CHAPTER III

RESEARCH METHODOLOGY

A. The Research Design

This research is an experimental research. According to Jhon, W. Cresswell, we use experiment when want to establish possible cause and effect between our independent and dependent variables.[1] The design of this research is a quasi experimental design with non equivalent control group. Non equivalent experimental design is one of the most widespead experimental design in educational research involves an experimental group and control group both given a pre test and post test[2]. Furthermore, Gay and Peter Airasian state that quasi-experimental design is used when the researcher keeps the students in existing classroom intact and the entire classrooms are assigned to treatments.[3]

In conducting the research, the writer used two classes. The first class was used as a control class which was taught by using conventional teaching strategy and the second class was used as an experimental class which was taught by using twins strategy. Both control and experimental groups were treated in the same test. According to Cresswell, the type of this research can be designed as follows:[4]

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[1] Jhon, W, Cresswell. *Education Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. New jersey: pearson education, 2008). p. 299

[2] Ibid. p. 308

[3] L. R. Gay and Peter Airasian. *Educational Research Competencies for Analysis and Application. Six Ed*. (New Jersey: Prentice- Hall, 2000). p.394

[4] John.W. Creswell.,Op.Cit.,p.299

Table III. 1
Research Design

Class	Pre-Test	Treatment	Post-Test
Control	X1	No Treatment	X2
Experimental	Y1	Experimental Treatment	Y2

X1 and X2 : Pre-test and post-test for control group

Y1 and Y2 : Pre-test and post-test for experimental group

B. The time and location of the research

The location of this research is the State Senior high School 2 Kerinci Kanan, which is located at Km 58 Bukit Agung Kerinci Kanan – Siak Sri Indrapura. This research was conducted from October until December 2013.

C. The Subject and Object of the Research

1. Subject of the Research

   The subject of this research was the first semester of the second year students at state Senior High School 2 Kerinci Kanan, in the academic year 2013/2014.

2. Object of the Research

   The object of this research was the effect of using Twins strategy and students' speaking ability.

D. The population and the Sample

The population of this research was the second year students at state Senior High School 2 Kerinci Kanan which consisted of 1 class of science

department and 2 classes of social department. The total number of the second year students at state Senior High School 2 Kerinci Kanan was 69 students. It was at class XI IPA and XI IPS. The following is the number of population.

Table III.2
The Population of the Research

No	Class	Total
1	XI IPA 1	27 Students
2	XI IPS 1	21 Students
3	XI IPS 2	21 Students
Total		69 Students

Based on the limitation of the research, the writer took only two classes of social department as the sample of this research. The classes are XI IPS 1 and XI IPS 2, one class as a control class taught without using Twins strategy and one other class as an experimental class taught by using Twins strategy

The sample of the research used cluster sampling. It has to be a group, not individuals. According to Gay, all the member of selected groups have similar characteristics.[5]

E. The Technique of collecting data

[5] L.R Gay and Peter Airasian, op.cit. p. 129

In this research, the writer used oral presentation test to collect the data to find out the students' speaking ability. The test consisted of a topic about narrative text that it was taken from the students' text book. The test was given twice, before and after getting the treatment intended to obtain speaking ability of the second year students at state senior high school 2 Kerinci Kanan.

The data of this research were gotten pre-test and post-test. The data were collected through the following procedures:

a. The students were given pre- test and post-test in oral production test.
b. The students' speaking was recorded by the writer and was backed up into CD. Then it was collected to evaluate the appropriate accent, grammar, vocabulary, fluency, and comprehension.
c. The writer used two raters to score students' speaking ability.
d. The writer was collected and summed up raters' score to get each student's score.

According to Hughes, there are some components that should be considered in giving students' score: they are accent, grammatical, vocabulary, fluency and comprehension.[6] The scoring process will be done by two raters by using the indicators of speaking ability as mentioned below[7]:

Table. III.3

The Indicators of Speaking Ability

a. Accent

[6]Arthur Hughes. Op. Cit. p.131
[7] Ibid. pp. 111-112

Score	Reqiurement
1	Pronunciation frequently unintelligible.
2	Frequent gross errors and a very heavy accent make understanding difficult, require frequent repetition.
3	“Foreign accent” require concentrated listening and mispronunciations lead to occasional misunderstanding and apparent errors in grammar or vocabulary.
4	Marked “foreign accent” and occasional mispronunciation that do not interfere with understanding.
5	No conspicuous mis prononciation, but would not be taken for native speaker.
6	Native pronunciation, with no trace of “foreign accent”.

b. Grammar

Score	Reqiurement
1	Grammar almost entirely inaccurate except in stock phrases.
2	Contrast errors showing control of very few major patterns and frequently preventing communication.
3	Frequent errors showing some major patterns uncontrolled and causing occasional irritation and misunderstanding.
4	Occasional errors showing imperfect control of some patterns but weakness that causes misunderstanding.
5	Few errors, with no patterns of failure.
6	No more than two errors during the interview.

c. Vocabulary

Score	Reqiurement
1	Vocabulary inadequate for even the simplest conversation.
2	Vocabulary limited to basic personal and survival areas (time, food, transportation, family, etc).
3	Choice of words sometimes innacurate, limitations of vocabulary prevent discussion of some common professional and social topics.
4	Professional vocabulary permits discussion of any nontechnical subject with some circumlocutions.
5	Professional vocabulary board and precise; general vocabulary adequate to cope with complex practical problems and varied social situations.
6	Vocabulary apparently as accurate and extensive as that of an educated native speaker

d. Fluency

Score	Reqiurement
1	Speech is no halting and fragmentary that conversation virtually impossible
2	Speech is very slow and uneven except for short or routine sentences.
3	Speech is frequently hesitant and jerky; sentences may be left uncompleted.
4	Speech is occasionally hesitant, with some unevenness caused by rephrasing and grouping for words.
5	Speech is effortless and smooth, but perceptibly non-native in speed and evenness.
6	Speech on all professional and general topics as effortless and smooth as a native speaker.

e. Comprehension

Score	Reqiurement
1	Understands too little for the simplest type of conversation.
2	Understands only show, very simple speech on common social and touristic topics; constant repetition and rephrasing.
3	Understands careful, somewhat simplified speech directed to him or her, with considerable repetition and rephrasing.
4	Understands quite well normal educated speech directed to him or her, but requires occasional repetition or rephrasing.
5	Understands everything in normal educated conversation except for very colloquial or low frequency items or exceptionally rapid or slurred speech.
6	Understands everything in both formal and colloquial speech to be expected of an educated native speaker.[8]

The speaking result was evaluated by concerning on five components in which each component has score or level. The highest score for each component was 20 and the total of all components was 100. The spesification of the test as follows:

[8] Arthur Hughes. Op. Cit., pp . 131-132.

Table III.4

The spesification of the test

No	Speaking Skill	The Highest Score
1	Accent	20
2	Grammatical	20
3	Vocabulary	20
4	Fluency	20
5	Comprehension	20
	Total	100

Then the score was interpreted into the following category:[9]

1. 80 – 100 = A (Very Good)
2. 66 – 79 = B (Good)
3. 56 – 65 = C (Enough)
4. 40 – 55 = D (Less)
5. 30 – 39 = E (Fail)

F. Procedure of the Research

1. Procedure of research for control class

1) Pre-test

Pre- test was given to by the teacher before the students were taught by teacher's strategy. It was used to know the students' speaking ability.

[9] Suhasimi Arikunto. Dasar dasar Evaluasi Pendidikan: Edisi Revisi. (Jakarta: Bumi Aksara, 2009), p. 245

2) Treatment

The teacher taught the students by using conventional teaching strategy. The teacher began the lesson by giving topic and the students explained the topic

3) Post-test

Post test was given to the students after they were taught by using conventional teaching strategy. It was used to know whether the students were able to speak English well.

2. Procedure of research for experimental class

1. Pre-test

Pre –test was given to the students before the students were taught by using twins strategy. It was used to measure the students speaking ability before taught by using twins strategy.

2. Treatment

In treatment, the writer taught the students by using twins strategy. The students were asked by teacher to present their comprehension about pictures by applying twins strategy.

3. Post-test

Post-test was a test that was given to the students after being taught by using twins strategy. It was used to know whether the students could easily speak by using twins strategy or not.

G. The Validity and Reability of Test

The test used for testing students' speaking ability had to have validity and reability. The test is said to be valid if it measures accurately what it is intended to measure.[10] To know the validity of the test, the content validity is partly a matter of determining if the content, it is supposed to represent.[11] Thus, the test was given based on the material studied by the students. The material of the test was taken from the text book used by the second year students at state Senior High School 2 Kerinci Kanan.

Reability is the degree to which a test consistently measures whatever it is measuring. The score of students' speaking ability had to have reliability in order to get the same scores obtained when the tests done were more than once. There are five types of reliability. They are stability, equivalence, equivalence and stability, internal consistency, and rater agreement. In this research, the writer used the rater agreement type of reliability concerned with inter rater reliability as the scores were given by two raters.

Table. III. 5
The Categories of Reliability

No	Reliability	Level of Reliability
1	0.0 – 0.20	Low
2	0.21 – 0.40	Sufficient
3	0.41 – 0.70	High
4	0.71 – 1.0	Very high

[10] Ibid. p. 26
[11] Jack. R. Fraenkel and Norman E. Wallen, How to Design and Evaluate Research in Education(6th ed), (New York: McGrow- Hill, 2006), p. 153

(Taken from Tinambunan in Meltiawati in Zelly)[12]

Table. III. 6
Correlations

		rater1	rater2
rater1	Pearson Correlation	1	.809**
	Sig. (2-tailed)		.000
	N	21	21
rater2	Pearson Correlation	.809**	1
	Sig. (2-tailed)	.000	
	N	21	21

**. Correlation is significant at the 0.01 level (2-tailed).

From the output above, it can be seen that r_o ($r_{obtained}$) is 0.809 correlated to r_t (r_{table}). It is necessary to find the df (degree of freedom).

df = N – nr

df : degree of freedom

N : Number of cases

nr : number of correlated variable

df = 21 – 2 = 19

The writer took df=19 to be correlated either at level of significance of 5% or 1%. At level 5%, r_{table} is 0.433; while at level of significance of 1% r_{table} is 0.549. Thus, the $r_{obtained}$ is obtained higher than r_{table}, either at level 5% or 1%. So the writer concluded that there was a significant correlation

[12] Zelly Putriani, *The Correlation between Reported Speech Mastery and Speaking Ability of the Second Year Students of SMKN 1 Pekanbaru*, (Pekanbaru: Unpublished, 2011), p. 35

between score given by rater 1 and score given by rater 2. In the other words, the speaking test is reliable.

Then, it was calculated by using Spearman-Brown Prophecy Formula as follows:

Table. III. 7
Correlations

			rater1	rater2
Spearman's rho	rater1	Correlation Coefficient	1.000	.823**
		Sig. (2-tailed)	.	.000
		N	21	21
	rater2	Correlation Coefficient	.823**	1.000
		Sig. (2-tailed)	.000	.
		N	21	21

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the table above, it can be seen that the inter rater reliability in this research was 0.823 categorized in to very high level.

H. The Technique of Data Analysis

There are two variables correlated; the independent variable(X) and dependent variable(Y) which are both interval scales. In analyzing the data, the writer analyzed the data by using statistical method. The writer used the score from pre- test and post- test of the experimental class and control class. The technique of data analysis used in this research was t-test formula by

using SPSS (Statistical Packages for the Social Science). The data he appropriate technique is T-test. The formula can be seen as follows[13]:

$$t_0 = \frac{Mx - My}{\sqrt{\frac{SDx}{\sqrt{N-1}}^2 + \frac{SDy}{\sqrt{N-1}}^2}}$$

Where:

t_0 = the value of T-obtained

M_x = mean score of experimental sample

M_y = mean of control sample

SD_x= standard deviation of experimental class

Sd_y = standard deviation of control class

Determining whether there was a significant difference of the students' speaking ability between before and after being taught by using twins strategy for experimental class and those who are being taught by using conventional teaching strategy for control class, the writer used independent sample t-test by using SPSS 16.

Non independent sample t-test is known also as Paired-Sample t-test. The researcher used this formula to obtain the result of the third hypothesis that was to find out whether there was significant effect of using twins strategy toward speaking ability of the second year students at state Senior high school 2 Kerinci Kanan. L.R Gay states that t-test for non

[13] Hartono. *Statistik Untuk Penelitian*. Jogjakarta: Pustaka Pelajar, 2008. P. 178

independent samples is used to compare groups that are formed by some type of matching or to compare a single group's performance on a pre- and posttest or on two different treatments[14]. In this time, the writer used pre-test and post-test score of the experimental class in order to find the significant effect of using twins strategy toward speaking ability of the second year students at state senior high school 2 Kerinci Kanan. To obtain the data, the writer used SPSS 16. The formula of paired-sample t-test:

$$\frac{\overline{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}}$$

To know whether there is any significant difference of research, the writer analyzed it by orienting number of significance. If probability>0.05, null hypothesis (H_o) is rejected. If probability<0.05 alternative hypothesis (H_a) is accepted. By compared t_o (t- obtained) to t- table from df (degree of freedom), the level of significance of 5% and 1%. If t-obtained>t-table alternative hypothesis is rejected. The result of Twins strategy based on considering the degree of freedom:

(df) = (N1-N2)-2 statically hypothesis

Where:

Ha : t- obtained > t – table (accepted)

[14]L.R Gay, Op.cit, p. 488.

H_0 : t- obtained < t- table (rejected)