III. RESEARCH METHOD

This chapter discusses about research design, population and sample, data collecting technique, research procedures, criteria for evaluating students' speaking, validity of the test, reliability of the test, oral production test, data analysis, and hypothesis testing. All of them are discussed as follow:

3.1 Research Design

This research was quantitative research. The researcher used one group time series design, in which X_1 class was chosen as the sample of the research.This research was carried out in order to see whether there isa significant difference between the pretest and posttest score of the students' oral production ability in recount text before and after being taught through jigsaw technique, which topic get the highest gain from the learning among the three different topics of recount, and which aspect of oral production is the most improved in the students' oral production ability.In conducted the research, the researcher used *Time Series Design* by giving different topics in every treatment and every test. The researcher used one class where the students were given three times of pretest, three times of treatments, and three times of posttest. The design of the research was presented as follows:

T1 T2 T3 X T4 T5 T6

Where:

T1 T2 T3   : Pretests

X   : Treatment (Using jigsaw technique)

T4 T5 T6   : Posttests

(Adopted from Setiyadi, 2006: 137)

In one group time series design, the researcher compares the mean scores among the three pretests and three posttests by comparing T1 to T4, T2 to T5, and T3 to T6. It aimed to get the gain from each pretest and posttest. In administering pretest, the researcher used three different topics of recount. *Telling about Personal Experience* in pretest 1, *Telling about Unforgettable Experience* in pretest 2, and *Telling about Someone's Biography* in pretest 3. In pretest, each pair's speech performance in form of dialogue is recorded and assessed by the first and the second researcher. In administering posttest, the researcher also used three different topics of recount. *A Study Tour to Bali* in posttestt 1, *My Grandpa's Funeral in Toraja* in posttest 2, and *My Holiday ... Unpredictable but fun* in posttest 3. In posttest, each home group's speech performance in form of dialogue is also recorded and assessed by both researcher by using the oral rating scale of Harris (1974). In conducting the oral tests, the researcher used *inter - rater reliability* in order to avoid the subjectively of the researcher.

3.2 Population and Sample

The population of the research was the first grade students of SMAN Bandar Sribhawono, in which consisted of five (5) classes that were chosen by Purposive Random Sampling. The class chosen was X_1, consisted of 31 students. The researcher choosed X_1 as the sample because the students still had low ability in their oral production and afraid of making mistakes in expressing themselves.

3.3 Data Collecting Technique

In order to collect the data, the researcher had conducted the following steps:

1. Pretest

The researcher conducted a pretest in which was taken for 90 minutes. The purpose of this test was to know how far the students' ability in mastering speaking skill. In administering the pretest, the students were asked to tell a story, even their past experience in form of recount text based on their own ideas and knowledge suitable with the topic that given by the teacher. The test was administered in each pair and it took 6 minutes for them to tell their ideas. The students' record result of the pretest were scored by 2 raters, the researcher herself and the English teacher of SMAN 1 Bandar Sribhawono in order to had reliable test result.

2. Treatment

The treatment was conducted three times. One treatment was taken for 90 minutes in each meeting. The researcher presented the topics of recount text, in which was taken based in the first semester of the first year students. In this treatment, the

researcher applied jigsaw as a technique for the students in order they can discuss the story based on the topic that given by the teacher in an *original group*, in which then they have to go to the *expert group* to tell their new group of what they have known and discussed in their original group.

3. Posttest

The researcher administered the posttest with time allocation was 90 minutes. The purpose of this test was to know the students' improvement in speaking after the researcher gave the treatment by jigsaw technique by using recount text. Theprocedures of giving posttest was the same topic that administered in the pretest because the researcher wantedto know how far the students could develop their ideas and background knowledge and their improvement after being given the pretest.

3.4 Research Procedures

In order to collect the data and make this research ran well, it was suggested to make the research procedures. They were as follow:

1. Determining the Research Problems

The problem of the research were intended to find out whether there is a significant difference between the pretest and posttest scores of the students' oral production ability in recount text before and after being taught through jigsaw technique, which topic get the highest gain from the learning among the three different topics of recount, and which aspect of oral production is the most improved in the students' oral production ability.

2. Determining the Research Design

The researcher applied one group time series design in conducting the research.

3. Determining and Selecting Speaking Materials

In selecting the speaking materials, the researcher saw the newest syllabus of the first year of Senior High School based on School-Based Curriculum/ KTSP (an English Operational Curriculum which was arranged and applied by each education unit). The topics of the speaking materials were taken from the students' handbook which based on the curriculum held in that school.

4. Determining the Instruments of the Research

The instrument in this research was oral production test. The writer conducted the oral production test for the pretest and postest, these tests aimed at gaining the data that was the students' speaking ability score before the treatment and after the treatment in performing recount text. Both of the result of pretest and posttest were recorded by the two raters and were transcribed into written form by the researcher. In achieving the reliability test, *Inter-rater Realiability* has been used in this study. The first rater was the researcher and the second rater was the English teacher. Both of them had a responsibility to discussed and shared ideas of the speaking criteria in order to obtain the reliable of the test.

5. Determining the Population and Sample

The population of this research was the first grade students of SMAN 1 Bandar Sribhawono. There were five (5) classes and one class was taken as a sample. The sample was selected using purposie random sampling through lottery drawing. The chosen class was X_1 consisted of 31 students.

6. Conducting Pretest

Pretest was given before the writer applied the treatment to measure the improvement of the students' speaking ability of recount text before being taught through jigsaw technique. The test was an oral production test in the form of telling the past story/ experiences based on the form of recount text. The material that was attached in appendices was about performance about recount text. For example, the researcher showed the picture of Raden Kartini and then asks the students to presented the result of their ideas and background knowledge about what they have known about Raden Kartini. Those materials were tested related to the School-Based Curriculum/ KTSP which were suitable for their level. Pretest was given to know how far the competence of the students in speaking skill before the treatment. The test was hold for 90 minutes. The researcher conducted three times of tests by giving the different topic in every test.

7. Conducting Treatment

After giving pretest to the students, the researcher gave treatment using jigsaw technique by using recount text given as a media. The treatment was conducted for three (3) times in which took 90 minutes in each meetings by using three different topics concerning: *A Study Tour to Bali*, *My Grandpa's Funeral in Toraja*, and *My Holiday ... Unpredictable but Fun*. The researcher taught speaking skill of recount text by using jigsaw technique in the experiment class. The researcher asked the students for doing cooperatively with their group, in which the procedures of teaching speaking through jigsaw technique as follows:

a. Pre Activities

b. While Activities

c. Post Activities

8. Conducting Posttest

The researcher administered posttest after giving the treatment, in which was hold for 90 minutes.It was aimed to see the development of the students' speaking ability after they applied and use jigsaw technique with recount text given as a media in speaking class. Based on the time series design that was used by the researcher in this research, the posttest was conducted in three times after each meeting or after each treatments. The form of the test was subjective test. Furthermore, the researche gave different topics in every test, in which was done orally and directly. The procedures in posttest was similar to the pretest, in which the teacher asked the students to perfomed their story of the recount text in front of the class with their group with the similar topic to the pretest. The researcher asked the students to express their ideas and tell what they have got from the recount text given by the teacher related to each topic of recount in their *home group*, in which after that the students shared their story by using jigsaw through recount text in front of the class with their *expert group*.

9. Analyzing the Data (Pretest and Posttest)

After collecting the data, the researcher analyzed the data by referring to the rating scale namely speaking ability and then interpretation of the data was done. Then, the researcher was also analyzed the mean score of pretest and posttest of the students by comparing the two raters based on the test. The data were computed

through SPSS version 17 and Ms. Excel. The hypothesis was analyzed at the significance level of 0.05 in which the hypothesis is accepted if sig < α.

3.5 Criteria for Evaluating Students' Speaking

The form of the test was subjective test since there was no exact answer. In this test, the researcher used *inter-rater reliability* to assessed the students' performance, in which the performance then were given score and were recorded together by the researcher as the first rater and the English teacher of SMAN 1 Bandar Sribhawono as the second rater. The rater gave the score by recording the students' speech performance. The researcher recorded the students' utterances because it will helps the raters to evaluate the data more objectively.

In fulfilling the criteria of a good test, validity and reliability of the test should be considered. They were as follows:

3.5.1   Validity of the Test

The test can be said valid if the test measures the objective to be measured and suitable with the criteria (Hatch and Farhady, 1982: 250). To measure whether the test in this research had a good quality, the types of validity used in this research were *content validity* and *construct* validity.

a. Content Validity

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: 251). It is correlated the test with the educational goal sated on 2006 English curriculum and the syllabus for the first year of SMA's students.

In content validity, the test is a good reflection of what has been taught and the knowledge which the teacher wants his students to know. It can best be examined by the table of specification (Shohamy, 1957: 74). Below are the table of specification:

No	Aspects of Speaking	Theories
1.	Pronunciation	Pronunciation refers to the ability to produce easily comprehensible articulation (Syakur, 1987).
		It refers to the intonation patterns (harris, 1984).
2.	Grammar	Grammar is needed for the students to arrange a correct sentence in creating a conversation.
		It is one of the ability of the students to manipulate and to distinguish appropriate grammatical form in appropriate ones (Heaton, 1978: 5).
3.	Vocabulary	Vocabulary means the appropriate diction which is used in communication (Syakur, 1987).
4.	Fluency	Fluency refers to the ease and the speed of the flow of the speech (Harris, 1974: 81).
		It also can be defined as the students' ability to speak fluently and accurately. Signs of fluency include a reasonably fast speed of speaking and a small numbers of pauses (Brown, 1974: 4).
5.	Comprehension	It defines that comprehension for oral communication which requires a subject to respond to speech as well as to initiate it (Syakur, 1987).

b. Construct Validity

Construct validity is concerned with whether the test is actually in line with the theory of what it means to know the language (Shohamy, 1985: 74) that is being measured, it examines whether the test actually reflects what it means to know a language. It means that the test measures certain aspects of speaking: *pronunciation, grammar, vocabulary, fluency,* and *comprehension* based on the indicator.

3.5.2 Reliability of the Test

Reliability refers to extend to which the test is consistent in its score and gives us an indication of how accurate the test score are (Hatch and Farhady, 1982: 244). The concept of reliability stems from the ideas that no measurements is perfect even we go to the same scale there will always be differences.

Inter - rater reliability was applied in this research in order to ensure the reliability of the score and to avoid the subjectively of the researcher. To achieve the reliability in judging the students' speaking performance, the researcher used a speaking criteria based on Harris (1974), in which the focus of speaking skills that have been asses are; *pronunciation, grammar, vocabulary, fluency,* and *comprehension.* The second rater was the English teacher who has been experienced in rating students' speaking, in means of getting a consistent and fair judgement. The statistical formula for counting the reliability was as follow:

$$\textbf{R= 1} - \frac{6.\sum d^2}{N\ (\ N^2-1\ \ )}$$

Where:

R   : Reliability

N   : Number of Students

D   : The Different of Rank Correlation

1-6 : Constant Number

(Shohamy, 1985: 213) in Haryanti (2010: 39)

After finding the cooeficient between raters, the researcher then analyzed the cooeficient of reliability with the standard of reliability according to Slameto (1998: 147) in Hayanti (2010: 38) as follow:

A very low reliability   (range from 0.00 – 0.19)

A low reliability   (range from 0.20 – 0.39)

An average reliability   (range from 0.40 – 0.59)

A high reliability   (range from 0.60 – 0.79)

A very high reliability   (range from 0.80 – 0.100)

After calculating the data, the result of the reliability can be seen as the following tables:

Rater's Reliability

Reliability	Pretest	Posttest	Criteria
	0.86	0.99	Very high reliability

From the calculating and the criteria of a reability above, it can be concluded that the reliability of the rater is high, in which it means that the way of the first's rater of scoring was similar to the researcher's. They have almost the same scoring system.

3.6 Oral Production Test

The researcher conducted an oral production test lasted for 90 minutes in each meeting. In conducting the tests, the researcher provided a topic. Each group had to make an orientation of the story, list of events of the story, and the re-orientation of the story about the main generic structure of recount text that was

related to the picture given by the teacher. The test was done orally and directly, in which the teacher then divided 31 students, so there were 6 students in each group. The teacher divided the groups based on their pretest score. In addition, the students were organized into a heterogeneity level of speaking ability based on the score in pretest. The teacher called each of the group one by one to come in front of the class to perfomed their past story/ their past experience based on the topic given by the teacher. The researcher asked the students to speak clearly since the students' performance was being recorded during the test. The material for the test was taken from the topic related to recount text of their handbook.

The form of the test was subjective since there was no exact answer. The teacher gave the score of the students' speaking ability based on the oral rating sheet provide. The teacher assessed the students concern on five aspects that should be fulfilled by the students in speaking skill; *pronunciation, grammar, vocabulary, fluency, and comprehension*. In scoring the test, the researcher used inter - rater. The one was the researcher itself, and then the other one was the English teacher of SMAN Bandar Sribhawono. During the process of evaluating the students' speaking ability scores, the researcher and the another rater who was the class teacher, listened to the students' record carefully and used the oral English. The researcher recorded the students' utterance because it helped the raters easy to evaluate them and made them more objectively.

The rating sheet was modified from Harris (1974). Based on the oral rating sheet, there were five (5) aspects of speaking skills that should be tested, namely

pronunciation, grammar, vocabulary, fluency, and *comprehension*. Below are the

Sample Oral - English Rating Sheet of Harris (1974):

Pronunciation

___5. Has few traces of foreign accent.
___4. Always intelligible, though one is conscious of a definite accent.
___3. Pronunciation problems necessitate concentrated listening and occasionally lead to misunderstanding.
___2. Very hard to understand because of pronunciation problems. Must frequently be asked to repeat.
___1. Pronunciation problems so severe as to make speech virtually unintelligible.

Grammar

___5. Makes few (if any) noticeable errors of grammar or word order.
___4. Occasionally makes grammatical and word-order errors which do not, however, obscure meaning.
___3. Makes frequent errors of grammar and word order which occasionally obscure meaning.
___2. Grammar and word-order errors make comprehension difficult. Must often rephrase sentences and/ or restrict himself to basic patterns.
___1. Errors in grammar and word order so severe as to make speech virtually unintelligible.

Vocabulary

___5. Use of vocabulary and idioms is virtually that of a native speaker.
___4. Sometimes uses innapropriate terms and/ or must rephrase ideas because of lexical inadequacies.
___3. Frequently uses the wrong words; 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 as fluent and effortless as that of a native speaker.
___4. Speed of speech seems to be slightly affected by language problems.
___3. Speed and fluency are rather strongly affected by language problems.
___2. Usually hesitant often forced into silence by language limitations.

___1. Speech is so halting and fragmentary as to make conversation virtually impossible.

Comprehension

___5. Appears to understand everything without difficulty.
___4. Understands nearly everythig at normal speed, although occasional repetition may be necessary.
___3. Understands most of what s said at slower-than-normal speed with repetitions.
___2. Has great difficulty following what is said. Can comprehend only "social conversation" spoken slowly and frequent repetitions.
___1. Cannot be said to understand even simple conversational English.

Note: The interpretation of grading system was as follows:

Identification of the scores.

If the student got   5, so 5 x 4 = 20

4, so 4 x 4 = 16

3, so 3 x 4 = 12

2, so 2 x 4 = 8

1, so 1 x 4 = 4

For example:

A students got 5 in pronunciation, 2 in grammar, 3 in vocabulary, 4 in fluency, and 3 in comprehension. Therefore, the student's total score would be:

Pronunciation   5 x 4 = 20

Grammar   2 x 4 = 8

Vocabulary   2 x 4 = 8

Fluency   4 x 4 = 16

Comprehension   3 x 4 = 12

It means that the student got 64 for speaking.

The oral production score was based on the five (5) components and can be compared in the percentage.

3.7 Data Analysis

In order to find out the improvement of the students' oral production before and after being taught through jigsaw technique by using recount text, the researcher examined the students' score by using the following steps. The first step was transcribing the students' speech performance, in which the researcher recorded the students' spoken work and transcribed into written form. The second step was scoring the pretest and posttest of the student's scores from the two raters using rating scale of Harris (1974)

The data of pretest (T1) and posttest (T2) scores can be seen on the table below:

Student's Name	Pronunciation		Grammar		Vocabulary		Fluency		Comprehension		Total	
	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
A												
B												
$\sum N =$												

The data of inter – rater reliability scores of pretest and posttest can be seen on the table below:

No	Student's Code	Rater 1		Total	Rater 2		Total
		Pretest	Posttest		Pretest	Posttest	
1							
2							
3							
4							

The third step was calculating the mean scores of the data such as minimum score and maximum score to know the mean of the test, in which to know the improvement by comparing both pretest and posttest and makes a graphic on the data. Hatch and Farhady (1982) stated that there were three posibilities of analysis result, shown by graphic below.
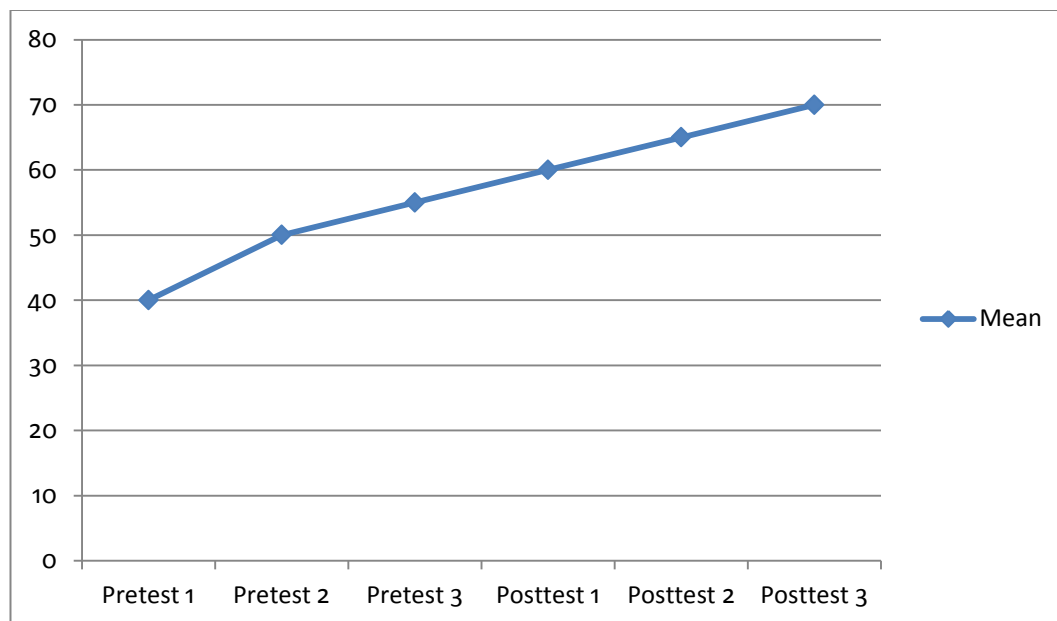
3.8 Hypothesis Testing

The hypothesis testing of this research would be:

H_0 : There is no significant difference between the pretest and posttest scores

        of the students' oral production ability in recount text before and after

        being taught through jigsaw technique.

H_1 : There is a significant difference between the pretest and posttest scores

        of the students' oral production in recount text before and after being

        taught through jigsaw technique.

The criteria are:

1. H_1 is accepted, if the t-ratio is higher than t-table.

2. H_o is accepted, if the t-ratio is lower than t-table.