

CHAPTER III

RESEARCH METHOD

This chapter discussed the research design and method, subject of the study, research instrument, variable, validity and reliability testing, normality and homogeneity test, data collection, data analysis and scoring rubric.

A. Research Design

This part highlight the research design which has been chosen by the researcher based on the way to gain the data. This study is conducted by using quantitative experimental research and using quasi experimental research or non randomized controlled group, pretest post test design as the design. This design is similar with randomized experimental design in that they involve manipulation of an independent variable but differ in that subjects were not randomly assigned to treatment groups. According to Ary (2010) Non randomized controlled group, pretest post test design is one of the most widely used quasi experimental design in educational research. In quasi experimental research, random selection or random assignment of participants is completely impractical. Lapp and Fisher (2011: 402) said that quasi-experimental studies burden participants for the experimental and observational groups with methods other than random assignments.

The principle of this experiment is that researchers provide treatment to a group of people and then analyze changes in their behavior, then compared with other groups that are not treated (Alsa, 2003: 19). This experiment used a good

pre-test and post-test in which one group of students from the experimental group and another from the control group participated. In this study, the treatment that was given is applying jigsaw technique in teaching and learning process of speaking comprehension in the class.

According to Sudaryanto (2009:19) quasi-experimental study consists of three main characteristics:

1. the independent variables are manipulated,
2. the control or control all other variables except the independent variable,
3. the observation or measurement of the dependent variable as the effect of independent variables

Table 3.1 the design of the study

| Group | Pretest | Independent Variable | Posttest |
|-------|---------|----------------------|----------|
| E | Y1 | X | Y2 |
| C | Y1 | - | Y2 |

This research had two kinds of variables. The first variable is independent variable. Independent variable is a variable that is changed or controlled in a scientific experiment to test the effects on the dependent variable. The independent variable in this research is Jigsaw technique. The second variable is dependent variable. Dependent variable is a variable that being tested and measured in a scientific experiment. The dependent variable in this research is students' speaking skill and students' motivation.

B. Subject of the Study

a. Population

A population was a group of elements or case, whether individuals, objects, or events, which according to certain criteria and where research result are common. In this case, the population of this research was the students of Tenth Grade of Kauman Senior High School Tulungagung in academic year of 2018/2019. There were five classes of grade X. there were X IPA 1, X IPA 2, X IPA 3, X IPS 1, and X IPS 2. The total numbers of students were 174 students.

b. Sample

A sample is a group in research study on which information is obtain. Johnson and Christensen (2008: 329) state quasi-experimental research design is an experimental research design that does not provide for full control of potential confounding variable. Full control is not achieved because participants cannot be randomly assigned to groups. To obtain the sample of this study, the researcher chose a control and experiment class based on the available classes of the tenth grade students of Kauman Senior High School Tulungagung. The tenth grade students of Kauman Senior High School Tulungagung have the same chance to be the subjects of this study.

On the advice of an English teacher at Kauman Tulungagung High School, the researchers took two classes as research samples, grades X IPS 1 and X IPS 2. The researcher identified them as research samples, one as

an experimental class and the other as a control class by dividing the students in each class into groups. Each group consists of five students. Finally, after dividing the students, the researcher found that the two classes may have seven groups. To make Panorama technology work as a researcher's prediction, the researcher decides the X IPS 1 class as experimental group and X IPS 2 class as the control group. The details in the table are as follows:

Table 3.2 Subject of the research

| No. | Class | Quantity |
|------------|--------------------------------|-----------------|
| 1. | X IPS 2 (the control group) | 35 |
| 2. | X IPS 1 (the experiment group) | 35 |
| Total | | 70 |

C. Research Instrument

Research instrument is tool of collecting data that should be valid and reliable. According to Arikunto (2006:149) the device of the researcher use to collect data is called instrument. Instrument has important function in this research. The instruments used to get data are test and questionnaire. The explanation about them discussed below:

a. Test

Arikunto (2006:150) states that “test is a series question, exercise or other means which are used to measure the skill, knowledge, intelligent, ability or talent that have by individual or group”. In this research, the researcher used the same test between control group and experiment group. The material of the test is taken from English book which related to

their subject and based on senior high school curriculum. This test used to measure on the students' speaking achievement between control group and experiment group in Kauman Senior High School Tulungagung. Before doing treatment and test, the researcher did a tryout test to measure the validity and reliability of the test.

b. Questionnaire

Questionnaire is used to assessed the students motivation toward jigsaw technique. The questionnaire that used by the researcher here was MSLQ self report questionnaire. The Motivated Strategies for Learning Questionnaire (MSLQ) is a self report instrument designed to measure students motivational beliefs and strategy use. According to Artino (2005) The MSLQ was developed using a social-cognitive view of motivation and self-regulated learning. The MSLQ included items concerning students motivation, use of cognitive strategies, use of metacognitive strategies and use and management of effort. In this model, student motivation is directly related to their ability to self-regulate their own learning activities.

D. The Validity and the Reliability of the Research Instrument

a. The validity of the research instrument

An instrument is valid if it is able to measure what is desirable and it can reveal the data of the variables appropriately (Arikunto, 2006: 158). In this study, the instrument used is a speaking test. Validity is used to determine how much these instruments have

reflected the results. The test was constructed based on the course outline of the tenth grade SMA curriculum. The validity that was applied in the speaking test was face validity, content validity and constructs validity.

a. Face Validity

Face validity indicates whether the test looks correct or not, from the appearance of whether the element measures the desired side. If the test measures what the test writer wants to measure, we say that the test has validity. Thus, face validity does not refer to what is measured by the test, but to what "seems to measure" the test. Test content should not appear inappropriate and irrelevant.

Although this is not an effective way to evaluate the validity of a test and therefore is not usually used, it can be used as a first step in validating a test. Furthermore, this method helps the test maker to review the test items that are suitable for the purpose. When tests are made quickly or when tests are needed and there is no time or space to determine validity in other effective ways, face validity can be determined.

When seen clearly, the test used to assess students' speaking abilities is in the form of command sentences to convey an idea. In this case, researchers give orders to students to talk in front of the class about a subject that is in accordance with the

curriculum taught by the teacher. Because face validity is clear that the researcher gives orders to students to practice speaking skills, it can be said that the test has been validated by face validity.

b. Content Validity

To guarantee the validity of the instrument, the researcher applied the content validity in which it refers to the degree to which the test represents the parts of category tested (Suharto, 2003:69). The speaking test used in this study employs the content validity. In this study, the reading comprehension test was developed in reference to the materials which were based on the standard competences and the basic competences of the School Based Curriculum of the tenth grade of Kauman Senior High School Tulungagung. The detail is illustrated in the following table.

Table 3.3 The Basic Competence and Learning Objectives

| Text Structure | Basic Competence | Learning Objectives |
|---|--|--|
| Recount text (Opening, event, closing) | <ul style="list-style-type: none"> • Distinguish social functions, text structure, and linguistic elements of several texts recount • Capture contextual meaning related to social functions, text structures, and elements linguistic text recount license and related personal experience. • Composing oral, short and simple, related to | <ul style="list-style-type: none"> • Identify the contents, social functions, text structure, and linguistic elements of the text simple recount of personal experiences. • Explain the contents of the text that tells the personal experience correctly with pay attention to the purpose of communication, text structure, and linguistic |

| | | |
|--|--|--|
| | experience personal, by paying attention to social functions, text structure, and linguistic elements, correctly and in accordance with the context. | elements of the text recount according to the context of use. • Tells personal experiences verbally with attention social function, text structure, and linguistic elements of recount text in context. |
| Narrative text (orientation, complication, resolution) | <ul style="list-style-type: none"> • Differentiating social functions, text structure, and linguistic elements of some oral narrative texts by giving and asking for information related to folk legends, simply, in accordance with the context of their use. • Capturing contextual meaning related to social function, text structure, and linguistic elements of narrative text, simple verbal related to folk legend. | <ul style="list-style-type: none"> • Explain the purpose of communication, text structure, and linguistic elements from simple oral narrative texts about folk legends in the context of their use. • Explain the contents of oral folklore stories by paying attention to goals communication, text structure, and linguistic elements of narrative text according to context its use. Tells the people's legend verbally by paying attention to the purpose of communication, the structure of the text, and the linguistic elements of the narrative text according to context its use. |

c. Construct Validity

Construct Validity was concerned with whether the test is actually in line with the theory of what it means to know the language that was being measured, it would be examined whether the test question actually reflect what it means to know

a language. In this research the researcher focused on speaking ability in forms of individual presentation with the topics; recount and narrative based on Curriculum 2013.

b. The reliability of the research instrument

Johnson and Christensen (2008: 144) state that reliability refers to the consistency or stability of the test scores. After that, researcher used *inter-rater reliability* to measure the reliability of the instrument. To obtain inter-rater reliability, researcher used correlation coefficient among two raters (Interclass Correlation Coefficient). Inter-rater reliability is the degree of agreement between two or more raters or scorers.

The Statistical Formula for Counting the Reliability Is As Follow:

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

Notes:

R = Reliability

N = number of students

d = the different of rank correlation

1-6 = constant number

(Shohamy, 1985)

The Standard of Reliability

A very low reliability ranges from 0.00 to 0.19

A low reliability ranges from 0.20 to 0.39

An average reliability ranges from 0.40 to 0.59

A high reliability ranges from 0.60 to 0.79

A very high reliability ranges from 0.80 to 0.100

Slameto (1988:147) in Susan (2001: 10)

E. Source and Data Collection

The procedure of collecting data is divided into three steps, those are try-out, test, scoring, and questionnaire. Each of the steps are presented below:

a. Try-out

The researcher conducted the try-out before using the instrument to collect the data in order to find out the validity and reliability of the instrument. The try-out of the speaking test was done on the some students of X IPS 1 class and X IPS 2 class of Kauman Senior High School Tulungagung. The result of the validity of speaking test showed that the test was valid, because most of students who joined the try out test got a good result. The result of the reliability of the speaking test showed that the test is reliable. The result of the reliability coefficient of the instrument was 0.905.

b. Test and Implementation of the Research

After validating the reading comprehension test, the researcher conducted the pre-test to know the students' speaking ability before the jigsaw technique treatment. Both of experimental group and control groups received the same pre-test. The pre-test was conducted in X IPS

1 class (the experimental group) and X IPS 2 Class (the control group). The treatment was conducted in 4 meetings and had 90 minutes of duration for each. After that, the post test was done. Both experimental group and control groups received the same post-test.

c. Scoring

The researcher got the score of speaking skill from the pre-test and post test. The pre-test and post-test are individual presentation with the same instruction, to assessed the students presentation, the researcher used an analytic scoring rubric that adapted from a rating scale that developed by ESL teachers Portfolio Assessment Group.

d. Questionnaire

To assess the students motivation, the researcher provided some questionnaires. It was conducted in both experimental and control class. It aimed to find out students' motivation toward English teaching and learning after using jigsaw technique.

F. Data Analysis

There were two techniques of analyzing the data used in this study, namely descriptive and inferential analysis. In this research, the program of SPSS 20 computer program for windows was used to analyze the data.

a. Data Categorization

Categorization is needed to determine the data distribution of the students' speaking score of control group and experimental group. The ideal mean score (M_i) and the ideal standard deviation (SD_i) were found first to make the categorization. The ideal mean is $\frac{1}{2} \times (\text{maximum score} + \text{minimum score})$ from the highest possible score and the ideal standard deviation is $\frac{1}{6} \times (\text{ideal maximum score} - \text{ideal minimum score})$. The maximum score was 30 and the minimum score was 0. From the formula, the researcher found that the ideal mean was $\frac{1}{2} \times (30 + 0) = 15$. The ideal standard deviation was $\frac{1}{6} \times (30 - 0) = 5$.

b. Descriptive Statistic

The descriptive statistics aimed at describing the result of the data. It employed the result of the mean and the standard deviation of the scores. The statistics used in the research are the mean and the standard deviation. The mean was the total of all scores or sum of all scores divided by the number of the scores. It was used to know the position of the group, whether it is in high or low position. Whereas the standard deviation was the average variability of all scores around mean.

c. Inferential Analysis

The inferential analysis was employed to make inferences about the population based on the data obtained from the sample. It was used to test the hypothesis whether there was significant difference between

the students who were taught using Jigsaw technique on their speaking class and those who were taught without using Jigsaw technique. The statistics used in this computation are test of normality, test of homogeneity, and test of hypothesis.

1. Test of normality

The normality test aimed to know whether the data distribution of the responses in the population met the normal distribution requirement or not. In the research, the test was done by using the Kolmogorov Smirnov test. Theoretically, if the level of significance is higher than 0.05, it means that the scores have a normal distribution.

2. Test of homogeneity

It is used to analyze whether the samples of variance are homogenous or not. The test used in this research is Levene's test. The samples are considered homogenous if the level of significance is more than 0.05.

3. Test of hypothesis

The test of hypothesis is applied to find out whether the hypothesis is accepted or rejected. In order to test the hypothesis, the MANOVA was applied. Theoretically, the hypothesis is accepted if the level of significance is lower than 0.05. In the research, the researcher used SPSS version 20 computer program

for windows to analyze the normality test, the homogeneity test, and the hypothesis testing.

After getting the data, the researcher analyzed the data by using an analytic scoring rubric that adapted from a rating scale that developed by ESL teachers Portfolio Assessment Group to determine the students score of speaking in experimental group and control group. Here are the rubric of oral test:

Table 3.4 The Assessment of Oral Test

| Focus/ Ratings | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------|--------------------------------|---|--|---|--|--|
| Speaking | Begins to name concrete object | Begins to communicate personal and survival needs. | Begins to initiate conversation, retells a story or experience, asks and responds to simple questions. | Initiates and sustains a conversation with descriptors and details, exhibits self confidence in social situations, begins to communicate in classroom settings. | Speaks in social and classroom settings with sustained and connected discourse, any errors do not interfere with meaning | Communicate competently in social and classroom settings |
| Fluency | Repeat words and phrases | Speaks in single word utterances and short patterns | Speaks hesitantly because of rephrasing and searching for words | Speaks with occasional hesitation | Speaks with near narrative fluency, any hesitations do not interfere with communication | Speaks fluently |
| Structure | | | Uses predominantly present tense verbs, demonstrates errors of omission. | Uses some complex sentences, applies rules of grammar but lacks control of irregular forms | Uses a variety of structures with occasional grammatical errors | Masters a variety of grammatical structures |
| Vocabulary | | Uses functional vocabulary | Uses limited vocabulary | Uses adequate vocabulary, some word | Uses varied vocabulary | Uses extensive vocabulary but may lag |

| | | | | | | |
|-----------|----------------------------------|--|--|--|--|---|
| | | | | usage irregularities | | behind native speaking peers |
| Listening | Understands little or no English | Understands words and phrases, requires repetition | Understands simple sentences in sustained conversation, requires repetition. | Understands classroom discussions with repetition, rephrasing, and clarification | Understands most spoken language, including classroom discussion | Understands classroom discussion without difficulty |

(O'Malley and Pierce, 1996)

Beside the technical of scoring through six scales above, the researcher scaled the rating classification as follows:

| Classification | Scale | Rating |
|----------------|----------|--------|
| Excellent | 86 – 100 | 6 |
| Very Good | 71 – 85 | 5 |
| Good | 56 – 70 | 4 |
| Fairly Good | 41 – 55 | 3 |
| Poor | 26 – 40 | 2 |
| Very Poor | < 25 | 1 |

(Daryanto, 2007)

According to the classification above, the score of students' speaking skill is interval. Because, the students' test rating show their classification scale that each rating has different scale classification. Beside that, the score of students' motivation is ordinal. It means that the score did not have scale classification. The score of students' motivation only show the rank whether the students got the highest score or the lowest score. The highest score have ranked 6 (maximum rank) and the lowest score have ranked 1 (minimum rank).

Because the dependent variable has different kinds of data score (ordinal and interval), so the interval data could be treated ordinally by using the rank

order. The researcher analyzed the score of students' speaking skill and students' motivation using Manova.