean	61.4194
	Std. Deviation	3.68646
Most Extreme Differences	Absolute	.279
	Positive	.279
	Negative	-.192
Kolmogorov-Smirnov Z		1.642
Asymp. Sig. (2-tailed)		.060

a Test distribution is Normal.

b Calculated from data

Table 8. Normality Test of the Data of Posttest

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Posttest	34	76.2329	5.85627	64.00	88.00

One- sample Kolmogorov-Smirnov Test

		Posttest
N		34
Normal Parameters(a,b)	Mean	76.2329
	Std. Deviation	5.85627
Most Extreme Differences	Absolute	.152
	Positive	142
	Negative	-.152
Kolmogorov-Smimov Z		.889
Asymp. Sig. (2-tailed)		.408

a Test distribution is Normal.

b Calculated from data

3.8 Hypothesis Testing

The hypothesis testing was used to prove whether the hypothesis proposed in this research is accepted or not. The hypothesis is analyzed by using Repeated Measure t-test through computing with Statistical Package for Social Science (SPSS).

Version 17.0 for Windows. The hypothesis is formulated as follows:

Ho : There is no significant increase of students' speaking ability after taught using Jigsaw taskat Lampung.

H : There is significant increase of students' speaking ability after taught using Jigsaw taskat Lamp