

CHAPTER III

RESEARCH METHOD

This research investigated the effectiveness of jumbled paragraph game in teaching reading comprehension to the eleventh graders at SMAN 4 Sidoarjo. This chapter describes in detail the method of investigation. The description of the method is divided into several points. Those are research design, population and sample, research procedure, setting of the study, data and source of the data, research instrument, data collection technique and data analyze technique.

A. Research Design

For the purpose of this research, experimental design was utilized. In conducting this research, the researcher applied a quasi-experimental design. Quasi-experiment design involves an independent variable manipulation that subjects cannot be randomly assigned to either the experimental or control group. This design has the control group, but it cannot fully control external variables that affect the implementation of the experiment.¹ To know whether jumbled paragraph game is effective to teach reading comprehension, the researcher compared two groups, the experimental group and the control group. Under this quasi-experimental design, the two groups were given tests. The design is represented in the following figure.

¹ Donald Ary, *introduction to Research in Education 8th ed.* (USA: Wadsworth, 2010) 316

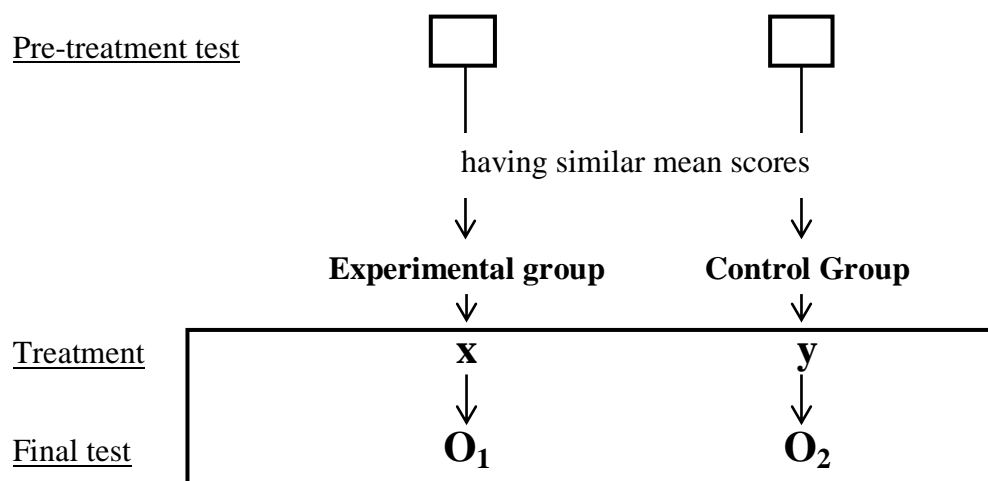


Figure 3.1. Quasi Experimental Design

Explanations:

= giving pre-treatment test to the classes to see if those classes have similar mean scores.

x = treatment in the experimental group, i.e. teaching reading comprehension using jumbled paragraph game

y = treatment in the control group, i.e. teaching reading comprehension using silent reading.

O₁ = giving final test to the experimental group

O₂ = giving final test to the control group

In the experiment, the researcher had two classes that have the similar skill in English lesson based on the recommendation of the English teacher in the school. Pre-treatment test was used to measure the students' reading

comprehension before treatment and also to know if those classes have similar mean scores. On 22nd July 2013, the researcher gave pre-treatment test to the classes. The test contains a narrative text about fable with 20 multiple-choice questions. (see Appendix 8). On the 23rd and 24th, the experimental group was given treatment of teaching reading using jumbled paragraph game. The researcher used narrative text as a material based on the second semester standards based curriculum used in teaching reading. The treatment took ninety minutes for each day. On the same days, the control group was taught by using silent reading. This is the teaching technique that is usually used to teach reading comprehension by English teacher of this school. Directly after the treatment in the second meeting, final test was administered to the experimental and the control groups. From this final tests, data on the students score were collected for analysis.

B. Population and Sample

Under quasi-experimental design, the population and sample of the study have to be clearly defined. This section describes the population and sample of this study.

1. Population

The population of this study is the students of SMAN 4 Sidoarjo in academic year 2013/2014. It consists of 840 students.

2. Sample

Part of the population is called a sample. There are 3 classes of the eleventh grades at SMAN 4 Sidoarjo taught by the same English teacher. They are IPA 3, IPA 4, and IPA 5 classes of the eleventh grades. The researcher had two classes as the sample of this study based on the recommendation of the English teacher at the school. The sample consists of 70 students, 35 students of experimental group (IPA 4) and 35 students of control group (IPA 5).

C. Research Procedure

For implementing this research, the researcher had designed a procedure as a guide. Table 3.1 below is the procedure for this research.

Table 3.1. Procedure of the Research

Date	Time	Activity	
		Experimental group	Control Group
July, 23 rd 2013	90 minutes	Implementation of jumbled paragraph game (1 st meeting)	Implementation of Silent Reading –Teaching technique that is usually used to teach reading comprehension by English teacher of this school (1 st meeting)

July, 24 th 2013	70 minutes	Implementation of jumbled paragraph game (2 nd meeting)	Implementation of Silent Reading – Teaching technique that is usually used to teach reading comprehension by English teacher of this school (2 nd meeting)
July, 24 th 2013	20 minutes	Final test (to measure whether teaching reading comprehension using jumbled paragraph game is more effective than using silent reading)	

On 23rd-24th July 2013, the researcher gave special treatment for the experimental group. In other words, the experimental group was taught using jumbled paragraph game technique in reading comprehension skills while the control group was taught using traditional technique (silent reading). In this research, the researcher's role was as the teacher who gave treatments to the students of the experimental and the control group in form of teaching reading comprehension. The treatments were carried out for 90 minutes for each meeting.

1. Experimental Group

The treatment in the experimental group was teaching reading comprehension using jumbled paragraph game. It was assumed that jumbled paragraph game would help the students in understanding the text. The process of using jumbled paragraph game is very simple that it helps the

students to remember vocabulary that they have gotten easily. The game can also make the students interested to read.

a. First Treatment

The first treatment was given on July, 23th 2013. In this time the students were taught to use jumbled paragraph game. The theme of the activities was about fable.

The first treatment was started with the greeting and sharing the purpose of the study. Before giving treatment by using jumbled paragraph game, the teacher showed a picture of fable about the lion and the mouse. The teacher divided the students into six groups of five students. The teacher put one student with high score, some with average and low scores based on the scores of pre-treatment test².

Next, the teacher conducted warming up activity to attract the students' attention on the topic which had been written on the whiteboard. The teacher also asked them to start their work in each group. On the paper, they wrote the vocabulary related to the topic.

After doing warming up, the teacher explained all about narrative text, like its generic structure, the composition characteristic of paragraphs, the content of these paragraphs, and so forth. This activity was about 10 minutes. And then, the teacher gave each group the same jumbled paragraph cards (see Appendix 1) and a glue tap. The students

² Test conducted on July, 22nd 2013

arranged the jumbled paragraph cards into a good text. They had to determine the generic structure of the text. It could simplify them to arrange the paragraph. They comprehended the text easily when did that activity. The procedure of jumbled paragraph game activity can be represented:

- 1) The teacher divided the board into 6 parts by making a line and wrote the name of each group on the top.
- 2) The students were asked by the teacher to discuss with their group about the paragraphs that were scrambled.
- 3) The students were asked to rearrange the jumbled paragraph, that they were gotten by the teacher, to be a good text in a correct arrangement. This activity is about 20 minutes.
- 4) The students were allowed to use dictionary but they were not allowed to open their book.
- 5) The students were asked by the teacher to determine generic structure of the text. To do this activity, the students had to comprehend each paragraph.
- 6) One member of each group were asked by the teacher to put the first paragraph on the board by using glue tape as quickly as possible. Then, they had to hide their answer (the paragraph that their groups think was correct) until all of groups had put their answer in the board.

- 7) The groups who put the correct paragraph was given some questions by the teacher about the paragraph to know how far they comprehend the story of the first paragraph. The questions are like:
 - a) What does the paragraph tell about?
 - b) In generic structures, is it resolution? Complication? Or introduction?
 - c) Why.... (is this paragraph called introduction, complication, or resolution)?
- 8) The groups who put the wrong paragraph were asked to listen.
- 9) The groups who put the wrong paragraph were asked to take the paragraph on the board back.
- 10) The teacher asked the students to put the second paragraph to the board with this instruction –show me the second paragraph!
- 11) Then, the teacher repeated the previous activity until the last paragraph.
- 12) The teacher gave a reward in the form of star to each group who put the correct paragraph in each section. The group that arranged jumbled paragraph corretly had successfully work with their group to comprehend the text.
- 13) After all the paragraphs were pasted on the board, the teacher gave some question to each group about the story of each paragraph to evaluate their comprehension.

The post activity, the teacher asked each group to mention vocabulary that they did not understand the meaning. This activity was used to solve the problem of each group who did not comprehend the text. Then the teacher instructed a member of the winner group to be volunteer to retell the story by translation from English to Bahasa Indonesia.

b. Second Treatment

The second treatment was held on July, 24th 2013. In this time the students were taught to use jumbled paragraph game with different text story from the first meeting but with the same theme. It was about fable. The same theme aims to enrich students with the concerned vocabulary to simplify students in understanding the text. The activities of the teaching learning process were similar to the first treatment. The text was about the four friends with a slightly longer story than the text in the first meeting.

The second meeting was not so different from the first meeting. The treatment was started with the greeting and sharing about the purpose of the study. Before giving treatment by using jumbled paragraph game, the teacher showed a picture of fable (animal story). The teacher gave some questions about the picture and the students answered orally. The students were asked to think of a word related to

the picture. This activity was used as warming up to make students pay attention to the topic.

At the beginning of the lesson, the students were divided into 6 groups just like in the first meeting. The teacher gave the same jumbled paragraph cards (see Appendix 1) and glue tape to each group. The students arranged the jumbled paragraph card into a good text. They had to determine the generic structure of the text. It could simplify them to arrange those paragraphs. This activity was about 20 minutes. They comprehended the text easily when they did that activity.

Third, every group showed the right paragraph card, one card at a time starting from the first paragraph and put it on the whiteboard with glue tape. The teacher evaluated the paragraph card and gave questions to every groups about the paragraph. The group that arranged the jumbled paragraph correctly had successfully work with their group to comprehend the text.

In the post activity, the teacher asked each group to mention vocabulary they did not know. This activity was used to solve the problem of each group who did not comprehend the text. Then, the teacher instructed one of the students to be volunteer to read by translation.

2. Control Group

The researcher used silent reading as a traditional teaching, the way of teaching that is usually used by English teacher of this school to teach in the control group. Before teaching, the researcher conducted observations to know how the teacher teaches reading in the class. After conducting observation in the class, the researcher did this technique as the teacher does.

The control group was taught without using jumbled paragraph game as in experimental group. Each teaching process in the control group is described below.

a. First Meeting

The first meeting was held on July, 23th 2013. In this time the students were taught by using traditional technique (silent reading). The theme of this meeting was about fable. And the teacher used Bahasa Indonesia as language to teach.

The first meeting was started with the greeting and sharing about the purpose of the study. Then, the teacher ordered the students to open the book and gave some explanation based on the subject. The procedure of this activity is represented below.

- 1) The students were asked by the teacher to read the text in book silently. This activity was about 20 minutes.

- 2) The teacher asked the students to mention some words that they do not understand the meaning. Then, the teacher informed the meaning.
- 3) The teacher pointed one of students to read a line in the text. Then, the teacher pointed the other to translate directly.
- 4) The teacher repeated the activity until the whole text had been read.
- 5) The students were assisted to work individually.
- 6) The teacher helped the students who could not translate.
- 7) The other students were asked to write the translation on their book.
- 8) The students were asked to answer some questions in the textbook. This activity was about 15 minutes.
- 9) The students were pointed one by one to write the answer on the whiteboard. The teacher said 'Kamu mengerjakan nomor 1! Kamu nomor 2!'...and so on.
- 10) In the post activity, the teacher asked some of the students to retell the story.

b. Second Meeting

The second meeting was held on July, 24th 2013. In this time the students were taught to use traditional technique. The theme of this meeting was the same as the first meeting.

The second meeting was not so different from the first meeting. The treatment was started with the greeting and sharing about the

purpose of the study. The teacher asked the students to open the book. After that, the teacher asked the students to read silently. Then, the teacher asked them to translate the text one by one and the students were assisted to work individually. The teacher pointed students one by one to read and then translate directly, if one of them could not translate, the teacher helped them to translate. In the post activity, the teacher asked some of the students to retell the story.

3. Final Test

Final test was held on July, 24th 2013 at the end of the lesson. The test was given to the experimental group and the control group. It was a narrative text about fable with 10 multiple-choice questions.

D. Data Collection Technique

The researcher collected the data by conducting tests. The researcher gave the test after treatment to measure whether teaching reading comprehension using jumbled paragraph game is more effective than using silent reading.

E. Instrument of the Research

Since this study is quantitative, the main instrument is a tool used to collect data in order to answer of the research question. When the instrument becomes a crucial part in a research, the researcher has to use a good instrument

because it can influence the quality of the data which are collected by the researcher.

The data needed by the research in this study are scores. To get the data the researcher used the instrument. The instrument used in this research was an objective test, and the researcher used one type of objective test, *multiple-choice type*. This is because multiple-choice type can be scored objectively and can measure learning directly.

Initially, there were 20 questions in the test. The researcher took the questions that had significant correlation with the students and that were confirmed to be valid and reliable through reliability and validity test in try-out test. The test items were taken from some compulsory books in the school such as *Developing English Competencies for Grade XI of Language Programme Senior High School* written by Achmad Doddy³, *Interlanguage: English for Senior High School Students XI* written by Joko Priyana⁴ and student work sheet (*Lembar Kerja Siswa*). The answers to the questions of the test were calculated to measure the students' comprehension of the material that was given.

In developing the instruments, the researcher analyzed the validity and the reliability of the instruments.

³ Achmad Doddy, *Developing English Competencies 2: for Senior High School (SMA/MA) Grade XI*, (Jakarta : Pusat Perbukuan, Departemen Pendidikan Nasional, 2008)

⁴ Joko Priyana, *Interlanguage : English for Senior High School Student XI Language Study Programme*, (Jakarta : Pusat Perbukuan, Departemen Pendidikan Nasional, 2008)

1. Reliability of the Research

The researcher used the internal consistency reliability testing. This was conducted by trying out the instrument once, and then the results of the analysis were used to predict the reliability of the instrument. Instruments testing, both validity and reliability, were not tested on all respondents when the data collection process had been completed, but the preliminary sample of at least 30 respondents.⁵ The scores were used in this instrument produces dichotomy scores (1 and 0). So in measuring whether the test is reliable or not, the researcher used KR 20 formula (Kuder-Richardson). The data was calculated by using manual calculation (see Appendix 7).

$$r_i = \frac{k}{(k-1)} \left\{ \frac{s_t^2 - \sum p_i q_i}{s_t^2} \right\}$$

Note : k = Number of items in the test
 s_t^2 = Variance total
 p_i = means of the number of item answered
 q_i = $1 - p_i$

2. Validity of the Research

For this research, the validity used is content validity. The researcher tested the validity of instrument to the English teacher about the relationship between the accuracy of the contents of the instrument with the grading or indicators of the curriculum. The researcher also testd the validity

⁵ Suliyanto, *Metode Riset Bisnis*, (Yogyakarta: CV Andi Offset, 2006), p. 152

of each item of question through Pearson Product Moment test (see Appendix 6).

After conducting instrument validity test to the result of pre-treatment test, it was found that only 10 out 20 items were valid (see Appendices 6 and 7). To increase the instrument reliability, the researcher omitted invalid items and took valid items as the questions of final test. Therefore, in this research, the test consisted of 10 items with four alternatives. The alternatives include one correct answer and three wrong answers. There is a passages followed by 10 questions.

The marking scheme used in this study is 1 (one) for the correct answer and 0 (zero) for the incorrect answer. Furthermore, the formulation which is used to score is as follows.

$$\text{Score} = \frac{\text{total of correct answer}}{\text{number of question}} \times 100$$

F. Data Analysis Technique

- Test

After collecting data from the students' test, the data were analyzed.

The researcher analyzed the data of the students' comprehension from the student' test. There were some steps used in this research in calculating the score of the students.

1. The first step was used to compare mean of the experimental group and the control group. To calculate the mean of test score in each group, the researcher calculated the mean with the following formula:

$$\bar{x} = \frac{\sum x}{n}$$

Note : \bar{x} = mean
 $\sum x$ = the sum of the x scores
 N = the number of the students

2. The next step is normality test

Data of the research that has been taken by the researcher was tested first to determine the characteristics of the data. A type of testing that was carried out was the normality test. The goal is to determine whether the data obtained from research activities have normal distribution or not.

If the data have normal distribution, it means that the data can be representative of the population and the data can be calculated using parametric statistics.

In this study, the researcher used SPSS to test the normality of the data. The researcher used Kolmogorov-Smirnov test formula.

3. Homogeneity test

Test the equality of two variances was used to test whether the distribution of the data is homogeneous or not, by comparing the two

variances. If two or more sets of data have equal variances, then the homogeneity test is not necessary anymore because the data is considered to be homogeneous. Homogeneity test can be performed if the data is in a group of normal distribution.

In this study, the researcher used F-test because testing the two groups of data. The following formula was used:

$$f = \frac{\sigma^2_{higher}}{\sigma^2_{lower}}$$

Note : $f = \text{homogeneity test}$

$\sigma^2 = \text{variance}$

4. To test the hypothesis of the related samples between experimental and control group, the following formula was used:⁶

Separated Variance formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

- If $n_1 = n_2$ and $\sigma_1^2 = \sigma_2^2$ (homogeneous),
with $df = n_1 + n_2 - 2$
- If $n_1 = n_2$ and $\sigma_1^2 \neq \sigma_2^2$ (heterogeneous),
with $df = n_1 - 1$ or $n_2 - 1$
- If $n_1 \neq n_2$ and $\sigma_1^2 \neq \sigma_2^2$ (heterogeneous),

⁶ Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta, 2011), p. 138

with $df = n_1 - 1$ and $n_2 - 1$.

Then, the result of $t_{\text{label(higher)}} - t_{\text{label(lower)}} : 2$.

or

Polled Variance formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

- If $n_1 = n_2$ and $\sigma_1^2 = \sigma_2^2$ (homogeneous),
with $df = n_1 + n_2 - 2$
- If $n_1 \neq n_2$ and $\sigma_1^2 = \sigma_2^2$ (homogeneous),
with $df = n_1 + n_2 - 2$
- If $n_1 \neq n_2$ and $\sigma_1^2 \neq \sigma_2^2$ (heterogeneous),
with $df = n_1 - 1$ or $n_2 - 1$

Note:

t	= the t-test
\bar{x}_1	= mean of experimental group
\bar{x}_2	= mean of control group
s_1	= standard deviation of experimental group
s_2	= standard deviation of control group
n_1	= the number of experimental group students
n_2	= the number of control group students

H₀ : stated that teaching reading comprehension using jumbled paragraph game is not more effective than silent reading to the second grade students at SMAN 4 Sidoarjo.

H_a : stated that teaching reading comprehension using jumbled paragraph game is more effective than silent reading to the second grade students at SMAN 4 Sidoarjo.

Explanations:

H_a will be accepted if $t_{\text{value}} < t_{\text{table}}$

H_o will be accepted if $t_{\text{value}} > t_{\text{table}}$

t_{value} is the score gotten from calculation using the formula of t-test, while t_{table} is the score gotten from t distribution.

5. Then, standard deviation was calculated with the following formula:

$$S = \sqrt{\frac{\sum d}{N}}$$

Note :

S	= Standard Deviation
$\sum d$	= the sum of the d scores
N	= the number of the students

6. The last step is drawing a conclusion.