CHAPTER III
RESEARCH METHOD

In this chapter contained about sources of data, subject, setting of research, research design, research variable, instruments and procedures of experimentation, scoring technique and also method of data analysis.

A. RESEARCH DESIGN

Research design played an important role in a research because the quality of research greatly depended on the design. In this research, the writer used the quantitative form approach to analyze the data. As Michael J Wallace said that "Quantitative is broadly used to describe what can be counted or measured and can therefore be considered objective".[1]

1. Experimental Research

Experimental research is one of the most powerful research methodologies that researchers can use. The experiment is the best way to establish cause and effect relationships among the variables. Yet experiments are not always easy to conduct.[2]

Experimental research involved into two groups: experimental group and control group. The experimental and control group are consisting of tenth grade students of SMK Bhakti Kencana Subah Batang. An experimental group received a new treatment while control group received a usual treatment. According to David Nunan, experiment is designed to collect data in such a way that threats to the reliability and validity of the research are ministered.[3] This study are used in pre-test and post-test.

The design of the experiment could be described as follows:

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[1]Michael J Wallace, *Action Research for Language Teacher*, (Cambridge: Cambridge University Press, 1998), p. 38.
[2]Jack R. Fraenkle, Norman E. Wallen, *How to Design and Evaluate Research in Education*, (New York: The McGraw-Hill Companies, 2006) 6th Ed, p. 267
[3]David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 47.

$$\frac{E\ 01\ X\ 02}{C\ 03\ Y\ 04}$$

Adopted from Arikunto.[4]

Where:

E = experimental group

C = control group

01 = pre-test for experimental group

02 = post test for experimental group

03 = pre-test for control group

04 = post test for control group

X = treatment by using scrambled pictures

Y = treatment without using scrambled pictures

From the design above, subjects of research were grouped into an experimental group (top line) and a control group (bottom line). The quality of subjects was first checked by pre-testing them (01 and 03). Then, the experimental treatment (taught by using scrambled pictures) was applied to the experimental group, while the control group was taught without scambled pictures. The test was held in the form of speaking by telling the story. The results of post-test (02 and 04) were then computed statistically.

Activiies should be conducted in experimental and control class as follows:

2. **The Activities of Experimental Group**

a) Pre-test

Pre-test was given before treatments. First, the writer came to the class and then, he explained about the materials to the students. Finally, he distributed the instruments and asked them to do the test orally.

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[4]Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006)., p. 86.

b) Activities in Experimental Group

There were some activities in experimental group (Class X A) as follows:

No	Activities	Time Allotment
1	1) Teacher explains about the material to the students. 2) Teacher invites students to make examples narrative text by tell the story about legenda (reminded the student about story). 3) Teacher asks students to work in group and asks one of them to speak narrative. (under the teacher controlled).	3x45'
2	1) Teacher distributes scrambled pictures. 2) Teacher asks students to work in group and asks them to speak the story based on the scrambled pictures given.	2x45'
3	1) Teacher distributes the scrambled pictures. 2) Teacher asks students to work in group and asks them to speak narrative based on the scrambled pictures given.	2x45'

c) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' ability after they were given treatments. The result of test was analyzed statistically.

3. The Activities of Control Group

a) Pre-test

Pre-test was given before the treatment. First, the writer came to the class and then, she/he explained to the students what they had to do. Finally, he distributed the instruments and asked them to do the test.

b) Activities for control group

There were some activities in control group (class X B) as follows:

No	Activities	Time Allotment
1	1) Teacher explains to the students about narrative text. (without scrambled pictures) 2) Teacher invites students to make one story (about their experience).	3x45'
2	1) Teacher explains about narrative text. 2) Teacher give the example and asks all of students to do it.	2x45'
3	1) Teacher explains how to speak narrative text. (without scrambled pictures) 2) Teacher tells the stories and asks all of students to reply the stories by their version.	2x45'

c) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' ability after they were given treatments. The result of test was analyzed statistically.

B. THE SUBJECT OF THE RESEARCH

This study was conducted in SMK Bhakti Kencana Subah Batang located at Jalan Subah Batang 51274. The subjects of this study were the tenth grade students of SMK Bhakti Kencana Subah Batang in the academic year of 2010/2011. This study was conducted in the first semester. The writer did not take all students as the subjects of the study, but drew a sample.

1. Population

Devinition of population is a group whom the researcher would like to generalize the result of the study.[5] The population of the research was the tenth grade students SMK Bhakti Kencana Subah Batang in the academic year of 2010/2011 which consisting of three class. Classes X B consisted of 25 students, X C consisted of 20 students and X A consisted of 25 students. The total population was 70 students.

2. Sample

A sample is a group in research study on which information is obtained. The research is an experimental research, so the researcher needs to take two classes that will be an experimental and control class as the sample from three classes of the population. The researcher used purposive sampling technique to determine the two classes. It was done by taking the subject/sample which is not based on strata, random or area but it is based on the consideration of a certain purpose.[6] The consideration that the researcher tried to complete in preliminary research was the sample that will be chosen has to be homogeny, so that the research will be a good and valid research. Because we know that something that can be compared is something that has the similar characteristic. The researcher took class X A and X B, because based on the result of the pre test, these two classes gained similar average ability and considered as homogeneous class. Students in class X A was taught by using scrambled pictures and

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[5]Jack R. Fraenkel and Norman E. Wallen, *Op. Cit.*, p.93
[6]Suharsimi Arikunto, *Op.Cit.,* p. 139

considered as experimental group. While students in class X B was taught without using scrambled pictures and considered as control group.

C. RESEARCH VARIABLES

According to Fred D. Kerlinger as cited by Arikunto, that all experiments have one fundamental idea behind them; to test the effect of one or more independent variables on a dependent variable, it is possible to have more than one dependent variable in experiments.[7]

This research, that used role as method in teaching speaking narrative text, had two variables. Those variables were:

1. The independent variable

Independent variable is the variable that the experimenter changes within a defined range; it is the variable in whose effect the experimental is interested.[8] The independent variable of this research was the use of scrambled pictures in teaching speaking narrative text.

2. The dependent variable

Dependent variable is variable that measures the influence of the independent variable.[9] The dependent variable of this study was the students' ability in the speaking test score in narrative text.

D. TIME AND SETTING

This research was conducted on the first semester in the academic year of 2010/2011 for about two weeks began from 7 October 2010. It was conducted in SMK Bhakti Kencana Subah Batang, which was located on Jalan Subah Batang.

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[7] Suharsimi Arikunto, *Prosedur Penelitian, op.cit.,* p. 119.
[8] Larry B. Christensen, *Experimental Methodology,* (Massachusetts: University of South Alabama,2001), 8th Ed, p. 145.
[9] *Ibid.*, p. 145

E. METHODS OF DATA COLLECTION AND ANALYSIS

1. Source of Data

The data of this research were gathered from the oral test of students' in pre-test and post-test through srambled pictures in speaking narrative text and the documentation of students' previous summative test score.

2. Success Indicators

The indicators of speaking teaching learning are as bellow:

a. The improvement of students' speaking skill through the use of scrambled pictures.

b. Students' speaking ability with the minimum standard of score (KKM) speaking 6.0

3. Methods of collecting data

a. Test

Test is a set of questions and exercises used to measure the ability or capacity of the individual or group.[10] In order to discover how students are thinking and using the target language (English). The researcher will conduct oral test in scrambled pictures technique. The form of the test was direct test item of speaking because the writer put the students in group and asked them to practice in speaking narrative text based on the scrambled picture given. The picture is about the story that are given by scramble not based on cronological story". The writer analyzed the result of the test and gave score. The test will be conducted to both control class and experimental class which consist of 25 students of control class and 25 students of experiment class in form of speaking narrative text to evaluate students' speaking before and after the treatment. The scoring system will pay attention to the Three aspects of speaking scoring; vocabulary and grammar, discourse management and pronunciation.

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[10]Addision Wesley Longman, *Teaching by Principle : An Interactive Approach to Language Pedagogy*, (New York : A Person Education Company, 2001), 2nd Ed, p.384.

Test is used to measure the person's competence and to achieve the objective. The data was collected by giving speaking test. Speaking was conducted twice, there are pre-test and post-test. The form of the test is direct speaking test and the teacher gave scores on pronunciation, grammar, vocabulary, fluency and comprehension.

b. Documentation

The researcher needed another data to help run the research. In addition to do that, data will be collected through documentation of the students' previous examination score from the school. It will be used to validate the sample.

Documentation of students' speaking test recording is used to evaluate students' speaking skill.

4. **Scoring Technique**

In each test, the students tell the story about the topic based on the scrambled pictures that has been given by the teacher. The scrambled picture about the story of "Sleeping Beauty". The researcher gave speaking test to the students to analyze their scores on pronunciation, grammar, vocabulary, fluency, and comprehension.

In giving scores to the students, the writer used analytic scale which categorized by some categories and the writer follows these scoring criteria for each category. This analytic score has five items and each item scores five. So, the maximum score is 25. But it will be multiplied with 4, so the final maximum score will be 100.

Analytic scoring of speaking could be seen on the following figures:

Aspects	Score	Description
Pronunciation	5	Have few traces of foreign accent.
	4	Always intelligible, though one is conscious of a definite accent
	3	Pronunciation problem 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 and word order.
	4	Occasionally makes grammatical and/or word order errors which do not, however obscure the meaning.
	3	Make 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 inappropriate terms and/or must rephrase the idea because of lexical inadequate
	3	Frequently uses the wrong words; conversation somewhat limited because of inadequate vocabulary.
	2	Misuse of word and very limited vocabulary make comprehension quite difficult.
	1	Vocabulary limitations so extreme as to make conversation virtually impossible.
Fluency	5	Speed as fluent and effortless as that of a native speaker.
	4	Speed of the speech seems to be slightly affected by language problem.
	3	Speed and fluency are rather strongly affected by language problems.
	2	Usually hesitant; often forced into silent 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	Understand nearly everything at normal

		speed, although occasional 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 with frequently repetitions.
	1	Can not be said to understand even simple conversation virtually impossible.

Based on *"Testing English as a Second Language"*[11]

5. Methods of Data Analysis

There are three kinds of test that will be held in experimental research, they are pre-requisite test, try-out test, and hypothesis test. So there must be three processes of analyzing the data collected from test.

a. Pre-requisite Test

Before the writer determines the sample, the writer should conduct a homogeneity test by choosing 2 classes with cluster random sampling. This test conducted to determine whether the data are homogenous or not. After conducted the test, data analysis was carried out to find out the homogeneity of the sample. It was meant to check if the research result met the requirement of good research or not.

It was meant to get the assumption that sample of research came from a same condition or homogenous. The writer used the formula as follows:

$$F = \frac{Biggest\ Variance}{Smallest\ Variance}$$

b. Try out Test

Try out test is necessary since the result will be used to make sure that the measuring instrument has such characteristics as validity

[11]David P. Haris, *Testing English as a Second Language*, (Washington,DC: Georgetown University, 1969). p. 84.

and reliability. The instrument to be tried out was the composition test. The result of test was used to find out the validity and reliability.

1) **Validity**

Heaton states that validity is the extent to which it measures what is supposed to measure and nothing else.[12] The result was consulted to critical score for r-product moment. If the obtained coefficient of correlation was higher than the critical score for r-product moment, it meant that a paragraph was valid at 5% alpha level significance.

To calculate the validity, the writer used the formula as follows:

$$r_{xy} = \frac{N\sum XY - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left\{N\sum X^2 - \left(\sum X^2\right)\right\}\left\{N\sum Y^2 - \left(\sum Y^2\right)\right\}}}$$

Cited from Arikunto.[13]

Where:

r_{xy} = the correlation of the scores on two halves of the test

N = the number of the students in each group

X = the score of each component of speaking scoring

Y = the sum of all dialogue's score

$\sum X$ = the sum of total X score in each group

$\sum Y$ = the sum of total score from each student

$\sum XY$ = the sum of multiple score from each student with the total score

$\sum X^2$ = the sum of the square score in each component of speaking

$\sum Y^2$ = the sum of all dialogue's score square

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[12]J. B. Heaton, *Writing English Language Test*, (London: Longman, 1975)., p. 153.
[13]Suharsimi Arikunto, *op.cit.*, p. 170.

2) Reliability

Refers to the stability or the consistency of the test scores. Heaton said that reliability is a necessary characteristic of any good test; for it to be valid at all, a test must first be reliable as a measuring instrument.[14] In this study, the reliability of the test was measured by comparing the obtained score with r-score product moment. Thus, if the obtained score was higher than the table r-score, it could be said that the test was reliable.

To calculate the reliability of the test, the writer used the formula as follows:

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_{b^2}}{\sigma_{t^2}} \right)$$

Cited from Arikunto.[15]

Where:

r_{11} = index reliability

k = number of items

$\sum \sigma_{b^2}$ = items variance

σ_t = total variance

To find out the variance of each item, the formula was:

$$\sigma_b^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

To find out the total variance, the formula was:

$$\sigma_t^2 = \frac{\sum Y^2 - \frac{(Y)^2}{N}}{N}$$

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[14]J. B. Heaton, *op.cit.*, p.155.
[15]Suharsimi Arikunto, *op.cit.*, p. 196.

3) Item Analysis

After scoring the try-out test, item analysis was carried out to find out the effectiveness of the items. It was meant to check whether each item met the requirement of good test item or not. Item analysis discussed two main things:

a) Difficulty Level

Heaton states that "*the index of difficulty of an item simply shows how easy or difficult the particular item proved in the test*".[16] If a teacher knows deeply about item difficulty in making a test, he can make his test easy, medium, or difficult.

To know the item difficulty, the writer used the formula:

$$P = \frac{B}{JS}$$

Where:

P   = index of difficulty

B = the number of students who answer an item correctly

JS = the total number of students

The index of difficulty level can be classified as follows:

$0.00 \leq P < 0.30$ is difficult

$0.30 \leq P < 0.70$ is medium

$0.70 \leq P < 1.00$ is easy

Cited from Sukestiyarno and Wardono.[17]

b) Discriminating Power

Item of discrimination power tells how well the item performs in separating the better students from the poorer students. If the good students tend to do well on an item and the poor students do badly on the same item, then the item is a good one because it distinguishes the good students from the

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[16]J. B. Heaton, *op.cit.*, p.172.
[17]Sukestiyarno and Wardono, *Statistika*, (Semarang: UNNES Press, 2009), p. 63..

bad students. As heaton states that "The discrimination index of an item indicated the extent to which the item discriminated between the testee, separating the more able testee from the less able. The index of discriminating power told us if students who perform well on the whole test tended to do well or badly on each item in the test."[18]

To calculate the index of discriminating power, the writer used the formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

Taken from Arikunto.[19]

Where:

J_A = Number of all students in the upper group

J_B = Number of all students in the lower group

B_A = Number of students in the upper group who answered the item correctly

B_B = Number of students in the lower group who answered the item correctly

P_A = The proportion of the upper group who answered the item correctly

P_B = The proportion of the upper group who answered the item correctly

The criteria of determining the index of discriminating are below:

D = 0.00 – 0.20 : Poor

D = 0.21 – 0.40 : Satisfactory

D = 0.41 – 0.70 : Good

D = 0.71 – 1.00 : Excellent

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[18]J. B. Heaton, *op.cit.*, p.173.
[19]Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan,* (Jakarta: PT. Bumi Aksara, 2002), p. 213.

c. Hypothesis Test

Firstly, the test was done in both groups, experimental and control group. Secondly, the result of the test was scored by using analytic scale. Thirdly, the means score of the two groups were determined. Finally, the two means were compared by applying t-test formula. T-test was used to differentiate if the students' result of students' speaking skill in transactional and interpersonal text by using role play and without using role play was significant or not.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

Where:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Cited from Sudjana.[20]

Where:

$\bar{x}_1$ = the mean score of the experimental group

$\bar{x}_2$ = the mean score of control group

n_1 = the number of the experimental group

n_2 = the number of the control group

s = standard deviation

s^2 = variance

If the obtained score was higher than t-table score by using 5% alpha of significance, Ho was rejected. It meant that Ha was accepted: "There was a significant difference in speaking ability between the experimental and control group."

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[20]Sudjana, *Op.Cit.,* p. 239.